# CANADIAN HERBB CONFERENCE

**Presenters'** Notes

# Herbalism at the Hearth ONLINE CONFERENCE • NOVEMBER 16-19, 2023



# herbconference.com

info@herbconference.com | 🖸 canadian\_herb\_conference | 🖪 canadianherbconference



### **SPONSORS**

**BLOOM** 





### **SPROUT**

BRAND EST. 1994



**SEED** 



### POLLINATORS











# TABLE OF CONTENTS

The Vehicle Herbal First Aid Kit Presented by 7Song4
Digestive System Herb Actions Presented by Tatum Andrews
Medicinal Benefits of Culinary Herbs Presented by Tatum Andrews
Nuance of Herbal Medicine: The Berberine Herbs Presented by Abrah Arneson Cht. RH
Phytoestrogens And Breast Cancer – A Clinical Review Presented by Chanchal Cabrera, MH
Arnica montana: A Homeopathic Monograph for Practicing Clinical Herbalists Presented by Victor Cirone
Similia Similibus Curentur: A Universal Law of Healing Presented by Victor Cirone
Using Mutual Aid in Community Herbalism Presented by Denise Cusack
Using Permaculture Principles to Design Your Regenerative Herb Garden Presented by Denise Cusack
<b>5 Tips for Writing Herbal Email Newsletters</b> Presented by Camille Freeman
Hawthorn Healing: Ancient Grove, Modern Hedgerow, Highway Mitigation Planting Presented by EagleSong Gardener
Primum Non Nocere; First Do No Harm: Common Drug/Herb Interactions Presented by Cara Gwizd
Herbal Therapies for Heartburn, Reflux, and Gerd Presented by Oren Hercz RHP
Marvellous, Mushy, Marshmallow Presented by Oren Hercz RHP
Delicious Decoctions Presented by Susan Horning, CHT, BBA

Intro to Spagyric Tincture Making Presented by Megan Kendrick, RH	
<b>Plants and Planets</b> Presented by Megan Kendrick, RH	
Fraxinus Excelsior Presented by Dr Rosari Kingston	42
Meet the Aster Family: A visual review of characteristics. Presented by Robyn Klein	44
Addressing Weight Stigma Presented by Kaleigh McGregor-Bales	45
Pharmacological insights into energetic botanical therapeutics Presented by Gabriel Mojay LicAc, CertEd, FIFPA	
The Connection to Plant Medicines, Moon C & Building Relationships Within the Body Presented by Laura Mushumanski	<b>ycles</b>
Natural Dyes Presented by Sarah Orlowski, BFA, MH	
Fertility Autonomy & Herbal Abortion Presented by Ember Peters, RHP (HANS) (they/she)	)55
Gallstones Case Review Presented By Ember Peters, RHP (HANS) (they/she	)
Sacred Smoke: Crafting Incense from local plants for Healing Presented by Maria Recchia	
The Magic Mist Presented by Steven Taylor	
Rhododendron groenlandicum (Oeder) Presented by Rachelle Walker	60
Goulds Natural Medicine – A Brief Introduct Presented by Greg Whitten	<b>ion</b> 64
Principles of Propagation: Exponential Grow Presented by Dane & Storii Wild	<b>′th</b> 65
Somatic Herbalism Presented by Marie Zak & Travis Cartwright	

# CANADIAN HERB CONFERENCE

## herbconference.com

### **Territory Acknowledgement**

The Canadian Herb Conference recognizes that this event is being organized and held on the traditional and unceded territories of the diverse and resilient Indigenous peoples and nations across Turtle Island. On behalf of the herbal medicine community we offer gratitude to the ancestral and current keepers of these lands. We pledge to keep gratitude and humility in our hearts as we deepen our learning of our shared history and will centre the need to take meaningful action to address the past harms and ongoing impacts of colonization in this country we call Canada and within herbal medicine. The CHC is excited to welcome presenters and attendees from across Turtle Island and around the world - as the conference unfolds we encourage all people in the herbal community to research the territory on which they are uninvited guests, and to engage in ongoing reflection and learning on what this means on an individual and collective level as we continue to walk this path together.

### Visit www.native-land.ca to learn more.

### The Vehicle Herbal First Aid Kit

### Presented by 7Song

There are many types and sizes of first aid kits. The focus here is on a mid-sized herbal first aid kit to keep in your vehicle for short and longer excursions. This is a quick overview of some of the remedies to have on hand. There are many other herbal medicines that could be beneficial for the below situations or any other that might arise.

Many of these herbal medicines and products are easy to prepare or purchase.

### Weather: A Major Consideration for Vehicular First Aid Kits

It is best not to leave herbal first aid kits in a vehicle for too long. Variations in temperature and humidity can damage some remedies as well as their containers. Heat is an especial problem, especially with salves, as they can melt and squish out of their tins, leaving quite a mess. Also, heat will cause infused oils to go rancid faster and degrade the rubber tops of tincture bottles.

To counter this, it is helpful to bring the first aid kit inside during very hot days and look through it periodically to make sure all the products and their containers are still in good condition.

### **Practical Considerations**

- 1. Learn to recognize serious health concerns and know when to seek professional medical treatment.
- 2. Have a ready-to-go herbal kit, especially for long road trips. It can be difficult and expensive to find herbal remedies while traveling.
- 3. Keep wildcrafting tools in your vehicle, such as pruners and a hori, to be able to gather your own medicinal plants. You may also want to include a plant field guide.
- 4. Familiarize yourself with treating the most common first aid protocols, such as burns, cuts, and wounds
- 5. Each herb or formula should be checked every few months to ensure they are not empty or outdated.
- 6. When preparing your kit, consider the most common health conditions you and your traveling companions are likely to encounter.
- Keep a checklist of what is in your kit to know what you have available and what may need to be replenished. Keep all items clearly labeled and dated.
- 8. Note that some plants cover a number of conditions, which can reduce the number of medicines in your kit.

### **Herbal Preparations**

The below herbal preparations work well in vehicles due to their stability and usefulness.

**Tinctures**-are applicable for a wide variety of both external and internal conditions. They are one of the most stable herbal preparations.

**Glycerites**-these are also stable and are useful when avoiding the alcohol in tinctures.

**Infused oil**-for external applications, such as sprains and bruises. Oils can go rancid quickly when exposed to direct sunlight and heat.

**Salve**-for external uses such as sores, wounds, and bruises. They can melt and leak in a hot vehicle.

**Liniment**-for external applications such as bruises, sprains, and infections. These medicines are prepared in isopropyl alcohol and are very stable.

### **Planning your First Aid Kit**

The first step in preparing a first aid kit for your vehicle is deciding the most common health issues you encounter. This includes anyone else riding with you. Here are a few common ailments that commonly occur in car rides.

- 1. Digestive upsets and nausea
- 2. Wounds and cuts
- 3. Headaches
- 4. Allergies and asthma
- 5. Pain
- 6. Sprains and strains
- 7. Sunburn
- 8. Stress and anxiety

### **Digestive Upsets and Nausea**

Catnip (Nepeta cataria) Chamomile (Matricaria chamomilla) Fennel seed (Foeniculum vulgare) Ginger (Zingiber officinalis) Meadowsweet (Filipendula ulmaria) Peppermint (Mentha x piperita)

Digestive upsets can arise from a variety of circumstances. Some people get nauseous from just being in a moving car, especially on curvy roads. Also, 'road food' may cause stomachaches. For these predicaments, it is helpful to have a prepared blend (see below). Peppermint spirits may also be beneficial for nausea. It is prepared from dilute peppermint essential oil in peppermint tea. It is given in small quantities due to its essential oil content.

Ginger tincture, as well as Ginger candies, are also helpful for nausea.

### ROAD TRIP DIGESTIVE TINCTURE

Equal parts Catnip tincture Fennel glycerite Chamomile glycerite Meadowsweet tincture

Dosage- $\frac{1}{2}$ -1 dropperful as often as needed for digestive pain or nausea.

### Headaches

Blue vervain (Verbena hastata) Chamomile (Matricaria chamomilla) Feverfew (Tanacetum parthenium) \*Licorice (Glycyrrhiza uralensis or G. glabra) Peppermint roll-on Skullcap (Scutellaria species) Willow (Salix species)

\*Caution-Licorice may potentially raise blood pressure

Headaches are common in car rides, especially during long drives. They can be caused by eye strain, being confined, sun exposure, and the stress of traveling.

Licorice and Willow may help with inflammation and have similar properties to aspirin. Skullcap is helpful for headaches due to muscle tension. Feverfew can sometimes ease migraine-type headaches when taken at the first sign of an oncoming headache. Peppermint oil roll-ons are rubbed onto the temples and are beneficial for tension-type headaches. Chamomile and Blue vervain are a good consideration for stress-induced headaches.

#### HEADACHE TINCTURE

Feverfew 3 parts Willow 2 parts Chamomile 2 parts Blue vervain 2 parts Skullcap 1 part

Dosage-½ dropperful at the first sign of a headache. More can be taken as needed. Start with a small amount as unknown flavors and smells can worsen an individual's headache.

### Allergies and Asthma

Eyebright (Euphrasia species) Ragweed (Ambrosia artemisiifolia) Lobelia (Lobelia inflata)

Asthma and allergies can be brought on by plant pollens or a variety of chemicals while traveling. If you take conventional medicines for asthma, make sure to have them with you.

Eyebright and Ragweed are taken for allergy symptoms such as a running nose, itchy watery eyes, sneezing, coughing, and hives.

Ragweed may seem strange here, as its pollen is a significant cause of allergies, but the leaf of the plant can help relieve these symptoms. When gathering this plant, collect it before the plant starts to flower, which usually begins in mid-summer.



Lobelia can be helpful for breathing difficulty by opening the breathing passages in the lungs. It can be taken along with emergency inhalers such as Albuterol.

### LOBELIA TINCTURE

Dosage-5 drops as often as needed to ease breathing difficulties.

### ALLERGY TINCTURE

Equal parts Ragweed Eyebright

Dosage- ½ dropperful as often as needed for allergy symptoms.

### Wounds and Cuts

### Propolis

Barberry or Oregon graperoot (Berberis species) Chaparral (Larrea tridentata) Echinacea (Echinacea species) St. Johnswort (Hypericum perforatum) Calendula (Calendula officinalis) Comfrey (Symphytum species)

Open wounds and cuts can happen at any time. The main goals are to prevent infection and help with the wound healing process.

Propolis tincture is a practical first-aid remedy as it helps reduce possible infections. It has a sticky consistency, so it stays in place when applied locally. Its tackiness may also help hold Band-aids in place. Oregon graperoot, Barberry, and Chaparral are useful for open cuts and wounds to help prevent infections. They can be applied in tincture, liniment, and salve form.

Echinacea can help stimulate the immune system and increase local tissue recovery.

If the infection appears to be spreading, or if it continues to worsen, seek medical assistance.

After the possibility of infection has passed, a salve of St. Johnswort, Calendula, and Comfrey can be applied to help the skin mending process.

### INFECTION TINCTURE

Barberry (or Oregon graperoot) 3 part Echinacea 3 part Chaparral 2 part Propolis 1 part

Dosage-apply this tincture directly over the wound or cut throughout the day. You can also moisten a dressing with the formula and tape it in place. Make sure the bandage is not too saturated, as that can impede wound recovery.

### Sunburn

Aloe (Aloe species) Prickly pear cactus (Opuntia species) Lavender essential oil (Lavandula species) Honey

Sunburns are a common health issue when traveling, and they can lead to further skin problems if they happen frequently. Protection such as clothing, shade, and sunblock are the most important measures to prevent sunburn, but there are some helpful herbs if you do get sunburned.

A less commonly known sunburn remedy is the inside of Prickly pear cactus. It is used similar to Aloe leaves. A cactus pad is clipped off a plant, and the spines and glochids (hairs) are scraped off. The pads are then cut to expose the moist inner surface. This pulp can be removed and applied directly to the burn, or the cacti can be placed pulp side down and held in place with a self-adhering bandage. This plant may be impractical for many people, but Prickly pear can be found growing in a variety of environments. I have seen it growing wild in West Virginia, Montana, and Michigan, though they are not as common there as they are in the southwest US. The pads can be cut and kept in the fridge and put into a first aid kit when needed. The cacti pads will also stay fresh for many days in a car.

Aloe leaves are used very similarly to cacti. The leaves are cut to expose the moist interior and applied directly to the sunburn. You can also carry aloe gel, which while more convenient seems less effective than the whole leaf.

Honey can assuage sunburn pain and help with skin recovery. Any raw honey will do. It is simply spread onto the sunburned skin. It does have drawbacks. It is messy, and doubly so if you are in a vehicle traveling. Also, it will trap any dust or dirt that it comes into contact with. When using honey, cover it with some light cloth or dressing.

One other sunburn remedy is dilute Lavender essential oil, which also helps with the pain and inflammation as well as helping with tissue repair.

For the discomfort of sunburn, consider some of the pain herbs listed below. These would be taken internally.

### LAVENDER SPRAY

Spray bottle Lavender essential oil Water

Preparation-add 5 drops of Lavender essential oil to each ounce of water. This can be applied as often as desired. Aloe vera gel can also be added to this solution.

### **Anxiety and Stress**

Blue vervain (Verbena hastata)



Chamomile (Matricaria chamomilla) Damiana (Turnera diffusa) Kava (Piper methysticum) Passionflower (Passiflora incarnata) Rose (Rosa species) Tulsi (Ocimum tenuiflorum)

Travel can be a cause of anxiety and stress. All the planning, packing, trip details, and the traveling itself can bring on a sense of uneasiness. There are quite a few valuable plants to help relax and nourish the nervous system. Passionflower and Blue vervain can be used when the mind is wound-up too tightly. Damiana and Kava can have an overall relaxing effect on the body and the mind. If you are the driver, be cautious when using these two as they can cause drowsiness. Chamomile, Tulsi, and Rose have milder but are good overall nervous system tonics. They can be taken regularly to help relax and ease an anxious mind.

### STRESS REDUCING TINCTURE

Tulsi 3 part Rose glycerite 2 part Passionflower 2 part Damiana 1 part

Dosage- 1/2 -1 dropperful as needed for relaxing

### Pain

Hops (Humulus lupulus) Jamaican dogwood (Piscidia piscupula) Skullcap (Scutellaria lateriflora) Valerian (Valeriana officinalis)

Pain can come from many different sources, and it is helpful to figure out the origin of the pain to help prevent future episodes. These four plants are general pain remedies and are beneficial for a range of discomfort and pain. However, these herbs may also cause drowsiness, so please be cautious if using them while driving. They can also all be used to help with sleep due to their sedative effects.

#### **GENERAL PAIN TINCTURE**

Equal parts Valerian Skullcap Hops glycerite Jamaican dogwood

Dosage 1/2-1 dropperful as often as needed to reduce pain.

### **Sprains and Strains**

Arnica (Arnica species) Black birch (Betula lenta) Licorice (Glycyrrhiza glabra, G. uralensis) St. Johnswort (Hypericum perforatum) Willow (Salix species)

Sprains and strains are common occurrences. They can happen when stepping into a hole, falling on one's wrist, or other awkward body moments.

The main goal for these situations is to eventually reduce the inflammation so the body can heal the damaged tissue.

Initially, it is important to avoid putting pressure on the afflicted body part. This will help it recover more quickly. Cold packs are beneficial to help reduce inflammation, especially during the first few days.

For these types of injuries, both internal and external preparations can be used.

#### **SPRAIN TINCTURE**

Equal parts Black birch Willow Licorice

Dosage-1 dropperful every 4 hours for the first two days. Then ½ dropperful every 4-6 hours for 2 days afterward. This can be continued for up to a week.

#### EXTERNAL SPRAIN FORMULA

This medicine can be used as either an infused oil, liniment, or tincture.

Arnica 2 part St. Johnswort 1 part

Dosage-apply this around the sprained or strained area a few times a day.

### **Non-Herbal Supplies**

Some valuable non-herbal first aid items.

- 1. Activated charcoal
- 2. Band-aids and other wound dressings
- 3. Cold pack
- 4. Disposable gloves
- 5. Elastic bandage (i.e., ACE)
- 6. Headlamp
- 7. Self-adhering bandage (ex. Coban, Vetrap)
- 8. Tape
- 9. Tweezers



### Digestive System Herb Actions

#### **Presented by Tatum Andrews**

The digestive system is an important foundation of good health and is often the first system focused on in order to improve chronic health conditions. There are herb actions which restore, repair and bring balance to this very important body system. Knowing the physiological changes these herb actions have on the digestive system, the individual herbs that have these actions, and their specific nuances, allow for a better understanding of their usage.

### **Bitters**

The bitter action is one of the most known and important herb actions for the digestive system. The basic definition is "herbs that stimulate the digestive system." Digestive bitters play a large part in preventative herbal medicine, and there is so much more to explore for this herb action.

Monoterpenes, alkaloids, iridoid glycosides and sesquiterpene lactones are the primary constituents which contribute to the bitter flavour in plants and are known as the "bitter principles." These botanical compounds trigger the bitter receptors on the tongue, which then stimulate many physiological effects within the body, that primarily affect the digestive system.

In current theory, once the bitter principles make contact with the bitter receptors, the vagus nerve is triggered to secrete the hormone 'gastrin' which stimulates digestion and peristalsis. It is important to know that the vagus nerve controls the digestive system via the parasympathetic nervous system and is often referred to as 'rest and digest.' This is opposite of the sympathetic nervous system which is activated when the body is experiencing stress, often referred to as 'fight or flight'. Digestion does not occur during 'fight or flight' as all energy is diverted to other areas of the body, therefore, bitters for someone who is constantly in a state of stress are vitally important for their overall health.

Stimulation of the digestive system creates the following secretions:

- Stomach Hydrochloric acid (HCL) and bicarbonate
- Small intestine Duodenal enzymes
- Pancreas A variety of pancreatic enzymes are increased including proteases for protein, lipase for fat and amylase for starch breakdown. Bitters also assist in regulating insulin and glucagon which are hormones secreted by the pancreas that regulate blood sugar.
- Gall Bladder The action of bitters is to assist in the discharge of bile from the gall bladder into the small intestine from the storage sac, but also all the bile ducts connecting the liver to the small intestine. Bile supports the emulsification and digestion of fats and oils.
- Liver Bile secretion. The liver has many digestive and detoxification functions with physiological functioning that is improved using bitters. Stimulation of the liver provides overall

support for the processing of metabolic waste products, thereby improving detoxification and elimination from the body.

• Secretions from the mucosal membranes that line the entire intestinal tract

As a result of the increase in secretions, the actions of bitters to the digestive system will be appetite stimulation, support of secretion deficiencies, and peristaltic movement of the intestines.

Indications for the bitter herb action include poor appetite, gastric reflux, hypochlorhydria, bilious dyspepsia, steatorrhea, constipation. digestive insufficiency, and common GI complaints- gas, bloating, etc.

Bitters should not be given to anyone who is experiencing acute gallstones due to the ability of bitters to increase the expulsion of bile from the bile ducts. This could potentially cause the gallstones to block the duct which, in turn, can block the flow of pancreatic enzymes to the small intestine leading to possible pancreatitis. Other contraindications for the bitter herbs include pregnancy, acid reflux, gastritis, hiatal hernia, kidney stones, dysmenorrhea, peptic or gastric ulcer and serious inflammatory bowel disease-Crohn's or ulcerative colitis.

The energetics of true bitters will be cooling and drying. To make sense of the drying effect of the bitters, keep in mind that bitters do increase secretions that will moisten local tissues but ultimately, they leave the body causing overall dryness if taken over the long term. Due to the cooling and drying nature of bitters, they are not recommended for someone who tends to be cold and dry to use for long term unless combined with warming and/or moistening herbs to balance out the formula.

Examples of true bitters are Barberry (*Berberis Vulgaris*), Blessed Thistle (*Cnicus Benedictus*), Boneset (*Eupatorium perfoliatum*), Chamomile (Matricaria recutita), Dandelion root & leaf (*Taraxacum officinale*), Gentian (*Gentiana lutea*), Oregon Grape (*Mahonia aquifolium*), Turmeric (*Curcuma longa*), Wormwood (*Artemesia absinthium*), Yarrow (*Achillea millefolium*), and Yellow Dock (*Rumex crispus*).

Along with the true bitter herbs, there are herbs that have subactions or have specific qualities associated with them.

The most notable are listed below:

*Alterative Bitters* - most bitters will be alterative to an extent due to their influence on the liver, there are some bitters that are specifically alterative. Examples of herbs are Barberry (*Berberis vulgaris*), Burdock root (*Arctium lappa*), Dandelion root and leaf (*Taraxacum officinale*), Oregon Grape (*Mahonia aquifolium*, Turmeric (*Curcuma longa*), and Yellow Dock (*Rumex crispus*).

Aromatic Bitters - contain both bitter principles as well as aromatic essential oils which warm up the energetics of the herb. Examples of herbs are Angelica (Angelica spp.), Calamus (Acorus calamus), Chamomile (Matricaria recutita), Calendula (Calendula officinalis) Lavender (Lavandula angustifolia), and Mugwort (Artemesia vulgaris).



*Bitter Nervines* - directly stimulate the digestive system while also calming the nervous system. Examples of herbs are Blue Vervain (*Verbena hastata*), California poppy (*Eschscholzia californica*), Chamomile (*Matricaria recutita*), Hops (*Humulus lupulus*), Lavender (*Lavandula angustifolia*), Motherwort (*Leonurus cardiaca*), Skullcap (*Scutellaria lateriflora*), and Wood Betony (*Stachys betonica*).

### Carminatives

Carminatives are simply stated, an action that eases discomfort caused by gas, bloating and flatulence. This action is achieved through complex volatile or essential oils which also gives them their distinct aromatic quality. Digestion is stimulated and promoted by the carminative action through increased circulation to the gut. The carminative action will help to reduce cramping, tension and spasms in the smooth muscles. Due to the terpene oils, carminatives also provide an anti inflammatory effect on the mucous lining and muscle of the alimentary canal.

Indications for the carminative action include colic, spasms, bloating, gas, flatulence, general indigestion, and inflammatory states of the gastrointestinal tract. They are contraindicated for people experiencing gastric reflux.

The energetics of carminatives are warm and dry. Due to this energetic nature, carminatives are not recommended for long term use by those individuals who are hot and dry unless cooling and moistening herbs are used to balance the formula.

Examples of carminative herbs are Angelica (Angelica archangelica), Bayberry (Myrica cerifera), Black Pepper (Piper nigrum), Caraway (Carum carvi), Cardamon (Eletarria cardamomum), Cayenne (Capsicum annuum), Chamomile (Matricaria recutita), Cinnamon (Cinnamomum cassia), Clove (Sygyzium aromaticum), Dill (Anethum graveolens), Garlic (Allium sativum), Ginger (Zingiber officinale), Horseradish (Armoracia rusticana), Fennel (Foeniculum vulgare), Orange peel (Citrus aurantium), Oregano (Origanum vulgare), Parsley (Petroselinum crisp), Peppermint (Mentha piperita), Rosemary (Rosmarinus officinalis), Sage (Salvia officinalis), and Thyme (Thymus vulgaris).

There are carminative herbs that have sub-actions or have specific qualities associated with them. The most notable are listed below:

*Bitter Carminatives* - have aromatic essential oils as well as bitter principles. Examples of herbs are Angelica (Angelica spp.), Calamus (*Acorus calamus*), Chamomile (*Matricaria recutita*), Calendula (*Calendula officinalis*), Lavender (*Lavandula angustifolia*), and Mugwort (*Artemesia vulgaris*).

*Cooling Carminatives* - have a cooling rather than warming quality. Examples of herbs are Chamomile (*Matricaria recutita*), Lavender (*Lavandula angustifolia*), Lemon Balm (*Melissa officinalis*), and Peppermint (*Mentha piperita*).

*Nervine Carminatives* - able to switch the body into the parasympathetic nervous system; also have the carminative action making them very beneficial to the digestive system, especially

for those people who have cold nervous digestive complaints. Herb examples are Catnip (*Nepeta cataria*), Chamomile (*Matricaria recutita*), Lemon Balm (*Melissa officinalis*), Motherwort (*Leonurus cardiaca*), and Valerian (*Valeriana officinalis*).

*Circulatory Stimulant Carminatives* - have a stronger pungent taste with a warmer quality; will increase circulation to the gut as well as to the periphery. Herb examples are Angelica (*Angelica archangelica*), Cayenne (*Capsicum annuum*), Clove (*Sygyzium aromaticum*), Garlic (*Allium sativum*), Ginger (*Zingiber officinale*), Horseradish (*Armoracia rusticana*), Oregano (*Origanum vulgare*), Rosemary (*Rosmarinus officinalis*), Sage (*Salvia officinalis*), and Thyme (*Thymus vulgaris*).

### Cholagogue/Choleretic

Cholagogue is an herb action that promotes the flow of bile from the gallbladder, while the choleretic herb action increases production and flow of bile from the liver into the gallbladder and gall ducts. The difference is not very significant as most herbs that are cholagogue are also choleretics. Bile in the digestive system is important as it emulsifies fat and acts as a natural laxative, therefore cleansing the system. These herbs help to keep the liver functioning optimally thus maintaining a strong and healthy liver.

Indications for the cholagogue/choleretic actions include gall bladder disease, pancreatic insufficiency, steatorrhea, constipation, hepatic pain, and bilious dyspepsia. Contraindications for the cholagogue/choleretic actions include the following conditions gallstones, acute bilious colic, obstructive jaundice, acute cholecystitis, acute viral hepatitis, and toxic liver disorders. The energetics of cholagogues and choleretics are cooling and drying.

Examples of cholagogue and choleretic herbs are Dandelion (*Taraxacum officinale*), Gentian (*Gentiana lutea*), Lemon Balm (*Melissa officinalis*), Oregon Grape (*Mahonia aquifolium*), Rosemary (*Rosmarinus officinalis*), Yellow Dock (*Rumex crispus*), and Sage (*Salvia officinalis*).

### Laxatives

Herbs with a laxative action will promote bowel evacuation by hydrating and softening the fecal mass as it travels through the colon and by stimulating peristalsis. There are different types of laxatives including: bulking and stimulant.

*Bulking laxatives* absorb liquid in the intestine and swell to form a soft, bulky stool. The indication for bulking laxatives is occasional constipation. The contraindications are chronic constipation, iron-deficiency anemia, and malnutrition. Examples include flax and psyllium.

*Stimulant laxatives* provoke defecation by causing the smooth muscles in the intestines to spasm and contract. These should not be used for prolonged periods as dependency can be formed. These herbs contain anthraquinone glycosides.



The indication for stimulant laxatives is atonic constipation which occurs when the intestinal muscle tone is reduced, and peristaltic movements are impaired. The contraindications are constipation with mucosal inflammation and diarrhea. Examples include Senna and Cascara Sagrada as well as Yellow Dock (Rumex crispus) which is the gentlest of these herbs but still quite effective.

### Astringents

Generally, the astringent action tightens and tones tissues making them useful for tissues with excessive secretions of moisture and weak mucosal membranes. The primary constituent in astringent herbs are tannins. They can address many areas of the body however for the digestive system they are indicated for peptic ulcers, diarrhea, hemorrhage, inflammation of the mucosal membranes, lesions, and leaky gut syndrome. The contraindications for astringents are constipation, iron-deficiency, anemia, and malnutrition. The energetics of astringents are drying.

Examples of astringent herbs specifically used for the digestive system include Raspberry (*Rubus idaeus*), Blackberry root (*Rubus fruticosus*), Sage (*Salvia officinalis*), Meadowsweet (*Filipendula ulmaria*), and Agrimony (*Agrimonia eupatoria*).

### Demulcents

The demulcent herb action is beneficial for the digestive system in its ability to soothe and protect irritated or inflamed mucosal membranes of the gastrointestinal tract. This is because these herbs contain a complex carbohydrate called mucilage which becomes slimy when it comes in contact with water. Soothing demulcent herbs will ease irritation of the whole GI tract, help prevent diarrhea, lessen digestive muscle spasms that cause colic and reduce sensitivity of the digestive system to bitters and gastric acids.

Demulcents are indicated for mucosal inflammation, hyperacidity, dry mouth, constipation, ulcers, canker sores, dry cracked tongue and burning pain in the GI tract. The contraindications for demulcents are excessive phlegm and an overall excess of dampness in the body. The energetics of demulcents are cooling and moistening.

Examples of demulcent herbs specifically for the digestive system include Marshmallow (*Althea officinalis*), Slippery Elm (*Ulmus rubra*), Plantain (*Plantago major*) and Licorice (*Glycyrrhiza glabra*).

### Anthelmintic

These herbs are used to expel parasites and worms from their living hosts. The indications for anthelminitics are digestive problems such as chronic diarrhea and gas/bloating, malabsorption, itching around anus or vulva and presence of eggs or parasites in the stool. It is recommended that all anthelminitics be used with laxatives. The energetics of anthelminitics are mostly bitter and cooling herbs.

Examples of anthelmintics are Wormwood (*Artemesia absinthium*), Sweet Annie (*Artemesia annua*), Black Walnut (*Juglans nigra*), Garlic (*Allium sativum*), and pumpkin seeds.

### Medicinal Benefits of Culinary Herbs

### Presented by Tatum Andrews

The kitchen is the heart of the home where nourishing meals are shared, and healing medicines are made. Many kitchens are filled with a variety of herbs and spices that can be added to meals to build optimal health. Using herbs and spices in everyday foods is an easy and flavourful way to aid in the digestive process, help reduce inflammation, stimulate metabolism, and provide many other medicinal benefits. Let's explore some of the culinary herbs that are often found in our kitchens.

### Black Pepper (Piper nigrum)

Herb Actions: anthelmintic, anti-inflammatory, antimicrobial, antioxidant, antispasmodic, carminative, circulatory stimulant, diaphoretic, expectorant, rubefacient

Cautions: Large doses could cause nausea and digestive upset.

Black pepper is a warming stimulant that is especially used to promote and support digestion and it has a gentle laxative effect. It is a great circulatory stimulant that increases circulation throughout the body, making it beneficial for people with cold hands and feet or those with arthritic pain. It also has an amazing ability to increase bioavailability of herbs and food, thus increasing the quality and nutrients of herbal formulas and foods.

### Cayenne (Capsicum annuum)

Herb Actions: analgesic, antifungal, antimicrobial, antioxidant, carminative, circulatory stimulant, immunostimulant, rubefacient styptic, stimulating diaphoretic, stimulating expectorant

Cautions: Cayenne is very irritating to the eyes. Cayenne should not be taken in large amounts during pregnancy. People on warfarin or other blood-thinning pharmaceuticals should talk to their doctor before using cayenne.

Capsaicin, a major constituent of cayenne peppers, blocks substance P from relaying pain sensations in your body. Due to this, cayenne is often used topically to relieve many different types of pain including diabetic neuropathy, shingles, migraine headaches, back aches, arthritis, menstrual cramps and other aches and pains. Cayenne is a powerful antioxidant therefore it supports the healthy functioning of the cardiovascular system by decreasing free radical damage to the arteries. Cayenne increases digestive function, supports the health of the lining of the stomach, promotes tissue healing, and addresses secondary infections like the H. pylori. Cayenne peppers can help prevent as well as shorten the duration of a cold or flu by promoting secretions from the mucous membranes which contain antibodies.

### 11

### Cilantro (Coriandrum sativum)

Herb Actions: anti-fungal, antimicrobial, antioxidant, antispasmodic, carminative, diuretic

Cautions: May lower blood pressure levels as well as blood sugar. Use caution if taking drugs for these conditions.

Coriander is a source of Vitamins B, C, & K, phosphorus, calcium, magnesium, iron, phytonutrients, and flavonoids. This herb assists with digestion by relieving intestinal gas, preventing nausea, stimulating appetite, and promoting proper liver function. Cilantro is a chelator which means it binds with heavy metals in the body and removes them.

### Cinnamon (Cinnamomum zeylanicum)

Herb Actions: antimicrobial, astringent, carminative, stimulant, diaphoretic.

Cautions: There are two types of cinnamon- Ceylon & Cassia. Ceylon Cinnamon is referred to true cinnamon & contains more potential health benefits.

Cinnamon promotes digestion while also relieving nausea, vomiting, and diarrhea. It is useful in easing an upset stomach and irritable bowel syndrome. Due to Its warming properties, it can be used for colds and flus. Cinnamon is known to control blood sugar levels as it helps the body use insulin more efficiently. Consuming cinnamon significantly improves brain function and even just smelling it can enhance cognitive processing.

### Coriander (Coriandrum sativum)

Herb Actions: antifungal, antimicrobial, antioxidant, antispasmodic, carminative, diuretic

Cautions: A small number of people are severely allergic. People who are on blood-regulating medication or using insulin should have their blood sugar levels monitored if they are regularly taking coriander as it could lower their blood sugar levels.

Coriander is a carminative herb that is often used to ease digestive symptoms such as frequent bloating, belching, heavy or cold feeling in the abdomen, loose stools with undigested food, thick white tongue coating, scallops on the side of the tongue and fatigue. Coriander seeds have a mild effect on blood sugar levels and could be part of a larger protocol to help regulate blood sugar levels. Coriander seeds are strong antioxidants that can support heart health and have been shown to lower blood pressure and optimize cholesterol levels. Coriander is a mild antimicrobial herb and has been shown to be effective against fungal infections like candida and bacterial infections like urinary tract infections.

### Cumin (Cuminum Cyminum)

Herb Actions: antispasmodic, carminative, circulatory stimulant, galactagogue

Cumin kindles the gastric fire and improves the absorption of minerals in the intestines due to the volatile oils it contains. Cumin is one of the best digestive tonics and is beneficial for dispelling gas and eliminating toxins. It is a mild laxative and an anti-inflammatory. It is often used for chronic dysentery and diarrhea primarily because it is so easily digested. Roasted cumin powder can be used for ulcerative colitis, diverticulitis, and chronic malabsorption. It has antioxidant properties to protect the body from free radicals and is often used as an antidote to morning sickness. Nursing mothers find cumin to increase the flow of mother's milk, while its oil is effective against eczema.

### Dill (Anethum graveolens)

Herb Actions: abortifacient, antifungal, aromatic, carminative

Cautions: Pregnant women should not use dill in highly concentrated, or medicinal doses - it contains apiole, a compound that is a powerful emmenagogue.

Dill helps to dispel gas and its gentle action makes it one of the first choices for treating colic in babies, and stomach upsets in general. Dill has been known to stimulate the lining of the esophagus and assist with removal of acid that normally causes the burning associated with heartburn. It does not actually rid the tube of the stomach acid that comes up, but rather invigorates the muscles to work a bit harder to ingest the agitating acid back into the stomach.

### Fennel (Foeniculum vulgare)

Herb Actions: antidepressant, antimicrobial, antispasmodic, aromatic, carminative, galactagogue, diuretic, diaphoretic, analgesic, febrifuge

Fennel relieves acute indigestion and is beneficial for many digestive issues including gas, bloating, distension, constipation, cramps, colic, and spasms. It is helpful for chronic low-grade diarrhea, nausea, and vomiting. Fennel is an effective remedy for respiratory congestion and can be gargled to relieve hoarseness and sore throats. Nursing mothers use fennel to bring on breast milk flow, increase production, and prevent mastitis. It is often given to babies to reduce spastic colon colic and teething pain.

### Garlic (Allium sativum)

Herb Actions: antibiotic, anticoagulant, anthelmintics, antihistamine, antimicrobial, antispasmodic, cholagogue, circulatory stimulant, diaphoretic, diuretic, expectorant

Cautions: Garlic may thin the blood. It should be discontinued seven days before surgery and should be used cautiously if taking anticoagulant medications such as warfarin (Coumadin) and clopidogrel (Plavix).

Garlic supports heart health especially the optimization of cholesterol levels and reduction of atherosclerosis. Garlic may be a possible ally in guarding against thrombosis or blood clots in the blood vessels based on studies that have shown it to reduce





hyperlipidemia, hypertension, and thrombosis formation. Garlic increases immune system activity, and its spicy quality can be used to relieve congestion in the lungs and sinuses by stimulating mucous flow while helping to thin and expel it from the body. Garlic benefits the digestive system by increasing appetite and addressing stagnant digestive symptoms such as gas, bloating, or a heavy feeling in the stomach. Garlic has been used as an anthelmintics and shown to be quite effective against a wide range of diarrheal pathogens.

### Ginger (Zingiber officinale)

Herb Actions: alterative, analgesic, antimicrobial, antispasmodic, carminative, circulatory stimulant, diaphoretic, emmenagogue, expectorant, rubefacient, sialagogue

CAUTIONS: Large doses are contraindicated during pregnancy because of its stimulant emmenagogue effects. Small amounts of ginger can increase menses and cause menopausal flooding and flushing. It should be avoided in cases of peptic ulcers. It is best to avoid ginger at least one week before surgery since it can have blood thinning effects.

USE: One of the most important functions of ginger is that it is a circulatory stimulant, so it increases blood flow from the core to the periphery. Due to this, it has many cardiotonic benefits to the blood, blood vessels, and heart. It improves circulation, removes blood stagnation, and reduces cholesterol levels. Ginger supports digestive issues such as gas, belching, and bloating and has been shown to increase hydrochloric acid production. Ginger increases the action of the gall bladder, protects the liver against toxins and opens the channels of elimination. It works well to calm nausea & prevent vomiting, making it great for motion sickness and highly effective for morning sickness. It can also be used for painful menstruation and reproductive issues related to pelvic stagnation. Cook with fresh or dried ginger daily if you or someone in your family suffers from migraine headaches, influenza threatens, rheumatoid arthritis is diagnosed, or joint stiffness is a problem.

### Oregano (Origanum vulgare)

Herb Actions: anti-inflammatory, antiseptic of the respiratory system, antispasmodic, carminative, diaphoretic, emmenagogue, expectorant, nervine, rubefacient, vulnerary

Oregano is often used in the treatment of colds and influenza including coughs, whooping cough, and other respiratory ailments. It is beneficial for an upset stomach, indigestion, colic, ulcers, and inflammation of the throat. Oregano has a calming effect which can benefit menstrual cramps as well as nervous complaints such as insomnia. It has been shown to relieve tension headaches and toothaches as well as reduce muscular and rheumatic pain. It has been used externally for infected cut and wounds and to provide relief from stings and bug bites.

### Parsley (Petroselinum crispum)

Herb Actions: antioxidant, digestive, diuretic

Cautions: Should not be used in high doses in pregnancy. It is contraindicated in kidney inflammation & people with osteoporosis should limit their intake.

Parsley is one of the richest food sources of vitamin C, and exceptionally high in magnesium, calcium, iron, and chlorophyll. The leaves eaten with any meal will help prevent gas and makes an excellent breath freshener. It is beneficial to the urinary system and is used for bladder & kidney complaints. Its diuretic action can be applied to conditions such as gout & rheumatism to facilitate the removal of uric acid from the joints.

### Rosemary (Rosmarinus officinalis)

Herb Actions: antioxidant, anti inflammatory, antimicrobial, antispasmodic, astringent, carminative, cholagogue, circulatory stimulant, diuretic, emmenagogue, nervine, nootropic, spasmolytic, stimulant diaphoretic

Cautions: Avoid large amounts during pregnancy. May cause uterine contractions.

Rosemary is a powerful medicine. It improves blood flow to the brain, hence can relieve headaches. It can be useful as a memory aid and has the capacity to improve mood. Rosemary increases the metabolic processes of the body; it helps the body burn up excess sugars and clear them out of the blood stream. As a circulatory stimulant, rosemary will improve blood flow to the periphery and improve cardiovascular function. Rosemary helps to bring blood flow to the digestive system as a warming carminative, making it effective at dispelling gas and bloating. It has an affinity for the liver and gallbladder increasing bile secretions and dilating the hepatic artery. Rosemary can relieve general muscular soreness, weakness from underuse and injury from misuse to more severe arthritic conditions, such as rheumatic pain or gout.

### Sage (Salvia officinalis)

Herb Actions: anti inflammatory antioxidant, antimicrobial, antispasmodic, antiseptic, carminative, estrogenic, uterine stimulant

Caution: Can cause convulsions in high doses. Do not use where high blood pressure or epilepsy is evident. Reduces milk flow in nursing mothers.

USES: Sage aids in the digestion of fatty and oily foods. Sage's volatile oil kills bacteria & fungi, even those resistance to penicillin. Sage dries up phlegm and is useful as a gargle for sore throats, laryngitis, and mouth ulcers. It is a digestive and memory aid. Due to its estrogenic properties, it is used to relieve the night sweats & hot flashes of menopause.

### Thyme (Thymus spp.)

Herb Actions: antioxidant, antimicrobial, antiseptic, antispasmodic, astringent, diuretic, expectorant, nervine, vulnerary

CAUTIONS: Avoid in pregnancy. Children under 2 years of age and people with thyroid problems should not take medicinal preparations of thyme.



A valuable medicinal food, this herb contains a flavonoid that counteracts the activity of dietary carcinogens formed during cooking. Medicinally, it is used primarily to treat respiratory complaints such as bronchitis, asthma, cough due to colds, & sinus congestion. It is used for topical bacterial & fungal skin infections. It is beneficial for digestive problems including diarrhea & flatulence.

### Turmeric (Curcuma longa)

Herb Actions: analgesic, anti inflammatory, antioxidant, antispasmodic, astringent, carminative, cholagogue, styptic, vulnerary

CAUTIONS: People who are currently taking blood thinners, have blood clotting disorders, have known gallstones, and women who are pregnant, or breastfeeding should not take therapeutic doses of turmeric.

Turmeric is a warming herb that promotes digestive secretions. It helps to relieve gas and can soothe inflammation in the digestive tract which is why it is used for diverticulitis, colitis, and irritable bowel syndrome. Turmeric will stimulate bile flow in the liver, and it contains hepatoprotective properties that can help prevent cirrhosis and other harmful processes in the liver. Turmeric can help to normalize cholesterol levels. It is used for the prevention of cold and flus, bronchitis, and sore throats. Turmeric is a strong anti-inflammatory and an exceptional herb for the musculoskeletal system. It is commonly used for chronic joint conditions such as arthritis. Turmeric can be used internally and externally to promote healthy skin, and is regularly used for acne, eczema, psoriasis, and to heal wounds. The powdered root can stop bleeding fast by simply applying it to the wound. Turmeric can help with fungal infections like ringworm and athlete's foot.

### Nuance of Herbal Medicine: The Berberine Herbs

Presented by Abrah Arneson Cht. RH

### A Quick Intro Into Phytoconstituents

### WHAT IS A PHYTOCONSTITUENT?

Phytoconstituent are non-nutrients active plant chemical compounds or bioactive compounds and are responsible for protecting the plants against infections, infestations, or predation by microbes, pests, pathogens, or predators. Some are responsible for colour, aroma and other organoleptic properties. - Anm Alamgir, Therapeutic Use of Medicinal Plants and their Extracts: Volume 2 (pp.25-164) DOI:10.1007/978-3-319-92387-1\_2

### JUST A FEW EXAMPLES OF PHYTOCONSTITUENTS PLANTS MAKE THAT SUPPORT THE HEALTH AND WELLNESS OF THE HUMAN BEING:

• Polyphenols which includes Flavonoids, Anthocyanidins, Isoflavonoids

- Terpenoids which include monoterpenoids (includes menthol), diterpenoids (at least 20,000 in nature) and triterpenoids (includes cannabinoids)
- Saponins: triterpenes & steroid
- Polysaccharides: as found in mucilage and mushrooms
- Alkaloids: nicotine, allantoin, berberine, etc.

### WHAT IS AN ALKALOID?

The word alkaloid was coined in the early 1800s when chemists experiment with diverse number of phytoconstituents discovered that some created alkaline (base) like reactions due containing nitrogen molecules. Berberine was first isolated in 1826 from Southern Prickly Ash (*Xanthoxylon cava*)

To extract alkaloids in tinctures generally a medium to high percentage of alcohol is used. Some herbalist add apple cider vinegar to the menstruum to increase solubility. Alkaloids, preferring alkaline (base) environments, are drawn out of the plant and into menstruum to neutralize the vinegar's acidic nature.

Alkaloids have diverse effects on the human being.

- Allantion: found in comfrey and plantain offers tissue healing effects
- Capsaincin: cayenne's fire and termed a oil-soluble pseudoalkaloid
- Pyrrolizidine alkaloids (PA): 600 different types of PAs some which in large amounts are hepatoxins.
- Purine alkaloids: including caffeine and theobromine in cacao
- Berberine: offering anti-microbial, anti-inflammatory, anti-cancer
   effects

### Berberine

A yellow phytoconsituent found in the roots of some plants from the Berberiecea, Ranunculaceae (Buttercup) and Papaveraceae (Poppy) Families.

### BERBERINE'S ACTIONS AS AN ISOLATED PHYTOCONSTITUENT FROM A REDUCTION POINT OF VIEW:

Anti-inflammatory, anti-microbial (fungi, parasites and bacteria), anti-biofilm, anti-cancer, anti-diabetic (type 2), anti-oxidant, anti-hyperglycemic, cardioprotective, neuroprotective, hepatoprotective, nephroprotective.

### TRADITIONAL MEDICINAL USES OF PLANTS KNOWN TO MAKE BERBERINE:

Choleretic (stimulates release of bile from the liver), cholagogue (releases bile from the gallbladder, bitter tonic, astringent, eye wash, catarrhal hypertrophy (excess phlegm), feeble circulation, wound wash, mucous membrane tonics, and much, much more....

#### OTHER IMPORTANT BERBERINE CONSIDERATIONS:

How Berberine is metabolised by the body and excreted (in other words the Pharmacokinetics).



One its own, as single plant constituent, its passage through the liver changes it considerably and it is poorly absorbed.

It is excreted both in urine and stool. For these reasons, poor absorption and excretion through the large intestine and urinary tract, berberine rich plants are able to moderate the flora of the mucosa lining both lumens.

If you want to take a deep dive into the bioavailability of berberine as a nutraceutical check out this article. <u>https://www.sciencedirect.</u> com/science/article/pii/S266703132100052X

### **Berberine Plants and The Microbiome**

Berberine has a toxic effect on bacteria, fungi and protozoa.

It appears to damage membranes and inhibit enzymes involved in synthesis of protiens and DNA.

One could say berberine is a toxin to some of the microbes that live in the human body, particularly those that live in or near the mucosa.

To limit the effect of toxins microbes have pumps in their cell membranes that remove toxins.

An aside: this is one of the causes of anti-biotic resistant bacteria. Microbes learn how to remove the drugs from their cells before they can damage them.

Plants containing berberine such as Goldenseal, Oregon Grape and Barberry carry a two other phytoconstituents that support the anti-microbial effect of the berberine: flavonoligand 5'-MHC-D and a porphyrin called pheiphorbide.

The flavonoligand and the pheiphorbide disrupt the ability of the cell to pump the berberine.

For this reason, plant containing flavonoligand 5'-MHC-D and pheiphorbide are able to potentiate anti-biotic and chemotoxic drugs.

### BUT THERE IS MORE.... BERBERINE'S EFFECT ON THE LARGE INTESTINE'S MICROBIOME.

Berberine rich plants have a profound effect on the flora in the large intestine.

Some people think taking a plant rich in berberine has the same effect on gut flora as taking anti-biotics.

However, research shows that taking a berberine plant rebalance the flora in the large intestine.

One could compare taking a berberine rich plant with hand weeding as oppose to using a killer like Round Up.

Here are two of berberine's actions on the large intestine's microflora.

• Enhances the intestinal flora's production on butyrate. Butyrate is

associated with stable blood sugars, protects the brain, prevents obesity and protective against cancer. <u>www.ncbi.nlm.nih.gov/</u>pmc/articles/PMC7933196/

 Increases the bacteria from the following families: Bacteroidetes, Proteobacteria, and Firmicutes. Curiously, one of the roles of bile is to help weed out overgrowth of bacteria and encourage the growth of beneficial bacteria in the large intestine. These three families of bacteria are not effect by bile's anti-microbial effect. Neither berberine nor bile disrupt the growth of these commensal bacteria. Bacteroidete support the metabolism and absorption of vitamin and minerals, break down sugars to be a absorb and used for energy. www.ncbi.nlm.nih.gov/pmc/ articles/PMC7872030/ Bacteroides also play a role in teaching immune cells how to recognize pathogens. www.nature.com/ articles/s41422-020-0332-7#publish-with-us

Please note: When Bacteroidetes makes it way out of the large intestine and into other tissues of the body through surgery, ulceration of the bowel or fissures, it becomes dangerously pathogenic. It is always important to consider the location of a bacteria commonly found in the human microbiome before considering it a "bad" or "good" bacteria.

### BERBERINE FROM A WHOLE PLANT MEDICINE POINT OF VIEW

Just a little more chemistry...we need to consider synergy.

#### SYNERGY - WHAT IS IT?

...the underlying idea is that complex interactions among the many constituents f a herb give rise to its unique characteristics, personality and healing prosperities. To borrow a concept from physics, the very complexity of a living plant – which contains perhaps thoughts of interacting phytochemicals – gives rise to emergent behaviour: activities and effects which could not have been predicted from what is knows about the individual components of the system. – Lisa Ganora, Herbal Constituents: Foundations of Phytochemistry, 2<sup>nd</sup> addition. Pg 79

Plants that contain berberine, contain other alkaloids as well as flavonoids (all plants contain flavonoids), steroids, tannins, polysaachrides, resins, minerals and vitamins.

The other alkaloids found in these plants support and enhance the effects of berberine on the body and its microbiome.

Flavonoids, besides helping to support the integrity of the body's tissues, DNA and mitochondria, also support the absorption of other phytoconstituents. This appears to be true with berberine.

Other constituents like tannins have complex actions on both the microbiome, they support the actions of macrophages, as well as healing small tears in the mucosa throughout the body.

And this complexity of chemistry brings us to the nuance of herbal medicine: the study of the medicine of whole plants.



Let's begin looking at the nuance of the berberine plants with an overview of the other common alkaloids they make.

Goldenseal	Oregon Grape	Barberry
**Berberine	Berberine	Berberine
Hydrastine	Palmatine	Plamatine
Palmatine	Jatrorrhizine	Jatrorrizine
Canadine		
Coptis trifolia Gold Thread	Coptis chinesis Gold Thread	Corydalis
Berberine	Berberine	Berberine
Jatrorrizine	Hydrastine	Canadine
**Coptisine	Palmatine	Tetrahyrdo- palmatine
		Protopine
Greater Celandine	Blood Root	California Poppy
Berberine	Berberine	Berberine
Coptisine	Sanguinarine	Sanguinarine
Sanguinarine	Chelidonine	Pavines
Chelidonine		
Protopine		

Note: Coptis (Goldthread) – used in TCM *Coptis chinensis, the one that grows in the woods by my home is Coptis trifolia* 

- Berberine Goldenseal, Oregon Grape, Barberry, Gold Thread, Chinese Gold Thread, Corydalis, Greater Celandine, Blood Root, California Poppy
  - » Anti-microbial (bacteria, fungi & protozoa)
  - » Cardiotonic???
  - » Astringent
  - » Anti-cancer???
  - » Anti-malarial
  - » Anti-spasmodic to the bladder and prostate
  - » Protective for the nervous system, cardiovascular system, Liver & kidney
  - » Wound and eye washes
  - » Anti-bioflim
- Hydrastine Goldenseal, Chinese Gold Thread
  - » Astrigent
  - » Mucous membrane tonic
  - » Historically used as a drug against uterine heamorrhage
- Palmatine Goldenseal, Oregon Grape, Barberry, Chinese Gold Thread
  - » Anti-microbial
  - » Anti-spasmodic to bladder and prostrate
- Canadine Goldenseal, Corydalis

- Jatrorrhizine Oregon Grape, Barberry, Gold Thread
  - » Anti-microbial
  - » Sedative
- Tetrahydropalmatine (THP) Corydalis
  - » Blocks postsynaptic dopaminergic receptors
  - » Sedative
  - » Anodyne
  - » Reduces the craving for heroin https://www.ncbi.nlm.nih. gov/pmc/articles/PMC4535343/
- Sanguinarine (red yellow in colour) Greater Celandine, Blood Root
  - » Anti-microbial, viruses, fungi & bacteria
  - » Warts
  - » Skin cancers???
  - » Note: topical use. If using internally small, very small doses.
- Chelidonine
- Protopine Corydalis, Greater Celandine, California Poppy
  - » Anti-spasmodic
  - » Sedative
  - » Anti-arrhythmic
  - » Anti-hypertensive
  - » Hepatoprotective
  - » Anti-microbial specific to Gram-positive bacteria
- Pavines California Poppy
  - » Relaxant
  - » Hypnotic

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2744916/

Ganora, Lisa. Herbal Constituents: Foundation of Phytochemistry 2<sup>nd</sup> Ed. Pg: 251-254

# How to choose a which berberine rich plant for your patient?

Please note: all the berberine herbs has somewhat overlapping actions, for example skin rashes are indication for all three herbs as is wet, hot mucosa, however, each of them have has a special affinity to for specific challenges.

# Goldenseal, Oregon Grape, Barberry and Celandine

### Goldenseal (Hydrastic canadensis)

Goldenseal is an endangered plant and extremely difficult to grow. Only use cultivated sources.

Energetically it is a drying herbs. While other berberine rich herbs, barberry (*Berberis vulgaris*) and Oregon grape root (*Mahoni aquafolium*) are generally considered drying, Goldenseal has the most pronounced drying effect. Eclectics considered it a mucous membrane tonic specific to wet conditions. Because of the



profound effect the heath of the mucous membrane and the flora that live within it, the Eclectic made wide ranging use of the herb.

The whole drug... appears to stimulate the respiratory and circulatory apparatus, imparting increased tone and power. Arterial tension is augmented, and blood pressure in the capillaries increase...overcoming blood stasis. Its action upon the nervous system has been compared to strychnine though less energetic, but more permanent. Thus the tone of the heart muscle is permanent, rather than intermittent and spasmodic....Muscular nutrition is increased under the judicious administration of hydrasitic, making it a valuable agent in muscular debility, and in altered states of muscles, particularly of the unstriped variety. – Kings American Dispensary, Vol 2, 1909

The key to offering Goldenseal to your patients is to consider its drying nature. It truly is a mucos membrane tonic however too much, for too long, can cause the mucosa to dry out which will create another set of health concerns.

### Oregon Grape Root (Mahoni aquafolium)

Generally Oregon Grape is considered a drying, cooling herb useful in hot, damp conditions. One would see the same energetic profile for Goldenseal and Barberry. However, of these three berberine rich herbs, I consider Oregon Grape the least drying, I would almost say it is mildly moistening, and has the most pronounced laxative effect of the three plants.

In Traditional Chinese Medicine (TCM) the eyes are consider the chimney of the liver. I have not found a better remedy for red, sore eyes or red, inflamed around the eyes. I have found it useful for eczema anywhere on the face. Oregon Grape has the ability to draw heat down and out of the liver which neither Goldenseal not Barberry have.

I also suspect that Oregon Grape is useful in supporting the clearance of toxin from the peyers patches in the gut (the gut's lymphatic tissue.) Its traditional use for conditions like eczema and psoriasis, suggest it may have some effect on this lymph in the gut. Matthew Wood writes:

Lymphatic congestion, chronic swelling and induration of glands, with dry, atrophic conditions, mononucleosis. – The Earthwise Herbal: Complete Guide to New World Medicinal Plants.

On that note: there is a sinus rub from Simon Mills and Kerry Bone that includes Goldenseal. When I have substituted Goldenseal with Oregon Grape Root the medicine is not nearly as effective. The rub is:

- 10 mls Commiphora molmol
- 10 mls Capsicum min.
- 10 mls Hydrastis canadensis
- 10 mls Lobelia inflata
- 10 mls Myrica cerifera

#### Barberry (Berberis vulgaris)

Barberry is the plant indigenous to Europe. Oregon Grape and Goldenseal are indigenous to North America.

Whereas Goldenseal and Oregon Grape are cool and drying, Barberry is considered warming and drying. It is not as powerful as other warming bitters, but it clearly has a warming effect. Its bitter taste is almost overpowering much more so than either Oregon Grape or Goldenseal.

When someone clearly presents with a microbiome imbalance, significant digestive challenges, and their tongue is lavender in colour with a thick white coating, Barberry is my first choice for a berberine rich herb. Interestingly, many herbalists use Barberry when there is excessive heat in the body. Perhaps in this case, it is the powerful taste that cools off the heat as bitter herbs tend towards cooling and drying.

Barberry, out of all the berberine herbs, is most specific to digestive challenges. Goldenseal is the mucosa tonic, Oregon Grape Roots eases heat rising from the liver and relieves congestion both as a laxative and as a lymphatic, Barberry is the plant for sluggish digestion with a microbiome imbalance: poor appetite, bloating, constipation with alternating diarrhoea, heartburn due to slow emptying of the stomach.

#### Greater Celandine (Cheladonium majoris)

Of all the berberine rich herbs, this plant is the easiest to grow in a garden. It is also the one plant that a small amount of in formula is effective. It is the one plant from the Poppy Family in this list and therefore unlike the other Berberine plants I have mention has a profound effect on tension in the body, specifically in the upper abdomen. Celandine's taste is a sharp and acrid. The other berberine rich herbs mentioned here are predominately bitter. The acrid taste is associated with plants high in alkaloids such as *Lobelia inflata*.

Celandine is a plant that is specific to gall bladder challenges. Traditional western herbalists offered this plant when the bile is thick. Like the other berberine rich plants it has both choleric and cholagogue actions, but it also relaxes the common bile duct. I have used this plant, along with fumitory another member of the Poppy family, to release and dissolve gallstones.

Celandine carries proteolytic enzymes which dissolve warts and is said to help break down fibrous tissues such as fibroids and in some cases tumours.

Some herbalists caution against using Celandine for a prolonged period of time. Personally, it is my experience that each of these berberine herbs are not tonic herbs (long term use herbs), but the type of plants one offers when there is a specific need in the body. Once the need is resolved, whether it be dissolving gallstones, relieving dysbiosis, easing eczema around the eyes, etc., then it is time to discontinue the use of these herbs until they are needed again. If their medicine is not bringing balance to the body after 2 weeks, it is wise to review the herbs one has chosen and change the formula.



### Contra-indication for Berberine rich herbs

Berberine rich herbs are abortifacients and are contra-indicated in pregnancy.

### **Final Notes**

Plants were living alongside microbes for approximately 700 million years before the first animal life appeared. There is a dynamic and complex two way relationship between plants and microbes. One has to wonder if many of the ways these plants rich in berberine support the well-being of the human being is through supporting the health of the microbiome. If you are offering high quality medicine of any of these plants high doses are not needed to help shift the dynamics of the relationship between the human being and its microbiome. It is useful to think of berberine plants not as "anti-microbials" but as plants that support the health of the microbiome and thereby the health of the human being.

### Phytoestrogens And Breast Cancer – A Clinical Review

Presented by Chanchal Cabrera, MH

### **Breast Cancer Morbidity and Mortality**

- Most common form of cancer among women and the most commonly diagnosed cancer worldwide. The ACS predicts that 13 percent of women in the US will develop breast cancer in their lifetime.
- Incidence of breast cancer in US is increasing on average by 0.5 percent each year from 2008 to 2017. Globally, about 2.3 million new cases were reported in 2020, accounting for 11.7 percent of new cancer diagnoses worldwide.
- The risk of developing breast cancer increases as you age. A longer exposure to estrogen increases a woman's risk of breast cancers. The risk is greater if a woman began menstruating before age 12, and a woman who experiences menopause after age 55 has an increased risk of ovarian, breast, and uterine cancers.
- Around 70% of breast cancers that are diagnosed before menopause are hormone-sensitive. For these women adjuvant hormonal therapies like tamoxifen or aromatase inhibitors have substantially decreased the disease recurrence and contralateral breast cancer.
- Post-menopausal breast cancer is usually less aggressive than cancers in younger women, with more cases being hormone receptor positive and less cases having the HER2 receptor. This means that fewer post-menopausal patients are likely to require chemotherapy or Herceptin. They may be a better target for anti-estrogen strategies and immunotherapy drugs.

### **Anti-Estrogen Drug Therapies**

- Selective estrogen receptor modulators (SERMs) e.g tamoxifen (Nolvadex®, Soltamox®) and raloxifene (Evista®) are used to treat estrogen driven breast cancer and osteoporosis.
- In breast tissue, tamoxifen is an estrogen receptor antagonist, but in bone tissue it is an agonist, helping to maintain bone mineral density (BMD).
- After unilateral breast cancer, taking Tamoxifen reduces your risk of developing cancer in your opposite breast by 50%. If you had breast cancer before going through menopause, tamoxifen reduces recurrence by 30% to 50%. If you have early-stage ductal carcinoma in situ (DCIS), tamoxifen reduces the risk cancer will spread by up to 50%.

### Side Effects of Tamoxifen Include:

- Hot flashes and night sweats
- Irregular periods or spotting (uterine bleeding)
- Loss of sex drive
- Vaginal discharge, Vaginal dryness or itching
- Deep venous thrombosis
- Pulmonary embolism
- Cancer of the uterus (uterine or endometrial cancer)
- Cataracts
- Stroke

### Predicting the effects of tamoxifen

Tamoxifen is a prodrug. The active form is endoxifen which is mostly produced via CYP2D6 in the liver. Therefore if 2D6 is inhibited there may be a lower than expected concentration of endoxifen.

Question : Can tamoxifen be activated via alternate pathways if 2D6 is unavailable??

There are many polymorphisms of 2D6, and there are widely available standard tests for the different SNPs of this enzyme. Many commonly prescribed antidepressants readily prescribed at menopause are significant inhibitors of 2D6.

**Aromatase enzymes** control conversion of testosterone to estrone (E1) and androstenedione to estradiol (E2). Highest levels of aromatase are found in the ovary and placenta. Also found in liver, kidney, adrenals, brain, muscle and subcutaneous belly fat. In men and post menopausal women abdominal fat is the site of most estrogen manufacture.

**Aromatase inhibitors** prevent manufacture of estrogen from androgens and are used to prevent recurrence of estrogen driven breast cancer after menopause.

Arimidex (chemical name: anastrozole)

Aromasin (chemical name: exemestane)

Femara (chemical name: letrozole)



Side effects : joint stiffness or joint pain, heart disease, abdominal weight gain, progressive osteoporosis and NAFL (NASH).

Postmenopausal women with breast cancer using aromatase inhibitors had increased risk of nonalcoholic fatty liver disease compared with healthy women after menopause, independent of obesity and diabetes mellitus.

Lee JI, Yu JH, Anh SG, Lee HW, Jeong J, Lee KS. Aromatase Inhibitors and Newly Developed Nonalcoholic Fatty Liver Disease in Postmenopausal Patients with Early Breast Cancer: A Propensity Score-Matched Cohort Study. Oncologist. 2019 Aug;24(8):e653-e661

### Hepatotoxicity:

Serum enzymes are elevated in 2% to 4% of women treated with anastrozole and there have been rare instances of liver damage, typically arising within 1 to 4 months of starting treatment.

Furthermore, aromatase inhibitors may inhibit cytochrome P450s in the liver. Specifically, letrozole is predicted to be a weak inhibitor of CYP2A6 *in vivo*. This inhibits tissue detoxification and may affect dosing of other drugs.

**Treatment related menopause** is common in breast cancer survivors, including hot flushes, night sweats, vaginal symptoms, emotional lability, arthralgias and sexual dysfunction.

They tend to be abrupt in onset and if anti-estrogen therapies are used then symptoms are more persistent than in natural menopause. Hormonal replacement therapies are generally contraindicated in these patients.

### The clinical dilemma:

- Patient has ER dependent breast cancer
- Patient approaches menopause naturally or is driven there by surgery, chemo or anti-estrogen drugs
- Menopause symptoms are severe enough to require treatment.

What is going to be safe and effective?

HERBS TO THE RESCUE

### **Clinical question :**

Can you safely use phytoestrogenic herbs to support symptoms of menopause while also treating hormone responsive breast cancer?

### Phytoestrogens

A diverse group of naturally occurring non-steroidal plant compounds that, have structural similarity to estradiol  $(17-\beta$ -estradiol) and can cause estrogenic or antiestrogenic effects.

They tend to be phenolic compounds e.g. isoflavonoids such as **genistein, daidzein, coumestrol**, and **equol**; prenylated flavonoids such as **8-prenylnaringenin**, stilbenes such as **resveratrol**, and lignans including **enterodiol** and **enterolactone** from flax seed.

The amount of isoflavones needed for a phytoestrogen effect is around 40-70 mg/day or an average of 50 mg/day. The average consumption of isoflavones in Asian society is 15-50 mg per day, while in Western countries only about 2 mg per day. This may go some way towards explaining lower breast cancer rates in Asian women eating a traditional diet.

### How phytoestrogens work

 $\mathbf{ER}\alpha$  is present mainly in breast tissue, uterus, ovary, bone, testes, prostate, liver, and adipose tissue. It tends to be pro-cancerous.

**ER** $\beta$  is found mainly in the prostate, bladder, ovary, colon, adipose tissue, and immune system. It tends to be anti-cancerous and and it generally counteracts the ER $\alpha$ -promoted cell hyperproliferation in tissues such as breast and uterus.

Both subtypes are markedly expressed in the cardiovascular and central nervous systems.

Ligands for ER- $\alpha$  and ER- $\beta$  can act as estrogen agonists, as antagonists, or as partial or selective agonists/antagonists, depending on the tissue receptors, co-regulators, and the interaction on estrogen-regulated genes.

In breast cancer, ER $\alpha$  activation is responsible for enhanced proliferation, counteracted by the presence of ER $\beta$ , which has an antiproliferative effect.

Studies suggest that ER- $\beta$  may oppose the actions of ER- $\alpha$ , and clinical evidence has indicated that the loss of ER- $\beta$  expression is associated with a poor prognosis and resistance to endocrine therapy. Thus estrogen-responsive breast cancer should respond positively to treatment with ER $\alpha$ -antagonists and/or ER $\beta$ -agonists.

Most phytoestrogens display higher affinity for ER- $\beta$  compared to ER- $\alpha.$ 

This suggests that phytoestrogens may be effective in down regulating estrogen driven breast cancer.

### Cimicifuga racemosa

### Black cohosh for menopause symptoms

A systematic literature search revealed 35 clinical studies and one meta-analysis comprising 43,759 women, of which 13,096 were treated with isopropanolic *Cimicifuga racemosa* extract (iCR).

### Compared to placebo, iCR was significantly superior for treating neurovegetative and psychological menopausal symptoms.

C. Castelo-Branco, M. Gambacciani, A. Cano, M. J. Minkin, D. Rachoń, X. Ruan, A.-M. Beer, J. Schnitker, H.-H. Henneicke-von Zepelin & S. Pickartz (2021) Review & meta-analysis: isopropanolic black cohosh extract iCR for menopausal symptoms – an update on the evidence, Climacteric, 24:2, 109-119

The clinical data did not reveal any evidence of hepatotoxicity. Hormone levels remained unchanged. As benefits clearly outweigh



risks, black cohosh should be recommended as an evidence-based treatment option for natural climacteric symptoms.

With its good safety profile in general and at estrogen-sensitive organs, iCR as a non-hormonal herbal therapy can also be used in patients with hormone-dependent diseases who suffer from iatrogenic climacteric symptoms.

Most of the studies published in recent years have been conducted with the isopropanolic extract of black cohosh/*C. racemosa*. The most common dose is 40 mg/day capable of achieving a significant reduction in hot flushes and an improvement in mood. Used at the recommended doses, *C. racemosa* produces no significant adverse reactions.

CC Branco, Concepción Navarro, Estanislao Beltrán, Fernando Losa, Marta Camacho & on the behalf of the Natural Products Study Group of the Spanish Menopause Society (2022) Black cohosh efficacy and safety for menopausal symptoms. The Spanish Menopause Society statement, Gynecological Endocrinology, 38:5, 379-384,

The objective of this study was to determine the effects of BC alone, as well as in combination with hormones and antihormones, on cell viability and expression of ER- $\alpha$ , PR, and BRCA1 in both T-47D and MCF-7 cell lines (human hormone-dependent breast cancer cell lines which are widely used as experimental models for in vitro and in vivo tumor xenografts breast cancer studies)

Significant alterations of ER- $\alpha$ , PR, and BRCA1 protein levels after 24-hour treatment with BC.

BC displayed a concentration-dependent decrease on ER- $\alpha$  and BRCA1 expression, with an 87% reduction of ER- $\alpha$  expression and a 43% of BRCA1 expression in T-47D cells compared to control.

### After six days of treatment with 400 $\mu M$ BC, a 50% decrease in cell proliferation was observed

Following 24 hours of co-treatment with 400  $\mu$ M BC and 10 nM E2 (estradiol), ER- $\alpha$  was downregulated by 90% and BRCA1 expression was reduced by 70% compared to control.

#### The proliferative effect of E2 was reduced in the presence of black cohosh

Michael Crone, *et al* (2020) The antiestrogenic effects of black cohosh on BRCA1 and steroid receptors in breast cancer cells, Breast Cancer: Targets and Therapy, 11:, 99-110,

### Interaction with Tamoxifen?

This 2011 *in vitro* study suggests that co-administration of black cohosh with TAM might interfere with the clinical efficacy of this drug

Li J, Gödecke T, Chen SN, Imai A, Lankin DC, Farnsworth NR, Pauli GF, van Breemen RB, Nikolić D. In vitro metabolic interactions between black cohosh (Cimicifuga racemosa) and tamoxifen via inhibition of cytochromes P450 2D6 and 3A4. Xenobiotica. 2011 Aug 9:10.3109/00498254.2011.603385 Eight triterpene glycosides found in black cohosh are competitive inhibitors of CYP3A4 The alkaloids protopine and allocryptopine are competitive CYP2D6 inhibitors.

At 50  $\mu$ g/mL, a 75% ethanolic extract of black cohosh inhibited formation of activated Tamoxifen by over 70%, possibly by inhibition of the cytochromes P450 2D6 and 3A4 that are required for Tamoxifen activation.

?? What happens if you give cytochrome inhibiting black cohosh with cytochrome inducing other herbs ??

A 2019 study giving *Hypericum perforatum*, a known CYP3A4 inducer, alongside black cohosh showed no adverse effects on tamoxifen. To determine whether menopause symptoms can be treated with black cohosh in the form of isopropanolic Cimicifuga racemosa extract (iCR) alone or in fixed combination with St John's wort (Hypericum perforatum [HP]) (iCR+HP), a systematic literature search was conducted.

Most breast cancer survivors receiving endocrine therapy experienced reductions in climacteric symptoms under iCR/ iCR+HP. Tamoxifen's interference potential may be countered by using higher iCR doses or iCR+HP.

No estrogen-like effects at the breast or on hormones were seen. After breast cancer, even if receiving tamoxifen, patients using iCR/iCR+HP had significantly increased recurrence-free survival rates compared to non-users. These results are substantiated by experimental data demonstrating antiproliferative and antiinvasive effects of iCR in breast cancer cells and enhancement of the antineoplastic effects of tamoxifen. There are no known clinical interactions for iCR and HP with endocrine therapies. The HP extract used in iCR+HP did not exhibit any clinically relevant interaction potential. In conclusion, with its positive benefit-risk profile, iCR/iCR+HP may offer a safe non-hormonal therapeutic option for breast cancer survivors receiving endocrine therapy

X. Ruan, et al (2019) Benefit–risk profile of black cohosh (isopropanolic *Cimicifuga racemosa* extract) with and without St John's wort in breast cancer patients, Climacteric, 22:4, 339

Unlike hormone-replacement therapy, Cimicifuga racemosa (CR) does not stimulate estrogen-receptor positive breast cancer cells. To evaluate CR safety, mammary tumors were induced in rats (n = 75. Five to nine weeks later, the animals were ovariectomized, allowed to recover, and administered daily doses of CR extract or control substances. The animals were sacrificed 6 weeks later, and tumor number, size, plasma hormone levels, and the weight of estrogen-sensitive organs were analyzed

In contrast to mestranol treatment, CR treatment did not stimulate cancerous growth.

Prolactin, follicle-stimulating hormone, and luteinizing hormone levels and organ weights and endometrial proliferation were unaffected.



The lack of mammary tumor-stimulating effects of this extract is of great significance in establishing the safety of CR extracts for treatment of menopausal symptoms in women with a history of breast cancer in which hormone-replacement therapy is contraindicated.

Cancer Res (2002) 62 (12): 3448-3452

Lack of Promotion of Estrogen-dependent Mammary Gland Tumors *in vivo* by an Isopropanolic *Cimicifuga racemosa* Extract

Johannes Freudenstein; Clemens Dasenbrock; Thomas Nißlein

The results of the present study demonstrated that actein and BCE do not promote breast cancer cell growth or influence estrogen levels.

However, androgen formation was strongly stimulated by BCE and actein, which may contribute to their ameliorating effects on menopausal symptoms in women.



### Cabrera 2007

### Estradiol E2

Most active form. Produced by ovaries; converted to estrone before it enters systemic circulation

### Estrone E1

Made by ovarian estradiol and by peripheral aromatase

### Estriol E3

Weakest form. A byproduct of E1 and E2; metabolized in the liver. Excreted into gut

*b glucuronidase* enzyme from gut flora can re-assemble estrogens

→ reabsorption and re-circulation





Obesity leads to a 200% greater chance of breast cancer recurrence and 60% greater chance of dying from it than is seen in lean women. Obesity is also a contributing factor in prostate and colon cancer. In obese patients there is typically higher estrogen load. Insulin resistance of fat cells contributes to elevated blood sugar and reduced hepatic production of SHBG.

### FAT CELLS CAN CARRY OUT

- Conversion of androgens into estrogens (estrone E1 and estradiol E2) under the influence of aromatase enzyme
- conversion of androstenedione and E1 into more active E2 via 17β hydroxysteroid dehydrogenase

Obesity was associated with an increased risk of breast cancer recurrence among postmenopausal patients with HR+ early-stage breast cancer treated with aromatase inhibitors.

Harborg S, Cronin-Fenton D, Jensen MR, Ahern TP, Ewertz M, Borgquist S. Obesity and Risk of Recurrence in Patients With Breast Cancer Treated With Aromatase Inhibitors. *JAMA Netw Open.* 2023;6(10):e2337780. doi:10.1001/jamanetworkopen.2023.37780

Sex hormone-binding globulin (SHBG) transports androgens and estrogens in blood and regulates their access to target tissues. Reductions in plasma SHBG level causes substantial increases in the proportions of free androgens and estrogens in the blood.

In addition to its carrier function for circulating estradiol, SHBG specifically binds to cells of steroid-responsive tissues, including breast tissue, and decreases the proliferation of some breast cancer cells through activation of cyclic adenosine monophosphate



Isoflavones - daidzein and genistein

Lignans - enterodiol and enterolactone.

- Aglycones of isoflavones more readily absorbed than parent glycosides due to their higher hydrophobicity and lower molecular weight.
- Functional health of the gut is significant in determining the bioavailability and utility of ingested phyto-estrogens

### **Bacterial action**

- Bacteria present in the large intestine possess b-glucuronidase and arylsulfatase activity,
- Liberates phyto-estrogen aglycones from conjugates excreted in the bile and renders them available for reabsorption
- Glucosidases associated with the gut micro flora (including Lactobacilli, Bifidobacteria and Bacteroides) also play a role in glycoside hydrolysis



Isoflavone glycosides can be converted to aglycones by enzymes in saliva

Optimal health thus requires the correct balance of micro flora in digestive tract to ensure appropriate conversion, absorption and elimination of dietary phyto-estrogens

### Anti-microbials

- Use of oral anti-microbials decreased serum enterolactone concentrations in Finnish adults (n=2753).
- Serum enterolactone levels were lower in subjects that had used anti-microbials up to 12-16 months before sampling than in non-users (mean 16 versus 19 nmol/L).
- Enterolactone concentrations were reduced with increasing number of anti-microbial treatments, although concentrations recovered with length of time from the last administration.

### **Dietary fiber**

- High dietary fiber could result in the partial disruption of enterohepatic circulation of phyto-estrogens and endogenous estrogens, thus reducing the bioavailability of these compounds.
- Affects the absorption, reabsorption and excretion, of estrogens and phyto-estrogens by influencing the β-glycosidase and β-glucuronidase activities of the intestinal micro flora.

### Arnica montana: A Homeopathic Monograph for Practicing Clinical Herbalists

### Presented by Victor Cirone

While many homeopathic clinicians, authors and researchers pay careful attention to herbal and botanical literature, very few herbalists give any consideration to the vast homeopathic literature that exists on plant remedies. This blindspot is perhaps fueled by the mistaken notion that one has to be a practicing homeopath in order to gain any practical insight from reading homeopathic literature. As the following monograph on Arnica montana will show, nothing can be further from the truth!

Below you will find a selection of important rubrics taken from the MIND section of Massimo Mangialavori's Suggesta Repertory, which serve to represent the key mental-emotional and dispositional aspects of Arnica montana. Following the mind rubrics, a summary of Arnica's action on different spheres of the body, and many of the medicine's important specific indications, have been included. What follows should not be considered to be a complete representation of the actions and indications of Arnica. However, these selections are intended be studied by herbalists to help spot a patient requiring this medicine in their own practice. In the opinion and experience of this author, the following indications are relevant for the use of the tincture of Arnica, as well as the homeopathic potency. The internal use of Arnica has been all but forgotten today, but it was once a highly valued and widely administered internal medicine. By attending to the actions and specific indications of Arnica, it can come to once again come to play an important role in the modern herbalist's clinic.

- MIND ABUSIVE, insulting pains, with
- MIND AILMENTS from approach of persons
- MIND AILMENTS from injuries, accidents
- MIND AILMENTS from scorn, being scorned
- MIND ANGER, irascibility tendency thinking of ailments
- MIND ANGUISH cardiac
- MIND ANGUISH cardiac angina pectoris, in
- MIND ANXIETY sleeplessness, with pregnancy, during MIND – APATHY, INDIFFERENCE – anosognosia, thinking that he is not ill
- MIND APATHY, INDIFFERENCE concussion of brain, in
- MIND APATHY, INDIFFERENCE pain, to
- MIND APATHY, INDIFFERENCE stoical to what happens MIND – AUDACITY
- MIND COMPETITIVE physical
- MIND COMPLAINING whimpering
- MIND CONSOLATION agg.
- MIND DELUSIONS, imaginations well, he is
- MIND DESPAIR concussion, after
- MIND DICTATORIAL, domineering, dogmatic, despotic
- MIND DIGNITY
- MIND EXERCISE physical amel.
- MIND EXERCISE physical compulsive
- MIND FEAR approaching others, of
- MIND FEAR approaching others, of touch, lest he be
- MIND FEAR death, of
- MIND FEAR struck by those coming toward him, of being
- MIND FEAR touch, of
- MIND FEAR touch, of gout, in
- MIND INDIGNATION
- MIND INTEGRITY, concerned about the, of his body
- MIND IRRITABILITY children in sick, when
- MIND IRRITABILITY sends the doctor home, says he is not sick
- MIND MEMORY weakness, loss of, concomitant injuries,
- after head of the
- MIND MEMORY weakness, loss of concomitant vertigo, with
- MIND MILDNESS
- MIND MOANING, groaning tendency
- MIND NEGATION, of his condition
- MIND NOLIMENTAGERE
- MIND RESERVED
- MIND RESTLESSNESS, nervousness pain, from

MIND – SADNESS, despondency, depression, melancholy – concomitant – injuries, from

- MIND SENSES dullness of, blunted chill, during
- MIND SENSITIVE, oversensitive pain, to
- MIND STARTING, startled easily



MIND – STUPEFACTION, STUPOR MIND – STUPEFACTION, STUPOR – perspiration, during MIND – STUPEFACTION, STUPOR – fever, during MIND – TOUCHED – aversion to being MIND – VIOLENCE, vehemence – pain, from MIND – VIOLENCE, vehemence – sick, when MIND – WEEPING, fearful mood – tendency – refuses MIND – WELL – says he is, when very sick

**Head:** Ailments from concussion, fractures of the skull, and in general injuries to the head.

Sensation of shocks, blows, jerks in the head, may be especially felt on ascending the stairs and on walking.

Swelling of the head. Sensation that the head is enlarged. Metaphorical sensation as if the head is rolled into a ball.

Twitching of the muscles of the head.

Head pain brought on by, or made worse from, heat. The head pain characteristic of Arnica may be characterized by a burning sensation of the head, while marked coldness of the rest of the body. Head pains may be described as stabbing, as with a knife.

Head pain accompanied by unconsciousness. In addition to obvious physical causes, this symptom may be brought on by a variety of emotional causes, such as shocks or frights, nervousness.

Paleness of the face after injury. Redness of the face during parturition. One-sided redness of the face. Redness of the face with a chill through the body, while shivering. Heat of the face during chill, or with a marked coldness of the hands.

**Eye and Vision:** Inflammation of the eye, as a consequence of injuries, wounds, foreign bodies. Complications of the eye after operations. Paralysis of the iris, lids of the eye. Pupils are insensible to light. Pupils can alternately dilate and contract in the same light. Eye pain brought on after a blow (not only involving the head). Dark or black spots clouding one's filed of vision. Blindness after an injury to the eye, transient blindness, blindness during vertigo.

**Epistaxis:** gushes out, after a blow to the head, after an injury, after exertion, during fever, with whooping cough, from blowing the nose, from washing the face. Swelling of the nose, tingling felt inside the nose.

**Mouth and Tongue:** Black discoloration of the tongue, especially the centre of the tongue. Can appear like a streak of ink running down the centre of the tongue. Tongue may also appear brown or dirty. Red stripe down the centre of the tongue. White or yellow discoloration of the tongue are also possible indications. Easy hemorrhage of the gums. Formication of the gums. Extremely offensive, putrid breath. Offensive, foul taste in the mouth, like rotten eggs. Teeth pain after concussion. Redness and sensitivity of the gums.

**Ears and Hearing:** Buzzing, humming, roaring, rushing sounds in the ears. Hearing impaired after concussion, injuries, infections, or from nervous/emotional causes.

**Vertigo:** on closing the eyes, with a tendency to fall, while reading, while reading for extended periods of time.

**Speech:** Difficult speech. Stammering, unintelligible speech. Hoarseness of the voice after overuse, exertion, sining, getting wet.

**Chest:** Chest pain, with amelioration from pressure. Chest may feel sore or bruised. This may be as a consequence of coughing. Tendency to hold the hands to the chest during cough. Acute stitching pains in the chest, with a mortal fear of heart disease or an impending heart attack.

**Heart:** Aneurism. Angina pectoris. Hypertrophy. Hypertension. Palpitations. Fatty degeneration. Anguish felt in the region of the heart. Complaints of coldness, constriction, oppression, spasmodic pains.

Vomiting: Vomiting with blood. Coughing up blood.

**Dreams:** black forms, being buried alive, of dying, dying in bed while surrounded by one's friends, frightful, graves, being struck by lighting, storms/thunderstorms, misfortune, mutilation, suffocation, vexatious, unremembered, vivid.

**Generals:** desire for open air, chill in the morning and on waking, head hot and body cold, chilliness of single parts, carpal tunnel syndrome, convulsions after commotion of the brain, after drugs, ailments after croup, apparent death from asphyxia including after injuries and in newborns. Pains after a sprain or bruise. Sensation as if the limbs had been crushed.

Keynotes and Themes: \*trauma \*injuries \*accident-prone \*soft tissue damage \*concussion \*bruised (by life) \*hurt \*abused \*withdraw \*perseverance \*hardness in order to protect yourself \*refuses to be treated, insists that all is well when it is clearly not \*afraid to be touched (by others, by the world) \*sublimation of aggression \*denial of sensitivity \*denial of injury and of pain (nothing hurts, nothing to say) or extremely sensitive to pain \*vaginismus after rape/sexual abuse (cannot stand to be touched, shirks away from touch and intimacy) \*self-awareness yet longstanding inability to do anything about their predicament \*pressure to perform/do things quickly \*horrors in the night \*wakes with fear of heart attack \*ailments from hurry yet with an overarching sense of futility and inevitable failure \*wants to appear strong but is soft and vulnerable inside \*works hard in order to build a fortress around themselves \*does dangerous things \*struggle and push themselves to do a lot yet feel beaten and bruised by life.

### **References:**

Mangialavori, Massimo. *Suggesta Repertory*. Radar Opus Homeopathic Software. https://www.suggesta.it/en/home-eng-2/

Scholten, Jan. Arnica. https://gjure.com/remedy/arnica-montana/

Yakir, Michal. Wondrous Order: Systematic Table of Homeopathic Plant Remedies. Book One: Flowering Plants. Kandern: Narayana Verlag, 2017.



### Similia Similibus Curentur: A Universal Law of Healing

### Presented by Victor Cirone

The system of homeopathic medicine founded by Samuel Hahnemann is based on the law of similars: similia similibus curentur (let similars be cured by similars, or like is cured by like). The word homeopathy is made up of the prefix 'homeo' which means same or similar and the suffix 'patho' which means suffering or disease. Hahnemann contrasted the homeopathic method with the allopathic method, which is philosophically and practically oriented around the use opposites rather than the use of similars in the treatment of disease (allopathy maintains the principle of contraria contrariis, i.e. opposite cures opposite). The law of similars has a long history in medicine that predates the work of Hahnemann and the founding of the system of homeopathy, going at least as far back as Hippocrates (born 460 BCE), who maintained that "By similar things a disease is produced and through the application of the like is cured" (no citation available; expression commonly attributed to Hipocrates).

Hahnemann cites simple historical examples of the use of the law of similars in his *Organon der Heilkunst* (The Organon of the Medical Art), e.g. cold applications for frostbite and heat for burns. However, through careful experimentation Hahnemann greatly refined and advanced the notion and practice of healing through similars, and developed a sophisticated understanding of posology (dosage) that reflects the *similia* principle. Hahnemann discovered that a medicinal substance, when taken at a sufficiently large dosage, would engender symptoms that are similar to those that it can also work to cure in a sick person.

In working to advance the law of similars, Hahnemann discovered that when a medicine is administered in a potentized form (i.e. having been subjected to serial dilution and succussion i.e. vigorous rhythmic shaking), that this allows for the potential negative effects of that medicine to be greatly mitigated, and for its healing powers to be significantly increased. This becomes especially clear when we consider the use of overtly toxic substances, such as mercury, that were widely used in a crude form by the medical establishment of Hahnemann's day.

Potentized medicines act on a dynamic plane, rather than purely on the physical-material level of the organism, affecting a global healing effect through the stimulation of the body's own innate healing capacities. As Hahnemann, speaking of potentized medicines, writes: "All medicines, without exception, cure those diseases whose symptoms most nearly resemble their own, and leave none of them uncured" (Hahnemann: 1996, § 25). When the dynamic action of a medicine is stronger than a dynamic affection (an individual state of disease), and the medicine and affliction possess a high degree of similarity to each other, then the medicine will overpower the disease, thereby affecting a curative response in the sick person. To understand the principle of healing through similars, and the homeopathic theory of health and disease, it is necessary to examine the notion of the life principle or vital force (Lebenskraft). Homeopathy is premised on the idea that there is an immaterial vital force that animates the organism, in both health and disease. The terminology "vital force" originated centuries ago, and may sound excessively vague or mystical to some. However, such misgivings are easily overcome when we consider the striking parallels which exist between notion of the vital force and findings in the contemporary field of psychoneuroimmunology.

Psychoneuroimmunology studies the interactions that take place between the central nervous system, the endocrine system, and the immune system and the myriad ways in which this complex communication network affects physical health. It has only recently come to be widely accepted that psycho-emotional and social influences can greatly affect a person's overall state of health through immune modulation, though homeopathy has maintained this idea since its inception. Hahnemann's claim that "the spiritlike life force (autocracy) that enlivens the material organism as dynamis, governs without restriction and keeps all parts of the organism in admirable, harmonious, vital operation, as regards both feelings and functions" (Hahnemann: 1996, § 9), is entirely consistent with the view that the psycho-neuro-endocrine-immune axis acts as a homeostatic controller of the entire human organism.

Hahnemann writes that "The material organism, thought of without life force, is capable of no sensibility, no activity, and no selfpreservation. It derives all sensibility and produces its life functions solely by means of the immaterial *wesen* (the life principle, the life force) that enlivens the material organism in health and disease" (Hahnemann: 1996, § 10). The vital force is that which regulates and governs function, sensation, and sensibility on all levels of experience. It is only when the vital force has become mistuned or deranged (e.g. due to a "morbific agent inimical to life", through stress or trauma, or even as a consequence of spiritual or karmic causes) that pathological symptomatology emerges in a given person.

The vital force only makes itself known through its effects on the human organism. Pathological symptoms are the language the vital force speaks in its efforts to be brought back into homeostasis. When a medicine is prescribed according to the similia principle, it will serve to generate a comprehensive healing response by means of a mobilization of the self-healing capacity of the organism.

Disease is a dynamic phenomenon: this implies that disturbances always transpire on a global, and never purely local, level of experience. Every disturbance, from pneumonia, to cancer to allergies to mania and psychosis, always already expresses itself simultaneously through mind and body. The idea that diseases originate in the mind, or conversely that they have a physical basis, are both incomplete and unsatisfactory explanations. Ultimately the origin or source of disease must always be sought *beyond* both mind and body.

This is the most radical implication of the homeopathic law of similars: that disease and healing are phenomena that exist



beyond the duality of mind and body.1 When deeply considered, Hahnemann's formulation of the vital force is shown to possess significant implications when it comes to thinking about cosmic processes and contemporary theories of quantum physics. Homeopath Irene Schlingensiepen-Brysch has suggested that the idea of a vitalizing force, which came to prominence in the science of the 18th century, may have been abandoned in favor of a mechanistic world view out of a "fear of a deeper-reaching cognition of a "primal force," expressed in life as much as in death" (Schlingensiepen-Brysch: 2009, 45).

Exploring the implications of such a primal force could bring about a paradigm shift in contemporary science: "It is conceivable that this force, enabling for a short time span the union of mind, soul and body in the living form familiar to us, may constitute a fifth fundamental force of the universe. It is also conceivable that we are not at all prepared for the new possibilities that basic research into these phenomena might uncover" (ibid).

Who knew that the law of similars could lead us straight into the heart of the deepest, foundational mysteries of our beloved universe?!

### Works Cited:

Hahnemann, Samuel. Organon of the Medical Art. Ed. Wenda Brewster O'Reilly. Palo Alto: Birdcage Press, 1996.

Schlingensiepen-Brysch, Irene. *The Source in Homeopathy: Cosmic Diversity and Individual Talent*. Kandern: Narayana Publishers, 2009.

Whitmont, Edward C. 'Alchemy, Homeopathy and the Treatment of Borderline Cases.' Journal of Analytical Psychology, 1996, 41, 369-386.

### Using Mutual Aid in Community Herbalism

#### **Presented by Denise Cusack**

If permaculture is designing ecological beneficial relationships in nature, social permaculture is designing beneficial relationships in our homes and communities. In our homes, that might be looking to create a mindful and intentional life for your multigenerational family, including future planning and resilient systems for aging parents. In our communities it might be working to design intentional communities or ecovillages, or to create health justice or food justice systems, or create mutual aid networks to benefit those who are underserved. When we try to craft our communities based on the same systems we base our cities, states, and nations, often that excludes the very people we wish to include, and developing trust after generations of harm can be a huge hurdle.

So, what does permaculture have to do with equitable systems, nonhierarchical leadership, and justice? The concepts of designing social structures based on patterns and behaviors, incorporating beneficial relationships to support the positive, and creating methods to incorporate all of our 12 principles, we can create collaborative systems that work to help and unite, not harm and divide. Humans are not separate from nature. We are a part of the global ecosystems and our actions and behaviors impact all communities including plant, animal, and human. Without acknowledging this we are not able to make systemic and substantial change. This includes our currency and economic systems and all of the relationships we steward and cultivate in our lives.

A lot of the work people bring into social permaculture comes from areas of expertise and experiential learning in foundations such as nonviolent communication, mutual aid, indigenous communication processes, and other community building and respect based tools. A lot of the foundation of respect based communication lies in emotional permaculture, also known as zone 0, the self and our inner landscape. Designing our own inner landscape to master our own selves, mindsets, behaviors, and patterns. By being the best me, I can better work to understand and collaborate with others, working as equals and not working to dominate. These principles are also a part of the foundation of the ecoversity, unschooling, auto-didact, and attachment parenting philosophies. When I work on myself and on my community, I look to create community mutual aid models that are sustainable over time, and resilient to changes and impacts.

### **Community Needs**

Assessing ourselves and our communities is a part of building solid models. When planning and doing needs assessments, thinking of mutual aid and what your community might need is the key. If you hope to create a collaborative or cooperative herbal share, for example, to share things with others doing this in your area, imagine how you might set up swaps, shares, or activities. Can you host a seed swap every spring? Do you want to grow a community garden plot of medicinal herbs for free clinics or community outreach and education?

#### SHARES/COOPS

Creating a community assessment can be simple or complex, depending on the needs, the people, the location, the types of disasters (or general needs) and so on. Thinking about what might be needed for others once you're safe and secure is helpful in disaster situations if you know what you're doing and you respect the first responders and don't cause them more work. Mobilizing first aid stations, care kit distribution, toiletry bags at evacuation centers, meal trees, and so on can help your neighborhood stay resilient in the face of increasing disasters.

A few questions in community assessment:

<sup>1) &</sup>quot;Every existing substance, when subject to the proving experiment, exhibits a similarity, hence also a healing capacity for some human (or animal) disturbed state. And, in view of the immense number of still unproven substances...we may well assume that for every possibility of human affliction, there exists a healing substance 'out there.' We confront here the amazing fact that psycho-biological response patterns that are aspects of the human life-drama are duplicated in the structural and life activity of the earth's substances. The psychosomatic totalities of ill persons and medicines appear as similar field patterns, mutually inclusive of human organism and non-human, 'external' and supposedly 'inanimate' substances" (Whitmont: 1996).



- 1. **Identify a need.** What are the specific preparedness needs of your community? Are there certain hazards that are more likely to occur in your area? Are you in a hurricane zone, fire zone, or where there are power outages and floods? Are there certain groups of people who are more vulnerable to these hazards?
- Find a location. You'll need to find a space where your community work can meet and/or store supplies. This could be a community center, someone's house, or each member of the cooperative stores something so that if one person is out or their home is impacted, there are still supplies.
- 3. **Recruit members.** This isn't really recruiting as much as it's building a local network of like minded people. It could be students of an herb school, people in your local herbal guild, or others in a neighborhood maker space.
- 4. Create a plan. Once you have a group of collaborators, you'll need to create a plan for your community co-op. This plan should include things like how you'll store supplies, how you'll communicate with members, and how you'll respond to emergencies. It could be that you have a neighborhood group that identifies the elderly, unhoused, or other people that might be more impacted by disasters and having a plan to support people if something happens. Or, that you have a neighborhood coop that helps each other when in need.
- 5. Start collecting supplies. Once you have a plan in place, you can start collecting supplies for your community co-op. This could include things like food, water, first-aid supplies, tools, herbal supplies, and so on. If you don't want to or need to collect supplies based on your plan, you could just organize a spreadsheet of resources and skills of the group see #7. Many people love using the Little Free Library system of mutual aid, in putting together donated supplies available to the public via a small box. Think of how and when people need support.
- 6. Hold training. It's important to hold trainings for your community co-op members so that they know how to use the supplies and how you'll respond to your community if you are looking at community level response and support - if you'll make herbal self care kits, perhaps you will make some for local unhoused people or the local women's shelter. If you are working to collaborate in growing medicinal plants or building community education systems, you might host activities such as seed starting days, seed swaps, or planting and garden work days. If you are hosting a once a month free clinic, your training days might bring together different practitioners/modalities and general volunteers to have a practice run through of how the free clinic will operate using friends and family.

7. **Communicate with members.** It's important to

communicate regularly with your community co-op members so that they know what is going on and how they can help. You can do ongoing assessments such as skills assessment, supply assessment, tool and equipment assessment, and keep a spreadsheet of who has something to offer and who has a need, so you can coordinate collaborations!

8. **Be prepared to respond to emergencies.** Your community co-op should be ready to support neighbors should a disaster happen. You could set up a first aid station, take self-care kits to a local shelter, check in on elderly neighbors and give them some herbal support to help during the stressful time, or set up a meal train that also gives people herbal tea.

As we discuss in the presentation, community supported herbalism using mutual aid principles can make a big impact, no matter the size of your group. A few collaborative programs that can be built using this model include:

- 1. **Herbal Health:** Healing individuals, intergenerational and cultural trauma, recognizing and valuing traditional knowledge, and recognizing healing is an individual journey.
- 2. **Community Education:** Knowledge-sharing in collaborative environments can integrate western knowledge with indigenous experiences and support community education that empowers people.
- 3. **Empowerment & Self Care**: Self-care puts the power of recovery and healing in the hands of the person, when our systems usually remove that power. Education and self-care is a critical part of our healing journey.
- 4. **Sovereignty:** Food sovereignty, health sovereignty, seed sovereignty, all play a role In healing intergenerational trauma and bridging communities. Collaborating with the land is rooted in deep healing for communities. Bodily sovereignty and accessible holistic health access for all is a part of this, as is trauma-informed care. Self-empowerment and control puts the power in the hands of the individual, and is very powerful.

By consolidating resources, forming cooperative and collaborative groups, and working together, we can create more efficient systems of low cost or free support for community herbalism models. This can look like:

- Equipment/Tool sharing
- Community Gardens
- Grow a Row
- Community Work Days
- Mutual Aid
- Reciprocity Based Systems
- Community Education
- Trauma Informed Practice Coops



- Alternative Currency Models
- Self-Care and Empowerment Models

As we discuss each element of mutual aid working in community herbalism, we will expand upon and think of creative ideas for our own communities that could work in our own scope, capabilities, and bandwidth. Collaboration is a key in community work, and building community creates a more resilient community.

### Using Permaculture Principles to Design Your Regenerative Herb Garden

Presented by Denise Cusack

What is permaculture? It's an ethical design system for ecological and sustainable living, integrating plants, animals, buildings, people, and communities. It's centered around 3 ethics : Earth Care, People Care, Fair Share.

Regenerative and sustainable practices in herbalism, aromatherapy, and holistic modalities is so important as we are all at the intersection of ecology and conservation of our wild and cultivated plants, and we are leading our partners, children, neighbors, and communities in how to work with plants and save our heritage for the future.

In permaculture, we actually prefer regenerative to sustainable, as sustainable isn't enough. Sustainable practices maintain the status quo, but Regenerative practices make things "better" than we found them. In Regenerative Herbalism and Aromatherapy, we look to use systems designed to reduce waste, improve the soil, water, environment, and habitat, produce more abundance, and make things better than we found them, leaving more for the future! Permaculture is not just a set of growing methods, but a life philosophy in many ways, asking us to think and evaluate what we are doing, and creating a plan based on the needs and desired outcomes that's functional, efficient, adaptable, and regenerative.

### **Climate & Ethical Harvesting**

Due to changing climate and more extreme weather events, our plants and resources are under threat. With more frequent forest fires, hurricanes, floods, freezes, tornadoes, the availability and supply chains are more likely to be impacted or interrupted, and growing our own and creating local networks can make a big impact.

A regenerative herbalist is a person that looks at the whole life cycle of the plant, and reviews the history, accessibility, conservation status, ecosystem, and commercial uses and applications of the plants. Regenerative herbalism restores soil health, looks to protect water and soil resources and biodiversity, enhances natural habitats, and works to create systems that produce no waste, create abundance, and increase ecological diversity in the new systems. Regenerative herbalists understand the impact of loss of habitat, depleted water resources, and climate impacts, and work to create resilience not only for themselves, but for their families and communities.

### **Garden Works**

There are several terms you should know for planning your permaculture-based regenerative garden. Some of these overlap a bit, and wording might vary based on your location.

**Polyculture**: a polyculture is a combination of two or more useful plants growing within a space at the same time. Polycultures mimic natural ecosystems. Choosing the right combinations of plants in polycultures can help reduce pest damage, retain water, complement each other through nutrient needs and soil enhancement, and increase yields.

**Alley cropping** is a type of agroforestry and is a form of polyculture where annual crops are planted between perennial crops, such as annual food plants being planted between rows of trees.

**Food Forest:** A food forest is a diverse planting of many types of edible plants in a way that mimics natural ecosystems and patterns found in nature. Food forests grow up, down, and out.

**Guild:** A guild is a community of plants that grow together and support each other in a reciprocal relationship, providing shade, nutrients, conserving water, attracting beneficials, repelling insects, and preventing erosion.

You can design a standalone single guild or link guilds together in a food forest. You can use alley cropping in your food forest to grow annuals between your guilds. You can incorporate polycultures into all of your guilds and food forests!

### **Multi-Use Plants**

In designing your guild, your plant selections should be what you want to grow and use, but also plants that target specific functions. Most people design guilds with a few key features - nitrogen fixing plants for fertilizer, plants to attract pollinators, plants to repel pests, suppressor plants to suppress undesired weeds, mulchers that help retain moisture, and accumulators which pull up nutrients from their roots and make them available to neighboring plants.

In permaculture we are problem solvers and believe solutions are in the problem. In building your plantings, you can companion plant based on function and create a network of living plants that help each other. Here are some plants that help us fulfill specific functions in the garden while also providing us with food and medicine.

**Nitrogen fixers:** Nitrogen is an essential nutrient, and helps plants grow and set fruit. Nitrogen is one of the top needed nutrients, so is often an area that is depleted or lacking. Certain plants work with bacteria and their roots to uptake the nitrogen available. They use some, but then as they biodegrade, they also fix it in the soil. Planting nitrogen fixers helps make this element available to other plants, helping your garden grow.



A few nitrogen fixers: Sea Buckthorn, Mimosa, Bayberry, Beans/ Legumes, Lupins, Peas, Licorice, Clover, NJ tea, Vetch, Alfalfa

**Repellents:** These plants tend to repel certain harmful moths, insects, and pests, often through their volatile oils.

A few repellent plants: Marigold, basil, chives, cilantro, dill, fennel, garlic, geranium, hyssop, lemon balm, peppermint, tansy, thyme

**Mulchers:** Plants that also make a good mulch via chop and drop (cutting them down and leaving the leaves on the soil) or via ground cover are helpful in that they act as natural fertilizers, they cover the soil to prevent moisture evaporation and erosion, and they may also repel certain insects.

A few mulcher plants: Rhubarb, lemongrass, chard, yarrow, nasturtium, legumes, peppermint

**Beneficial Attractors:** This is what it sounds like - plants that attract beneficial insects to your garden.

A few beneficial attractors: Milkweed, Yarrow, Dill, Angelica, Caraway, Coriander, Anise Hyssop, Tansy, Queen Anne's Lace, Monarda, Parsley, Spearmint, Marigold

**Suppressors:** Suppressor plants suppress weed growth through ground cover growth habits.

A few good suppressor plants: Red Clover, Squash/Pumpkin, Rhubarb, Strawberry, Nasturtium, Thyme, Peppermint

**Dynamic Accumulators**: These plants mine the nutrients from deep in the soil and bring them to the surface for use by other plants.

A few dynamic accumulator plants: Dandelions, Chamomile, Borage, Chickweed, Yarrow, Nettle, Strawberry, Chicory, Alfalfa, Comfrey

**Fertilizer/Compost Accelerators:** Some plants work well in the compost system and help accelerate decomposition such as yarrow. Others make great natural fermented fertilizers that you can make yourself, such as nettle, yarrow, and comfrey.

A few fertilizer/accelerator plants: Dandelion, Yarrow, Chamomile, Chive, Comfrey, Nettles, Seaweed

### **Companion Plants:**

Dandelion, Strawberry, Borage, Yarrow, Basil, Dill, Parsley, Lovage, Rosemary, Mint, Marjoram, Purslane, Tansy, Horseradish, Onions, Chives, Garlic, Sage, Marigold, Radish

We also want to choose plants that work for many other uses including of course herbal medicine, as well as aromatic medicine, food, flower essences, dye and craft plants, and more.

### Chop & Drop

Chop & drop is a method of cutting down plants and layering them on the ground to work as a mulch & fertilizer. This holds in moisture

at the base of your plants, feeds the plants as the chopped material breaks down, and feeds the soil. Some chop and drop plants also repel certain pests. Nitrogen fixing plants also release nitrogen into the soil and the root die off feeds soil microbiota.

Here are a few great plants for chop & drop:

- Rhubarb (rheum × hybridum), Perennial
- Sorghum (Sorghum spp), annual
- Lemongrass (Cymbopogon spp), annual unless in subtropical climates
- Chard (Beta vulgaris), Annual
- Yarrow (Achillea millefolium), perennial
- Nasturtium (Tropaeolum spp), Annual or perennial
- Licorice aerial parts (Glycyrrhiza glabra), annual unless in tropical climate
- Ashwagandha aerial parts (Withania somnifera), perennial, though roots harvested
- Peppermint (Mentha spp), perennial
- Legumes (peas & beans) aerial parts

By strategically planning and planting your guilds and polycultures, you can reduce the amount of work and inputs you need while increasing your yields. The ultimate goal in the design is creating areas of wild within your spaces to mimic natural growing conditions and therefore requiring less work and input. Thriving plants grown in wild conditions are powerful and vibrant.

All of those elements above are regenerative. The plants are good for more than one use, fit into a planned ecosystem, support the regeneration and improvement of soil, water, growth, and habitat, and produce food and medicine!

### The Essence of Permaculture

At its core, permaculture is not merely a fixed way of planting but a holistic philosophy. It encourages us to design systems that work in harmony with nature, ensuring sustainability and resilience. Permaculture can be seamlessly integrated into our herbal practice both in garden planning and sustainability, but also in social permaculture and community empowerment.

Permaculture offers insight for gardeners of all scales and in all locations. It promotes the creation of regenerative systems that work with, rather than against, nature. Whether you're tending to a few pots on a deck or managing a vast garden, permaculture's principles can empower you to cultivate a sustainable, resilient, and bountiful ecosystem.

### 5 Tips for Writing Herbal Email Newsletters

#### Presented by Camille Freeman

You've probably heard that writing a newsletter is a good idea to help market your practice/business. It's true! An herbal newsletter



The problem is that writing a newsletter consistently can feel awkward and unproductive. Maybe you aren't sure what to write, or you can't ever find the time to send newsletters regularly. In this short class, we'll talk about how to write newsletters that feel natural and matter both to you and to your community.

There aren't any secret tricks. It's just about practicing (i.e. sending newsletters regularly!) and experimenting a bit until you find a style and format that works for you.

### TIP #1: SOUND LIKE YOURSELF & REFLECT YOUR PRACTICE VALUES

- Don't try to be formal if you're not formal.
- Try voice typing if you feel awkward writing.
- Use contractions and informal language.
- Know why you are doing this work and who you're hoping to reach. Speak to and center these people and values in your writing.
- Create based on your own personality and strengths. Your writing and offerings should sound and feel like they come from you.
- You already have a voice and a unique perspective, and it will take time to develop both in this format.

#### TIPS #2: RECOGNIZE THAT YOUR WORDS MATTER.

- This is not strictly marketing work. It's healing work, too.
- Your newsletters reflect your practice mission and values, even if it's in very small ways.
- You can serve people by showing up in their inbox with valuable content, a kind word, etc.
- The newsletter is not about getting people to buy from you. It's about being visible to your community so that they know you and your work and will think of you when and if they are ready to buy what you have to offer.
- Provide value and support to your community, even especially
   to people who will never become clients/customers.

### TIP #3: SHARE CONSISTENTLY.

- Part of marketing is helping people get a feel for who you are so that they can decide if you'll be a good fit to work together. Another part is helping people feel or understand that they can trust you with their concerns. Being consistent is a way to show trustworthiness. You're showing up for your readers regularly.
- Consistent doesn't have to mean frequent.
- Each time you write a newsletter, you're practicing. Practicing is the best way to get better at something. In fact, it's the only way to get better at something.
- Pick a regular publish time and stick with it for 3-6 months, rain or shine. Re-evaluate after that time.

#### TIP #4: MAKE IT EASY.

- Your newsletter doesn't have to be long and involved. It can be 1 paragraph. It can be a short list of links or upcoming events. It can be a list of your best IG posts from the last month.
- Think about what would be helpful for your readers and community. Do that.
- If the idea of writing a long message every week is overwhelming, don't do that. Play with the content and structure until you wind up with something that feels easy (or easier) and useful.
- Not sure what to do? Look through your inbox for email newsletters that you like. What formats/structures are resonating with you? There isn't a single right format.

#### TIP #5: KEEP TRACK OF WHAT'S WORKING.

- As you write, you will solidify your voice and your thinking.
- Some newsletters will resonate more than others, with you and/ or with your readers. Keep notes on which ones these are, and which newsletters are more effective.
- How do we judge "effective"? Depends on why you are writing the newsletter. It may be based on opens/clicks or based, how many people purchased an offer, or how many people replied to the message.
- Record important stats monthly so that you'll have an idea of how things are going. I keep track of new subscribers, how many issues I sent, and open/click rates.

### **GUIDING QUESTIONS:**

- How can you serve your community, consistently, in your newsletter?
- How can you make it easier for people who are interested in and who are well-suited to your work feel a sense of trust and connection with you as a practitioner when they read your newsletter?
- How can you use your newsletter to think through and express your philosophy, mission, and values?

Please be in touch with questions or just to say hello: <u>www.</u> <u>camillefreeman.com</u> or <u>info@camillefreeman.com</u> You can check out <u>back issues of my newsletter for practitioners</u> if you like (no sign up required).

For additional resources, please see <u>https://www.camillefreeman.</u> <u>com/freebies/</u>

### Hawthorn Healing: Ancient Grove, Modern Hedgerow, Highway Mitigation Planting

### Presented by EagleSong Gardener

"The several hundred kinds of hawthorns laugh at the

★ H ★
 C × C
 23

single name they're forced to share. "

### The Overstory by Richard Powers

I am EagleSong Gardener. I live in Monroe, WA. A gathering place of peoples through time. Here, the Snoqualmie and Skykomish Rivers join forming the Snohomish River. Which, then continues westward to the Salish Sea. About 38 miles northeast of me, the Wenatchee River leaves Cady Pass, in the Cascade Range, and flows southeastward, passing through Lake Wenatchee. Along the way, Peshastin Creek joins her near the Big Y intersection of Hwy 2 and SR 97 and, finally, the Wenatchee joins the Columbia River near the city of Wenatchee and flows to the Pacific Ocean. It is in these river valleys that this tale of three communities of the *Generative Genius*, Crataegus takes place.

Over the last 30 years I have enjoyed a close affinity with the hawthorn genus. Two decades into this relationship I was asked one day on an herb walk, "What is hawthorn good for?" I was feeling testy that day and my overly abrupt response, "I don't know. What are you good for?" left the class a bit stunned. In that moment...I realized my herbal career, as I knew it, was over!

I, then, felt a light tap on my shoulder. As I turned around the hawthorn behind me said, "EagleSong, that's not her question, that's your question. Let's go walk about."

And, so began my ongoing apprenticeship with the the *generative genius*, the Crataegus species. It includes traveling to 6 countries in search of hawthorns and the people who know and use them. Today's tale brings us to 3 communities of hawthorn with decidedly different backgrounds and current purposes, all medicine and all healing.

### Snoqualmie River Valley & the Broken Hedge

Upon finding a broken haw hedge at a local farm along the Snoqualmie River years ago, I began picking hawthorn in earnest. I was diligent in harvesting the leaves and flowers in the spring and the fruits in the fall every year. While the rhythm of working haw was being internalized, the individual trees, the whole brokenness of the hedge and the surrounding environment escaped me back then.

Next, I traveled to England 3 times to deepen my understanding of my familial and herbal lineage. Each time, I arrived on May Day and the hawthorn was in full bloom. I began to see hawthorn in a whole/holy new light. Hawthorn hedges were everywhere. Some say 645,000 miles of hedge weave in crisscross patterns across England. These green highways provide habitat for some 600 plant, 1,500 insect, 65 bird and 20 mammal species. And, as in North America, beyond farmers, herdsman, country folk and a few herbalists I met, few people really saw them or had any direct connection with hawthorns.

I began to see the trees as so much more than just "herbal medicine". They were becoming habitat, food, medicine, hard wood chair pegs or tool handles, thorns for stitching or even holding captured bugs for a bird's later dining. I was even taken to a *very* old hawthorn grove by a friend and fellow gardener...oh, but that is another story...

### Wenatchee River and the Ancient One

Over the years, I've lived and worked tending a sacred hoop on both sides of the Cascade mountains with their very different habitats. The westside moist and temperate, easy living, if you will. The east arid, hot in summer and bone chilling cold in winter. When traveling back and forth, I began following backroads and byways looking for herbs to forage for my small herb company and gaining a grounded understanding of the plants in my repertoire so I could safely and wisely teach people how they too can use plant medicine in their lives.

Bill Vaughn, in his book, *Hawthorn: The Tree That Has Nourished, Healed, and Inspired Through the Ages* does an excellent job of broadening Hawthorn's place in the world. Paraphrasing Mr Vaughn, he tells of Lewis and Clark saying that when traveling in spring and early summer, one could see blooming hawthorn all the way from the Rocky Mountains to the Pacific Ocean. I found this to be true last June in a journey from teaching in Colorado and returning home to Washington. On the last leg of my travel, after finding several Haw groves through Montana and Idaho, I was heading west up Stevens Pass and there, in a place I had stopped several times before, was a grove of blooming Douglas Hawthorn I had never seen. Within the grove was a tree with 5-7 trunks, the largest measuring 4' 4" in circumference. This tree is the oldest Hawthorn I have seen to date in North America. The best time to find Crataegus species in your area is during the spring bloom.

Hawthorn is a keystone species, which means she provides habitat for herself and many others by creating a vital, diverse community through her dead & dying branches, fruit & flowers and her habit of spreading by roots and seed to enlarge into a nourishing, protective grove or thicket.

### The "Big Y" Mitigation Planting

While out scouting for elderberry one year, I came upon a large highway mitigation planting along Peshastin Creek with Blue Elder, *Sambucus cerulea*, in full bloom. I had never seen elder planted "on purpose" as there are so many wild trees in this part of Washington. I was thrilled to find such a good stand of elder and on closer inspection, I realized there were many native species in the planting.

As I took time to digest the meaning of this collection of plants, it dawned on me that even the Department of Transportation was "healing" the earth. Along with the elder was *C. columbiana*, Black Cottonwood, *Populous balsamifera trichocarpa*, many species of native currants and roses, Snowberry, *Symphoricarpus alba*, Mock Orange, *Philadelphus lewisii*, Ponderosa pine, *Pinus ponderosa*, and Saskatoon berry, *Amelanchior alnifolia*. Many forbes and other wildings were also settling in including salsify, alfalfa, yarrow, several drylands grasses, plantain, mushrooms, and pearly everlasting, *Anaphalis*. The eastern Washington Crataegus



tribe was well represented. Signs of bird, deer and small mammal activity were apparent.

A fine harvest area had, perhaps accidentally, been established for a meandering herbalist or forager out for the day!

# Take Aways from an ongoing apprenticeship with Crataegus the *Generative Genius*

- One must show up when the teacher is ready! Forget what you think you know. Pay attention.
- Take a moment to acknowledge yourself and the tree as sovereign beings before you do anything else.
- Ask if there is anything you can do for the tree you are addressing. Basic steps: learn how it grows & what it needs to grow well. Who is it growing with? How do they interact? Plants live in communities and can teach us much about how that can be done well by being observant of their communities/tribes needs.
- Then, engage your senses when taking the next step of interacting: seeing, smelling, listening, tasting, feeling (as in how *does* it feel...rather than how you *think* it feels!)
- ID first steps: Where is the tree growing? How big is the tree? What is the gesture of the tree? What do the leaf margins look like? What color are the flowers? What color is the fruit? How many seeds are in each fruit?
- Are all hawthorns edible? YES! As we get to know our local haws better, we'll become even more articulate in their uses.
- What drives your curiosity? What makes you wonder? Wander?
- What makes your heart grow stronger?
- Are humans a generative species? A keystone species? What does/might this look like for you in your life?
- BONUS: How many words can you find in the word HEARTH? What does that tell you about the importance of this place?

### **Resources:**

#### BOOKS:

Hawthorn: The Tree That Has Nourished, Healed, and Inspired Through the Ages - Bill Vaughn, Yale University Press, 2015

Fascinating, readable, winter is coming!

#### GOOGLE:

To find Hawthorn trees near you: Google: Crataegus spp., your country, city and/or state-province

For more academic works use Google Scholar with Crataegus spp. There's a lot out there!

#### YOUR LOCAL PLANT PEOPLE

Look for people in your area that are engaged in plant-community connection

### Explore Ikigai Be Well...Walk slowly and you'll go far...

### Primum Non Nocere; First Do No Harm: Common Drug/Herb Interactions

### Presented by Cara Gwizd

Accompanying the increased co-administration of botanical medicines with pharmaceuticals, is an increased risk of potential pharmacokinetic interactions between pharmaceuticals and the phytochemicals found within botanical medicines. These interactions not only posit the potential of an attenuation of pharmaceutical efficacy and potentiality, but the enhancement of pharmaceutical toxicity. Thus, knowledge of the ways that these interactions can manifest begins with an understanding of pharmacokinetics: the movement of drugs/phytochemicals throughout the body's bloodstream to organs, organ systems, and varying tissues, and the subsequent excretion/elimination of these compounds from the body. The four major processes of pharmacokinetics are often referred to as ADME which stands for the administration, distribution, metabolism, and elimination/excretion processes that collectively determine the concentration of phytochemicals/ drugs within the body. These processes will be explored utilizing Hypericum perforatum, Valeriana officinalis, Gingko biloba, Allium sativa, and Echinacea purpurea, although the basic tenets of ADME can be applied to numerous pharmaceutical drugs and botanical compounds to consider further possibilities of interaction.

**Routes of Administration:** Within Table 1, are the various routes of administration listed in addition to approximations of their onset of action and bioavailability; the extent and rate of the chemical compound that is absorbed into systemic circulation and available at the site of action. Each individual route of administration has several advantages/disadvantages which can be deduced from this chart. Note: Given the adherence to scope of practice, subcutaneous, intramuscular, and intravenous preparations have been omitted. Whereas the onset of action and bioavailability for rectal administration has been provided for information purposes only.

Routes of Administration	Organs/ Tissues Administration	Onset of Action	Bioavailability
Enteral (Absorbed through blood of GI Tract)	Mouth Rectum Sublingual Buccal	Slow (30 mins to >1hr) Slow incomplete Rapid (1-2 minutes) Intermediate	5% to 100% 30% to 100% 30% to 100% 30% to 100%
Topical Transdermal- skin Inhalation – lungs	Skin, Eye, Ear, Nose, and Lungs	Rapid to Slow (Dependent on targeted Organ)	5% to 100%

**Absorption/Therapeutic range:** Absorption is the movement of drug from the site of administration from the blood to the site of action. Absorption involves the crossing biological membranes



via diffusion through aqueous pores i.e., water soluble B vitamins, diffusion through the lipid bilayer of biological membranes based on a substance's lipid solubility i.e., Vitamin K, and substances that are dependent on carrier mediated transporters to either carry molecules across membranes either down their corresponding concentration gradients or via active transport. All compounds, whether naturally occurring, or synthesized via chemical synthesis, regardless of their route of administration, have a therapeutic range; the dosage that maintains the blood concentrations above the minimum to exert its intended effects while also below the concentration that induces toxicity. The exerted therapeutic effect depends on the activity at the receptor cites found across varying cells, tissues, and organs, and each compound targets these receptors based on the chemical constituents within them that act as active ingredients. However, there are certain herbal compounds that act as either an agonist: chemical constituent that binds to and mimics the action of an endogenous ligand; a naturally occurring molecule that binds to another, to stimulate a receptor, or an antagonist that binds to block the response/effect of an endogenous ligand at a receptor. Antagonists and agonists are often more evasive ways that pharmaceutical drugs and herbs can create interactions. The easiest ways to visualize these interactions is through the lock and key analogy located within Figure 2.



Common Botanical Agonist Valerian (Valeriana officinalis): Valerianic acid within valerian acts as a GABA receptor agonist as well as a GABA(A) receptor modulator; increasing activity at the GABA receptor sites in the brain. Those utilizing medications that act on GABA receptors such as valproic acid used to treat epilepsy and bipolar disorder through enhancing GABA receptor activity, benzodiazepine sedatives and anti-anxiety drugs such as diazepam (Valium), barbiturates such as phenobarbital and pentobarbital sedatives, or gabapentin used to neuropathic pain and epilepsy simultaneous with valerian risk interactions that induce impaired short-term memory in addition to various memory defects, impaired coordination, and insomnia. More seriously, concomitant use of GABA(A) receptor drugs and valerian my induce central nervous system depression by decreasing activity within the brain stem, suppressing respiration. Whereas pre-surgical administration of valerian can potentiate the sedative actions of anesthetics leading to valerian-anesthetic interaction. All such effects are exacerbated

within elderly individuals given the increased distribution of drug compounds within this population.

Distribution: Distribution is the movement of a drug from the original site of action via systemic circulation to other tissues within the body regardless of its intended site of action, inducing the therapeutic effect of substances. Distribution is a reversible reaction based on blood concentrations of a given pharmaceutical/ phytochemical. These concentrations of chemical constituents/ drugs are in equilibrium with the concentrations at the site of distribution and within systemic circulation. Any sudden decrease in concentration within the blood that is lower than the concentration of drugs at the site of distribution will provoke a redistribution of chemical constituents to ensure equilibrium is maintained at these two sites. Although seemingly simple, special considerations for elderly individuals when administrating any herbal compound given the increased risk of toxicity in this population due to physiological changes such as increase adipose tissue/fat composition within the body capable of storing benzodiazepines like valium and other GABA(A) receptor agonists should be considered before dispensing valerian, in addition to a common lack of disclosure of the use of benzodiazepines within this population.

**Metabolism:** Drug metabolism is also known as biotransformation. This process consists of the conversion of active ingredients/ chemical constituents into distinct chemical compounds called metabolites which are often devoid of any pharmaceutical activity. For metabolites to be excreted from the body, they must first utilize a metabolic pathway, aided by proteins or enzymes that serve as catalysts to ensure the conversion of active ingredients into metabolites; water soluble inactive compounds to undergo excretion. This step of pharmacokinetics is where most herb/drug interactions occur.

**Metabolic Pathways:** *Liver (Hepatic) Metabolism*: The liver is the main metabolic pathway as the most important enzyme the cytochrome P450 3A4 (CYP3A4) is present in high concentrations and is responsible for 70-80% of all biotransformation of chemical compounds.

*Intestinal Microflora Metabolism:* CYP3A4, the most common Cytochrome P450 enzyme is also found within the intestinal flora where biotransformation also occurs to a lesser extent.

**St. John's Wort (Hypericum perforatum)** a P450 agonist, increases the expression of these enzymes within both the liver and intestinal microflora leading to increased excretion of a given drug. Given that women have a higher-than-normal concentration of CYP3A4; P450 enzymes physiologically, this increase in concentration is known to adversely effect oral contraceptive use given that it lowers the serum concentrations of estradiol; synthetic estrogen necessary to ensure anovulatory cycles, which also produces irregular menstrual bleeding. SJW has also been noted to interact adversely with cyclosporine; an immunosuppressant drug for transplantation, leading to reduced drug concentrations which increases the risk of organ rejection via immune system stimulation in patients with heart, kidney, and pancreatic transplants.



**Gingko (Gingko biloba)** is an agonist or inhibitor of CYP3A enzymes (mainly CYP3A4). This increase in enzymes inhibits intestinal and hepatic metabolism of many drugs including a calcium channel blocker called diltiazem utilized to treat angina (heart-related chest pain), high blood pressure, and specific arrhythmias (irregular heartbeats) by reducing cardiac output; the force exerted by the heart. This inhibitory action is also seen within the anesthetic effects of midazolam, increasing the concentration of this drug within systemic circulation to be distributed elsewhere within the body, leading to potential toxicity. Finally, gingko has also been noted to attenuate, or lessen the effects of the blood glucose lowering tolbutamide; a type 2 diabetes drug, leading to dysregulation of blood glucose levels increasing the risk of organ damage.

**Echinacea (Echinacea purpurea)** has been found to significantly decrease the platelet nadir; the lowest value of blood counts after chemotherapy, severely dropping platelet counts to necessitate platelet transfusions when utilized in conjunction with the chemotherapeutic drug etoposide. Given echinacea's immunomodulating properties as it antagonizes immunosuppressants, it has been demonstrated to decrease the efficacy of chemotherapeutics. It has also been known to reduce the efficacy of tamoxifen; a selective estrogen modulator used to treat all levels of breast cancer through increased expression of CYP3A enzymes. Finally, when used simultaneous with antiretroviral drugs; used to treat HIV/AIDS patients, a decreased concentration of these drugs was noted, reducing their overall efficacy while increasing the risk of transmission.

**Garlic (Allium sativum)** in subtherapeutic doses was found to decrease chemotherapeutic clearance of docetaxel given its inhibition of the CYP3A enzymes, potentially leading to increased toxicity. Therefore, the concomitant use of herbs with pharmaceutical drugs, may create competition for the Cytochrome P45O enzyme given that there is a limited amount of enzyme capable of metabolizing drugs at any given time which may result in reduced metabolism for either one or both drugs leading to potentially toxic effects. Although toxic effects may only manifest after prolonged use in some cases.

Excretion is the last step of pharmacokinetics where metabolites are moved out of the body. Thus, all bodily fluids contain excreted amounts of pharmaceutical drugs, chemical constituents of plants, and their metabolites. This process is also known in pharmacology as clearance. Further considerations for special populations in terms of excretion include pregnant women who undergo an increase in blood volume, cardiac output, and rate of renal clearance which increases the rate of systemic circulation and clearance of drugs. However, the most important factor in maternal exposure is that the developing fetus is also exposed throughout pregnancy. Whereas during lactation, despite breast milk being a minor route of elimination, the risk of therapeutic or toxic exposures of drugs increases within children who are physiologically unable to effectively metabolize compounds due to their underdeveloped livers. Finally, the process of aging physiologically decreases renal function beginning at the age of 40, with considerable decreases within populations of advanced age.

**Kidneys (Renal) Clearance**: The kidneys are the site of major elimination given the water solubility of metabolites. However, within the kidneys, lipid soluble constituents can simultaneously be reabsorbed and excreted within systemic circulation.

Other sites of Clearance: Include GI tract elimination of fecal matter. Lungs can excrete volatile/gaseous compounds such as anesthetics whereas saliva and sweat also eliminate chemical constituents given that they are detoxification/elimination products.

**Notable Drug/nutrient interactions: Grapefruit:** Grapefruit and other citrus fruits are well documented to decrease the absorption of certain chemical constituents. Although grapefruit specifically contains a compound called Furanocoumarin, an antagonistic inhibitor of CYP3A4 amongst other cells in the GI tract, increases the absorption of drugs. This incidental finding occurred when cancer patients consumed grapefruit for breakfast while undergoing chemotherapeutic treatment with felodipine, leading to the 2.8-fold increase in its bioavailability and increased toxicity within said populations.

**Tyramine:** Found in aged cheeses, and other foods interacts with anti-depressant monoamine oxidase (MAO) inhibitors, which inhibit the enzyme responsible for breaking down tyramine. Therefore, if someone is taking a MAO inhibitor and consumes food containing tyramine, a dangerously high elevation of blood pressure could occur, leading to adverse effects.

### Herbal Therapies for Heartburn, Reflux, and Gerd

Presented by Oren Hercz RHP

### **Overview**

- Heartburn and acid reflux are some of the most common digestive complaints that people experience, something almost everyone has experienced at one time or another.
- In addition, many people experience chronic symptoms, leading to a diagnosis of GERD. A 2020 meta-analysis determined 14% of the global population meet criteria for GERD, with some major differences between regions (13% in Asia, 14% in Europe, 20% in North America)

### Heartburn, Reflux and GERD - Symptoms

- Symptoms are caused by regurgitation of stomach acid into the esophagus.
- Heartburn is a feeling of burning in the chest, behind the breastbone.
- Reflux is the feeling of acid and/or other stomach contents coming up the esophagus into the throat.
- If you experience these symptoms over a longer period, at least twice per week, this qualifies for a diagnosis of Gastro-esophageal Reflux Disease (GERD).



- Non-Digestive Symptoms may also be present:
  - » Bronchoconstriction/asthma
  - » Chronic cough
  - » Dental erosion
  - » Disordered sleep
- GERD, NERD, and ERD These are terms for subcategories of erosive or non-erosive types. Non-erosive Reflux Disease (NERD). Erosive Reflux Disease (ERD)
- Most people with GERD have the non-erosive type.

### ALARM SYMPTOMS (WHEN TO SEEK MEDICAL CARE)

- Dysphagia (trouble swallowing)
- Blood loss in stool or sputum, iron deficiency anemia
- Vomiting
- Unexplained weight loss
- Symptoms do not improve with standard recommendations

# What is causing the symptoms? Pathophysiology

- Symptoms are tied to poor functioning of the Lower Esophageal Sphincter (LES), which is meant to keep the contents of the stomach in the stomach.
- Your diaphragm and LES are really good at keeping stomach contents in their place.
- The LES naturally relaxes when we swallow or burp. This is normal. But sometimes it relaxes at the wrong time, or too often, leading to acid getting up into the esophagus.
- Many people with GERD have a hiatal hernia, which puts extra pressure on the LES.
- Stress is a major contributing factor for GERD. 41% of people with GERD report also having some form of psychological distress.
- GERD is often comorbid with IBS (36% with GERD also have IBS, 63% of people with IBS also have GERD)

### How Tissues Protect themselves

- Important to note, we have natural mechanisms to protect from acid, since this is normal:
  - » Peristalsis and saliva Esophagus can clear acid through muscle contractions and moving saliva down the tube..
- Over time, scar tissue can form as protection, and this can create the problem of Barret's esophagus. This can cause difficulty swallowing and increases the risk of esophageal cancer.

### **Medical Treatment**

- <u>Antacids</u> short term effects only, basically just buffering acid. Research shows they actually provide not much benefit vs placebo.
- <u>Proton Pump Inhibitors</u> Available over the counter at lower doses, or higher doses by prescription. Over the counter, you

are only supposed to take them for 2 weeks before seeing a physician.

- They work by suppressing stomach acid production, sometimes up to 80%, depending on the medication.
   They are very effective, and they do help heal erosion of the esophagus. Need a few days to get to maximum effectiveness.
- » 2nd only to statins in prevalence of prescriptions.
- » Chronic use is very problematic Increased risk of certain types of infection, bone fractures, SIBO, vitamin and mineral deficiencies (Calcium, B12, magnesium, iron).
- » So there is a case for short term use, but then people should be trying to reduce or eliminate them.
- » Rebound reflux can be a problem, so going off very slowly can be helpful.

### Herbal Therapy

### THERAPEUTIC STRATEGIES

- 1. Soothe and reduce damage to the esophagus (key herbal actions demulcents, vulneraries)
- Help food move through the stomach effectively without creating increased pressure or gas.
   Improve overall digestive health, microbiome, etc. (key herbal actions - carminatives, bitters)
- 3. Strengthen tone of LES (key herbal actions astringents, bitters)
- 4. Reduce Stress (key herbal actions nervines, adaptogens)

### Demulcents (for everyone)

I often begin any program with demulcent herbs as they can often provide quick and effective symptom relief. Starting with demulcents also decreases the chance that adding bitters or carminatives will aggravate symptoms.

### MARSHMALLOW

- Excellent soothing demulcent. Rich in mucilage.
- Coats, soothes, and heals mucus membranes.
- While it can be tinctured, I almost always use it as a tea or powder.

Infusion - 1 tsp. 3 tbsp. cut/sifted root to 1 cup room temp or hot water. Steep for at least 1 hour (longer if using hot water). You can also steep overnight.

<u>Strong infusion</u> - put 30g or so of root in a 1L mason jar, add tepid water. Infuse until it gets slimy (at least an hour or overnight), then strain it and put it in the fridge. Keeps 2-3 days in fridge.

Powder: 1 tsp. - 1 tbsp. powdered root added to a cup of water. Let stand until it gets slimy.



### SLIPPERY ELM (SLIPPERY ELM BALLS)

- Note: Slippery Elm is endangered in the wild. Use only sustainably grown and harvested Slippery Elm, and only when necessary (try Marshmallow first).
- Slippery Elm is very analogous to Marshmallow in its effects, and the reason I mention it here is because Slippery Elm Balls are tasty, convenient, and easily made, and may work better for some people that cannot consume Marshmallow or don't like it.
- Slippery Elm balls Slowly add honey to slippery elm powder and need until it reaches dough consistency. Shape into small balls and store in a tin. Suck on a ball as needed.

### LICORICE (GLYCYRRHIZA GLABRA)

- While not rich in mucilage, licorice root is also soothing and healing to the mucus membranes.
- I use DGL licorice, which comes in convenient lozenges that you suck on.
- DGL licorice doesn't carry the risk of elevating blood pressure as licorice root does

Dose: 250mg up to 2000mg/day as needed. Start by chewing a lozenge or 3 after meals.

### Vulneraries/Anti-inflammatories

Vulneraries and anti-inflammatories help heal tissue damage to the esophagus while also reducing inflammation caused by the immune response to acid in the esophagus.

#### MEADOWSWEET (FILIPENDULA ULMARIA)

- Very effective anti inflammatory and analgesic for reflux and gastric ulcers.
- Combines well with licorice, marshmallow, and chamomile.
- Astringent properties also may have some toning effects on the LES.
- "When in doubt, try Meadowsweet."

Tea: 1-2 tsp. steeped in 1 cup hot water for 45 minutes. Drink 2-3 cups/day.

Tincture: 1.5-3ml (30-60 drops) 3-4x/day.

#### PLANTAIN (PLANTAGO MAJOR)

- Soothing vulnerary eases irritation and inflammation, promotes healing
- Also has demulcent properties (like marshmallow), but only mildly and is well tolerated by some who don't do well with Marshmallow.
- Also a gentle astringent, so combines soothing and tightening/ toning action.

For gut healing, I use it exclusively as a tea (or fresh leaf in smoothies). Powder or capsules may also work. Standard tea dosages apply (1 tsp. - 1 tbsp. Per cup, steep 30-60 min.)

Other anti-inflammatory vulneraries: Calendula, Plantain, Gotu kola, Yarrow, Chamomile

### Bitters

Bitters increase saliva, tone the LES, and improve gastric emptying. They also stimulate digestive juices (stomach acid, enzymes, bile, etc.), support liver detoxification, and help regulate blood sugar.

Note: Bitters are beneficial for "cold" presentation, but may aggravate "hot" presentation.

Examples: Dandelion, Artichoke, Yarrow, Angelica, Turmeric, Orange Peel

### DANDELION ROOT (TARAXACUM OFFICINALE)

- Effective yet gentle bitter suitable for long term use.
- Contains inulin, a prebiotic
- Helps with fat metabolism and malabsorption of nutrients.
- Great roasted as a coffee substitute.

### Carminatives

Carminative is the action of aromatic plants in the digestive tract. Carminnatives settle the stomach, and ease gas, bloating, nausea, belching, and stomach rumbling. In terms of GERD/reflux, they Improve gut motility but may relax LES, so not for everyone.

Note: Generally beneficial for a "cold" presentation, but may aggravate some, especially those with a "hot presentation."

- Example: Peppermint, Ginger, Cardamom, Garlic, Fennel, Cumin, Thyme, Rosemary, and many others.
- <u>Note</u>: Chamomile and Catnip are carminatives that are suitable for a hot presentation

#### **CATNIP (NEPETA CATARIA)**

- Great children's nervine and carminative, helpful for children with heartburn
- Particularly useful for stress internalized in the GI tract. Also has calming nervine properties.
- Some herbalists assert it can benefit or even reverse hiatal hernia

Tea: 1 tsp. - 1 tbsp. Per cup of hot water. Steep 20-30 minutes. Tincture: 60-100 drops 3-4x/day

### **Nervines and Calming Adaptogens**

Many people's heartburn is exacerbated by stress, so nervines are indicated. Find nervines that also have digestive effects. Calming adaptogens (Ashwagandha, Tulsi) may also be indicated since they help to normalize the stress response

Specifically, these herbs are indicated for stress-induced digestive symptoms:

Chamomile, Catnip, Wood Betony, Valerian, Hops



### GERMAN CHAMOMILE (MATRICARIA RECUTITA)

- mild/moderate digestive bitter, carminative, and antispasmodic (depends on steeping time and amount)
- Gentle calming properties for anxiety and sleep issues (also dose dependent)
- Anti-inflammtory and soothing vulnerary for tissue healing.

# Energetic Presentations for Reflux and Heartburn

- Everyone tends to do well with demulcents and vulneraries, however, when it comes to which other herbs to include, differentiating between "hot" and "cold" presentations is helpful.
- I usually begin with demulcents, vulneraries, and maybe an astringent or anti-inflammatory like Meadowsweet, then work in carminatives and bitters based on the presentation.

#### **COLD PRESENTATION**

- Co-existing digestive symptoms, gas, bloating, belching, stomach rumbling.
- Tongue may be heavily coated with a white moss, and they may have low grade diarrhea (without urgency).
- Possibly they have other cold or deficiency signs such as poor circulation, fatigue, or nutritional deficiencies.
- Stress impacts may manifest more like fear, anxiety, depression.

These people will do better with warming carminatives and bitters along with the soothers.

#### HOT PRESENTATION

- More erosive, more actual damage to the esophagus is likely.
- Less gas, bloating, belching or diarrhea.
- More food triggers. May not do as well with bitters or warming carminatives.
- May have red receding gums, canker sores, sometimes a red pointed tongue
- Stress impacts may manifest more like short temper and anger.

Carminatives and bitters may irritate these folks, so proceed with caution.

### **Gut Healing Tea Example**

I will often combine the above actions in a digestive tea blend. Sometimes, I will just give demulcents on their own, and may support with bitter and carminative herbs in a tincture form Here is an example of a tea blend for someone with a hot presentation where stress makes symptoms worse:

- 3-5 parts Marshmallow (demulcent, rich in mucilage)
- 1 part Calendula (vulnerary, anti-inflammatory)
- 1 part Plantain (vulnerary, anti-inflammatory)
- 1 part Catnip (carminative, nervine)
- 1 Cinnamon Stick (or 1 part cinnamon chips)

### 1/2 part licorice

Pour a liter of just boiled water over 3-6 tablespoons of mixture. Let steep 2-3 hours or overnight. Drink 3-5 cups/day. Can be reheated but don't boil.

### **Other Things to Consider**

### DIGESTIVE/STRUCTURAL

- Avoidance of Trigger Foods/Beverages
  - » Spicy foods (citrus, tomatoes, hot peppers, etc.) burn if the tissue is damaged, but don't cause damage to the tissue.
  - » High fat, chocolate, soda, can increase pressure on the LES.
  - » Food sensitivities in general (gluten/dairy are most common) can contribute to reflux/heartburn.
- Avoid Alcohol and Tobacco predisposes for cancer of the esophagus.
- Elevation of the head of the bed 6 to 8 inches very good evidence this works.
- Avoidance of meals at least 3 hours before bedtime to get contents out of the stomach before bedtime.
- Diaphragmatic breathing When done after meals, was shown in one study to reduce reflux. It adjusts abdominal pressure and also helps reduce stress.

### NERVOUS SYSTEM

- Reduce Stress
- Getting into a parasympathetic mode, because that creates more saliva, and saliva is very important for reflux.
- Stress connection: When under stress, we may become more sensitive to pain in the esophagus. Also, stress depletes prostaglandins, which normally protects the stomach lining from acid.

### How long will healing take?

- Often relief can happen in minutes, particularly with the demulcent mucilaginous herbs.
- For people weaning off their medications, most commonly this happens over the course of a few weeks to several months.
- For those with more serious complicating issues (like IBS or SIBO) or with esophageal damage, improvement will take months and build over time.
- For people with longstanding issues, or that have been on PPIs for several years, it could take 1-2 years, but improvements should be noted consistently along the way.



Drug Class	Purpose	Trademark Name	<b>Botanical Interaction</b>	Effect
Anti-Coagulants Suffix: -arin	Decreases Clot- ting capacity to prevent blood clots	Heparin Warfarin	Gingko biloba (GB) Milk Thistle (MT) St. John's Wort (SJW) Eleuthero (E) Reishi (R) Ginger (GN) Garlic (G) Licorice (L)	GB -reduces platelets, inc. risk of bleeding. MT- antagonizes CYP2C9/ Drug toxicity. SJW – Inc. CYP3A4 decreases efficacy of drug. G – Spontaneous bleeding GN – reduces platelet stickiness, excessive bleeding E – interferes with CYP3A4 expression, and absorption R- inc. bleeding time, interferes with anti-coagulant effects
Antibiotics 'Many subclasses of abx have been grouped together for ease of chart	To target bacterial infections Gram + Gram -	Metronidazole (Flagyl) +- Doxycycline +- Tetracycline +-	Milk Thistle (MT) Barberry (B)	MT -antagonist: CYP2C9 (P450). Inhibits the distribution of drugs to active site, increasing antibiotic resistance of spe- cies through potential toxicity, and inc. clearance- Flagyl B- Doxy/Tetra – reduced absorption, reduced serum levels due to antagonist effects of B.
Anti-depressants SSRI's/MAO inhibi- tors	SSRI'S- inc. avail- able Serotonin MAO – inhibit enzymes A/B	Fluoxetine (Pro- zac) SSRI Phenelzine (MAO)	Tyramine foods (TF) Scotch Broom (SB) Ginseng (GIN)	TF – Excessive inc. of BP SB- high levels of Tyramine (MAO) SJW – antagonist for Serotonin Reuptake GIN – Reduced clearance
Benzodiazepines Anti-psychotics	Enhance GABA receptor function	Haloperidol Chlorpromazine Fluphenazine Promethazine	Milk Thistle (MT) Valerian (V)	MT -CYP2C9 (P450) antagonist which leads to reduced Metabolism, and inc. risk for drug toxicity V – GABA agonist and GABA(A) receptors inducing insom- nia, short term memory defects to more severe symptoms of CNS depression.
Beta- Blockers Suffix: -lol	Reduces Blood Pressure	Metoprolol	Garlic (G)	G int. with drug concentration given decreased clearance within kidneys, subsequent increase of blood pressure
Biguanides (Bigu- anides Derivative)	Control Blood glucose levels	Metformin	Milk Thistle (MT)	MT -Antagonizes CYP2C9, reducing B. Glucose
Cardiac Glycosides	Inh. Sodium Potassium ATPase Pump Inc. Cardiac Output, decrease heart rate.	Digoxin	Sarsaparilla (S) St. John's Wort (SJW) Eleuthero (E) Licorice (L)	L – renin angiotensin aldosterone system imbalance, loss of potassium, leading to toxicity SJW – inc. of CYP 3A4 (450) – inc. clearance E- antagonist for CYP cytochrome – inc. levels of digoxin S – increases absorption, decrease elimination inh. CYP 450
Chemotherapeutics Wide range of actions, custom- ized formulations to target specific cancers	Various mecha- nisms to target cancer cells	Docetaxel Paclitaxel	Eleuthero (E) Echinacea (ECH)	E – Concerns over possible crash of immune function, ECH- Nadir platelet levels w. Paclitaxel/Docetaxel
Insulin	Control Blood glucose levels	Insulin	Milk Thistle (MT) Fenugreek (F)	MT - antagonizes CYP2C9, reducing B. Glucose F- Interferes with serum distribution to active sites, in- creases clearance of sugars.
Non-Steroidal Anti-inflammatory (NSAIDS) Suffix: -fenac	Reduce Inflam- mation within the body	Dromfenac Diclof- enac Nepafenac Ibuprofen	White Willow Bark (WWB)	WWB- content of salicin, converted to Salicylic acid in the body induces receptor competition, reducing blood serum levels of NSAIDS.
Oral Contraceptives	Prevent Pregnan- cy through Sup- pression of ovula- tion/Discouraging implantation	Alesse Levonorgestrel Tri-cyclen Aviane	St. John's wort Red Clover (RC)	SJW -Intra-menstrual Bleeding/ changes in cycle Reduction of Serum estrogen levels/ less efficacy RC- Estrogen to Estrogen interactions, competitions for re- ceptor sites, inc., alters level of CYP Cytochrome enzymes within liver.
Proton Pump Inhibi- tors (PPI) Suffix: -azole	Reduction of acid reflux by Target- ing H1 receptors	Omeprazole Lansoprazole	St. John's Wort (SJW)	SJW- The increased expression of CYP3A4 induced by SJW increases the drug metabolism and clearance of these compounds, thus reducing serum levels needed to target acid levels.
Statins Suffix: -statin	Cholesterol Low- ering Drugs	Atorvastatin Lov- astatin Pitavastatin	St. John's Wort (SJW)	-Decreased serum blood levels required due to excessive inc. in clearance brought about by rapid metabolism by CYP3A4 cytochrome P450



### Marvellous, Mushy, Marshmallow

### Presented by Oren Hercz RHP

Common Name - Marshmallow; Latin name - Althea officinalis; Family - Malvaceae

Marshmallow is a plant whose taste and texture gives a very strong indication of how it can be used for medicine. What you are tasting/ feeling are the presence of mucilaginous polysaccharides, which gives Marshmallow its soothing demulcent properties, and are a key to its many uses. Let's dive in!

### **Marshmallow Botany**

- Marshmallow is native to Europe from Denmark southwards, but naturalised throughout North America.
- It is a shrub like perennial growing up to two metres tall.
- Lilac pink flowers have 5 petals, and column-like structure in the centre bearing stamens.
- Stems branch from the base and contain alternate leaves which are palmately lobed. Leaves sometimes appear ovate or cordate, with serrated edges.
- Leaves are coated in fine hairs, making them soft and fuzzy to the touch.
- Whitish beige slender tapering roots have a sweet tasting mucilaginous quality when chewed.

### Growing & Harvesting Marshmallow

Marshmallow is a great herbal ally that is relatively easy to grow in the garden.

- It is a relatively easy to grow perennial that prefers damp areas, but will thrive in average garden soil. It likes full sun to partial shade.
- The root is most commonly used and most potent, but leaves/ flowers can be used similarly with milder properties.
- Leaves are generally harvested before flowering, but can be harvested throughout the growing season as long as they are green and vibrant.
- Roots are harvested in autumn or early winter after the aerial parts have died back.

### Using Marshmallow

<u>Energetics</u>: Marshmallow has a very strong energetic signature, which presents a valuable lens to understand how it can be used. It is classified as cool and moist, with a sweet/bland taste.

<u>Primary Actions</u>: Many of marshmallow actions are again attributed to its mucilage content. The actions are: anti-inflammatory, bulk laxative, demulcent, diuretic (soothing), emollient, expectorant, vulnerary, immune modulating.

<u>Specific indications</u>: The specific indication is a shortcut to understanding the most obvious patterns that call for an herb. For Marshmallow, the specific indication is "Hot, dry inflamed mucous

membrane tissue in the throat, gastrointestinal tract, or genitourinary tract."

### PRIMARY USES:

Marshmallow is a demulcent that soothes hot, dry, inflamed, mucus membrane tissue in the following areas:

- Respiratory relieves dry cough, sore throat, hot/dry lung conditions. It can also be used for preventing illness in the dryer months to help maintain healthy mucus membranes, which provide a barrier against infections.
- Digestive tract: Anywhere we suspect the tissues are hot/ inflamed/irritated: as in gastritis, ulcers, heartburn/GERD, Irritable Bowel Syndrome, Irritable Bowel Disease, etc.
  - » It can also help both constipation and loose stools. It can help bulk up the stool and also acts as a bulk laxative.
- Genito-urinary tract: reduces bladder/urethra irritation, so it can be helpful for urinary tract infections, although it is not curative. It can be used to soothe the pain, and is best combined with antibacterial herbs to address the infection.
  - » It is helpful for other conditions where the ureters are inflamed such as interstitial cystitis, painful urination, and it can even help ease the passage of small kidney stones.
- Helps lower cholesterol and triglyceride levels.

### SECONDARY USES

- It can be used as a poultice as a local anti-inflammatory for hot and dry skin issues such as styes, boils, burns, insect bites, or even certain forms of eczema or dermatitis.
- A saline tea of the root can be used as an eye wash for red, itchy, dry eyes.

### Safety Concerns

- Excessive consumption can cause loose stools.
- There is a theoretical concern that Marshmallow can slow or inhibit the absorption of prescription drugs because of its mucilaginous properties. To err on the side of caution, separate from medications by 2 hours.

### **Preparations and Dose**

<u>Infusion</u>: Cold infusion, or hot infusion allowed to cool. 1 tsp. to 3 tablespoons per cup, steep at least 1 hour. Drink 2-4 cups/day

<u>Food</u> - young leaves are great consumed as an early spring green, in salad, or incorporated in soups and stews. Young shoots, leaves, flowers, or roots added to soups and sauces (thickening agent). Young roots can be sliced and sauteed.

<u>Tincture</u>: Fresh root (1:2, 60% alcohol). Dry root (1:5, 30-50% alcohol). 3-5ml 3x/day

The powder can be incorporated into capsules, lozenges, or mixed into food.

### Delicious Decoctions

#### Presented by Susan Horning, CHT, BBA

Decoctions are medicinal drinks and/or broths made from heating or boiling plants in a menstruum, simply hydrolyzed in water or sometimes combined with other liquids such as soups, tea, milk, plant mylk, soup, tea or honey. They can be used to deliver a stronger tasting and sometimes richer drink than herbal infusions and for this reason they are a creative and delicious way to offer an herbal preparation. Soups and broths are a form of decoction, and adding herbs to food while cooking is a excellent way to offer this type of herbal preparation.

Generally it is the roots, rhizomes, bark, seed, berries and fruit of plants that are most effectively extracted when heated or boiled. Sometimes it helps to soak the herbs in cold water for up to 2-4 hours before applying heat to soften the herbs and aid in extraction. Usually one to three teaspoons of herb per cup of water is adequate, depending on the formula and therapeutic dosage. Concentrated decoctions can last 2-3 days in the refrigerator, or can be dehydrated to a powder to preserve longer.

Experiment with combinations of sweet, salty, pungent, sour and bitter to invent formulas that are palatable, nutritious, and medicinal. Offset strong flavours by experimenting with dosage, dominant flavour profiles, warming and cooling qualities, as well as adding sweet herbs to help the medicine go down! The following is a list of herbs that work well in decoctions, and with a little practice all of them can be combined skillfully to taste delicious.

Roots and Rhizomes: Angelica root (*Angelica archangelica*), Ashwaganda root (*Withania somnifera*), Astragalus root (*Astragalus membranacus*), Burdock root (*Arctium lappa*), Chicory root (*Cichorium intybus*), Dandelion root (*Taraxacum officinale*), Dan Gui root (*Angelica chinensis*), Elecampane root (*Inula helenium*), Ginger rhizome (*Zingiber officinale*), Hydrangea root (*Hydrangea arborescens*), Kava kava root (*Piper methysticum*), Licorice root (*Glychrriza glabra*), Sarsaparilla root (*Smilax officinalis*), Shatavari root (*Asparagus racemosa*), Turmeric root (*Curcuma longa*), Valerian Root (*Valeriana officinalis*), Wild Yam root (*Dioscorea villosa*), Yellow Dock root (*Rumex crispus*).

Barks: Cinnamon bark (*Cinnamomum verum*), Crampbark (*Viburnum opulus*), Wild cherry bark (*Prinus serotina*)

**Seeds:**Aniseed (*Pimpinella anisum*), Black peppercorn seed (*Piper nigrum*), Cardamom Pod/Seed (*Elettaria cardamomum*), Celery seed (*Apium graveolens*), Chocolate bean/seed (*Theobroma cacao*), Fennel seed (*Foeniculum vulgare*), Fenugreek seed (*Trigonella foenum-graecum*), Nutmeg seed (*Myristica fragrans*), Star anise seed (*Illicium verum*)

**Fruits:** Bilberries (*Vaccinium myrtilus*), Cayenne fruit (*Capsicum spp.*), Citrus fruit and peel (*Citrus spp.*), Elderberries (*Sambucus nigra*), Goji berries (*Lycium barbarum*), Hawthorne Berries (*Crategus oxycantha*), Schizandra Berry (*Schizandra chinensis*) Most berries!

**Mushrooms:** Lion's Mane Mushroom (*Hericium erinacea*), Chaga Mushroom (*Innotis obliquuis*), Reishi Mushroom (*Ganoderma spp.*), All mushrooms!

Herbs to avoid in decoctions: Anything too bitter or too pungent (ie. Actaea racemosa, Artemesia spp.), anything leaf or flower (ie. *Mentha x piperita, Matricaria recuitita*), mucilaginous plants – heat kills the mucilage (ie. Marshmallow, Slippery Elm, Plantain).

Try my delicious Tao Cacao recipe: Combine equal parts powdered cacao, licorice root, dan gui, shatavari, ashwaganda, and roasted dandelion root. Add 1 tsp of each to 6 cups cold water, bring to a boil, simmer 5 minutes and add 1 cup coconut milk. Strain and serve as a warm, soothing, and balancing adaptogenic drink.

### Intro to Spagyric Tincture Making

#### Presented by Megan Kendrick, RH

### **Supplies**

- Plant material
- Alcohol
- Flameproof glass pot
- Heatproof gloves
- Infrared thermometer
- Propane stove
- Glass pie plate
- Long handled metal spoon for grinding ash
- Funnel
- Coffee filters
- Glass jars

### Procedure

- 1. Follow basic tincture making directions and allow tincture to macerate for 4-6 weeks.
- 2. Separate the liquid tincture from the marc, put the liquid away for now.
- 3. The marc is now burned, in a flameproof vessel (borosilicate glass is preferred). It will create quite a lot of smoke during the first stages of the burning that can last hours depending on the quantity of material used. This step needs to be done outside.
- 4. Once the marc has turned black and stopped smoking completely, a lid can be placed on the incineration vessel creating a furnace like environment.
- 5. The burned marc will now undergo the process of calcination. Apply continuous heat in the range of 300-400 degrees Celsius (approx. 600-800 F) until the ash is completely lightened in colour, as close to white as it can get. Throughout this time you will want to periodically grind the material down to increase the surface area which will speed up the calcination process.



- 6. Once the calcination is complete the ash should be as close to snow white as you can get it (although some tonal variations exist with different plants), and have absolutely no black specks. If calcination is complete the ash will have a silky almost slippery feel to it when rubbed between the fingers and will have no grittiness (although I have found occasionally there may be sand particles that do leave a bit of grittiness).
- 7. Place the ash in a new, clean glass pot and cover with 2-3 times the volume of distilled water. Heat this on the stove gently, do not allow to boil. The water soluble salts will dissolve into the water. The insoluble ash will settle on the bottom of the pot. The clear water can then be decanted off and strained through a coffee filter to remove any residual ash. The ash can be discarded, although there are uses for it in some advanced techniques. I've tried heating for short periods (20-30 minutes) and longer periods (12+ hours) and have found the difference in the quantity of salts extracted to be negligible on the scale I am working on. More thorough extractions may be desirable in advanced works and techniques, but I have found a shorter extraction to be sufficient for this application.
- The filtered water should be clear with no colour at all. This water should be placed in a shallow glass tray like a pie plate and evaporated slowly until only the mineral salts remain. This can be done outside in the sun, on a heating pad or in an oven set to very low (under 200 degrees F). If the calcination was insufficient, you may see a yellow or orange tinge to the water. In this case the salts must be recalcined as they may contain toxic compounds.
- After evaporation the mineral salts should be white. Colour can indicate insufficient calcination. The salts can now be scraped off the glass plate, ground finely and added back to your tincture. This is called the Alchemical Marriage.
- 10. The tincture now needs time to digest and should be kept in a warm spot, ideally around body temperature, for 2-6 weeks (warmer=shorter). A heating pad may be used.
- After this period of digestion, the tincture is filtered through a coffee filter to remove any residual salts.
   Whatever is filtered out can be discarded, although like the ash, in more advanced works and techniques you can further process and utilize the material.

12. Your spagyric tincture is now ready to use!

Note: do not use any metals except stainless steel, neutral nonreactive glass or ceramic are preferred whenever possible.

Dosage of spagyric tinctures is generally 1/3-1/2 that of their conventional counterparts.

### **Benefits of Spagyric Tinctures:**

Tincture becomes neutralised (pH ~7) (basic tinctures are generally acidic, as low as 3 on pH scale).

Utilizing all parts of the plant, holistic preparation.

Colloidal suspensions of chelated minerals and carboxylates are formed - compounds that would otherwise not be present in basic tinctures.

Active compounds in tinctures, spagyric and otherwise include terpenes, alkaloids, polyphenols, proteins which exist in a class of compounds called carboxylic acids. Carboxylic acids aren't easily assimilated by the body, and many are essentially metabolised and neutralised by the liver before they are able to go through further stages of digestion and pass through into the tissues and areas of the body that they are needed.

### **Further Reading and Resources:**

Bartlett, Robert Allen. "Real Alchemy". Ibis Press, 2007.

Junius, Manfred M. "Spagyrics: the alchemical preparation of medicinal essences, tinctures and elixirs". Healing Arts Press, 2007

Maveric, Jean. "Hermetic Herbalism: the art of extracting spagyric essences". Inner Traditions, 2020 (English translation).

### Plants and Planets

### Presented by Megan Kendrick, RH

"A physician without a knowledge of astrology has no right to call himself a physician". -

— Hippocrates

### A Brief History of Herbal Astrology:

The above quote shows us that as far back as the time of Hippocrates, considered by many to be the founder of modern medicine, medicine people worked in relationship with the cosmos.

Medical astrology is an ancient and complex art and science. There are written documents from ancient Egypt, Greece, China and India showing the application of medical astrology. Although less documentation exists elsewhere, it is likely that many ancient cultures all around the world incorporated their knowledge of the stars into their healing and wellness practices and rituals.

Over the years cultural interventions, mainly religious, drove the philosophies and teachings of medical astrology into obscurity



and secrecy. Colonial pursuits further destroyed or decimated local traditional herbal and astrological teachings.

The western system has survived, to the credit of many practitioners over the years who practiced and documented in secrecy and at great risk to their own lives, and is now seeing a renaissance. It will be from this perspective that we will be exploring the relationship between plants and planets, however there are many other systems and they all differ slightly.

### Plants

Herbal or plant based medicine is the most common form of healthcare in the world with around 80% of the global population relying on traditional forms of medicine as their primary form of care. Plant based medicine is the original medicine and every single culture on earth has a rich history. These traditions have many differences, and use different plants based on the environment, but there are some common threads that run between them. One of these threads is called "energetics" and is foundational to exploring how plants relate to planets.

### **Herbal Energetics**

The term "energetics" is a bit misleading. Although it explains some more esoteric and unseen forces, it also describes very physical and tangible manifestations. In most herbal traditions there is some variation on energetics and in western herbal medicine the 3 main qualities we look at are temperature, moisture and tone. These manifest in various degrees with the extremes being hot and cold for temperature, damp and dry for moisture and tense and relaxed for tone.

Energetics can be used to describe both a plants actions and its effect in the body. For example, cayenne pepper is known to have hot and dry energetics and in the body we can easily sense it's hot action and although it's drying qualities aren't as obvious as it's heat, cayenne is known to help dry up damp tissue states.

### Planets

In traditional medical and herbal astrology there are 7 main "planets" that are considered. These are the Sun, Moon, Mercury, Venus, Mars, Jupiter, and Saturn. Plants can be classified under one, and sometimes more than one, of these planetary rulers. This classification is based on many factors including the habitat of the plant, it's medicinal actions on the body, and it's physical characteristics. Sometimes different parts of the plant may interact in our bodies differently and these can have more than one ruler. Some plants have different actions when used dried as opposed to fresh, and these also may express different planetary correspondences (eg. ginger).

### SUN

Day: Sunday

Energetics: Moderately hot and dry, stimulating Organs and Body Systems: heart, eyes, thyroid, male reproductive system, pituitary gland, fertility, circulation **Taste:** Pleasant **Colour:** Yellow, orange, and red **Metal:** Gold **Archetype:** Life Force, Divine, The Father **Illness & Imbalance:** Heart issues, circulation issues, general vitality (low energy) **Action on the body:** Cardiac, antidepressive, adaptogenic **Plant Habitat:** Dry and light loving. **Herbs:** St John's wort, calendula, chamomile, pine.

### MOON

Day: Monday Energetics: Cold and moist, nourishing Organs and Body Systems: womb, brain, bodily fluids, lymphatic system, fertility Taste: Sweet Colour: Silver, grey and white Metal: Silver Archetype: The Mother, The High Priestess, Triple Goddess Illness & Imbalance: Menstrual issues, heavy, dull pains, watery discharge, bodily fluids. Action on the body: Pain relief, emmenagogue, galactogogue, cold and numbing. Astrological Sign: Cancer Plant Habitat: by water Associated Herbs: poppy, lettuce, melon, willow, marshmallow.

### MERCURY

Day: Wednesday Energetics: Cold and dry, but mutable Organ and Body Systems: Nervous system, brain, lungs, 5 senses, Taste: Distinct Colour: Purple Metal: Mercury Archetype: The Trickster, Horus, Hermes Trismigestus, The Magician (Tarot) Illness & Imbalance: Speech issues, learning difficulties, dementia, anxiety. Action on the body: Mind, respiratory system, sight, speech, nervous system. Astrological Sign: Gemini and Virgo Associated Herbs: fennel, licorice, lavender, valerian, dill. VENUS

### Day: Friday

Energetics: Moderately cold and quite moist, relaxing

Body Systems: Kidneys, urinary system, complexion, skin, immune system Taste: Aromatic

Colour: Pink



### Metal: Copper

Archetype: Venus, Aphrodite, The Empress (tarot)

**Illness & Imbalance:** Diabetes, infertility, impotence, venereal disease

Action on the body: Hair, complexion, reproductive organs, aphrodisiac (love)

Astrological Sign: Taurus and Libra

**Associated Herbs:** mint, mugwort (moon), motherwort, yarrow, rose (jupiter)

### MARS

Day: Tuesday

Energetics: Very hot and dry, stimulating

Organ and Body Systems: Circulation, formation of blood, male reproductive system, bile, gallbladder, muscular system, pancreas Taste: Pungent, Spicy

Colour: Red

Metal: Iron

Archetype: The Warrior, The Tower (tarot)

**Illness & Imbalance:** Rashes, inflammation, hot, sharp pain, fevers, wounds.

Action on the body: Stimulating, warming, eliminates poison, aphrodisiac (passion)

Astrological Sign: Aries and Scorpio

Associated Herbs: dried ginger, nettle, garlic, mustard.

### JUPITER

Day: Thursday

Energetics: Warm and moist, expanding

**Organs and Body Systems:** liver, reproductive glands, semen, fatty tissues,

Taste: Bitter

Colour: Yellow

Metal: Tin

**Archetype:** The Great Benific, Roman King of the Gods, Wheel Of Fortune (Tarot)

**Illness & Imbalance:** Liver disorders, varicose veins, digestion, alcoholism

Action on the body: Digestive, hepatic, supports proper elimination of toxins

Astrological Sign: Sagittarius and Pisces

Plant Habitat: Variable, but often sunny.

Associated Herbs: dandelion, milk thistle, burdock (Venus), lemon balm

### SATURN

Day: Saturday

Energetics: Cold and dry, constricting

Organ and Body Systems: Skeletal system, joints, ligaments, teeth, bone, hair, nails Taste: ill-tasting Colour: Variable, green and white

Metal: Lead

Archetype: Father Time, Zeus, The Emperor (Tarot), Karma Illness & Imbalance: Poison, structural issues (bones, ligaments), arthritis, depression, fear,

Action on the body: Structural support, mineral building, toxic, psychedelic

Astrological Sign: Capricorn and Aquarius

Plant Habitat: Waste areas, swamps, dark places

**Associated Herbs:** horsetail, cannabis, comfrey, many mushrooms (moon), henbane, belladonna, the poison plants.

### Further Resources and Reading:

Brooke, Elisabeth. "Traditional Western Herbal Medicine". Aeon Books, 2019.

Cornell, HL. "Encyclopedia of Medical Astrology". Originally published by The Cornell Publishing Company, 1933.

Culpepper, Nicholas. "Culpeppers Complete Herbal". Originally published by Richard Evans, London, 1814.

Popham, Sajah. "Evolutionary Herbalism". North Atlantic Books, 2019.

Medical Astrologer Judith Hill

Many books published through Stellium Press. judithhillastrology.com

### Fraxinus Excelsior

Presented by Dr Rosari Kingston

### What is it?

The European ash, *Fraxinus excelsior*, is a species of ash tree native to most of Europe. It is a deciduous tree in the genus Fraxinus and can reach large heights. The tree is recognised for its distinctive pinnate leaves and is valued for its timber, which is used in a variety of applications such as furniture and tool handles.

It is also well recognised for being the only wood that can be burned green and yet produce a lot of heat.

In Ireland we connect them with the hurley and camogie stick, as well as, more lately, the fungus that kills them, ash dieback.

### Mythology

The ash tree is revered in different cultural traditions. In Norse mythology it is the cosmic tree that underpins the entire universe. It acts as a portal between realms and is home to a variety of creatures, thus representing the interdependence of all life.

In Celtic mythology the ash tree is seen as a symbol of well-being, and also the world tree or "Bile," which connects the three realms: the upper world (heaven), the middle world (earth), and the lower world (underworld).

Three of Ireland's five great guardian trees were ash trees. These were *Bile Tortan* near Tara, *Creabh Daithi* near Fairbill in Co. Westmeath, and *Creabh Uisnigh* near Uisneach in Co. Westmeath.



It is worth noting that two of these sites, Uisneach and Tara are two royal sites.

### The ash tree as a protector.

This idea of protection can also be observed in Lucas'<sup>2</sup> investigation of 210 holy wells across the country, where he discovered that 103 of the trees surrounding them were Hawthorne and 75 were ash. The remaining 32 were dispersed at random among diverse species.

The ash tree is associated with childbirth in Scotland, and during the birth of a child, the nurse or midwife would place one end of a green stick of ash into the fire, collecting the sap that seeped out the other end on a spoon. This was then administered as the first drop of liquid to the new-born child. This was done to strengthen the infant and safeguard it against witches and other evil spirits.3

There are many different stories, legends and myths related to the Ash tree but for now we need to explore the different ways the ash tree was used to treat rheumatism.

### Ash leaves

We know from the National folklore Schools collections that ash leaves used as a cure for rheumatism.

- A great cure for Rheumatism is to pick ash leaves and boil them and drink the water in which they boiled. NFCS: 0640, Page 387
- The water in which young fresh ash leaves are boiled relieve rheumatism and other nervous diseases.
   NFCS: 0168, Page 328
- Boil some common ash leaves in water, drain, and take a wineglass full of the water every day. NFCS 0392, Page 095
- A cure for rheumatism is to boil ash leaves and drink the water. NFCS 0525, Page 029
- Another cure for rheumatism is ash leaves picked in spring and boiled and strained and some of it taken every day. NFCS 0754:293
- The water in which young fresh ash leaves are boiled relieve rheumatism and other nervous diseases. *NFCS 0168:293*

### Used also for gout.

• Ash leaves:- Laxative and purgative. Useful in case of gout and arthritis.

NFCS: 0385: 054

# In another account we are told it is the ash seeds are used.

- The ash seeds are plucked then dryed and finally made into a tea. This drink is made the same way as ordinary tea but ash seeds are used instead of tea leaves. The tea must be taken when very fresh, without sugar or milk. It is cure for rheumatism. NFCS. 0204: 142
- The seeds of the ash tree worn in the stocking will cure rheumatism.

NFCS. 0382: 077

### The ash was also used for earache.

- Ash tree:- a small piece of ash tree was put in the fire and the juice out of it was put in the ear for an earache. NFCS 0289:315
- A pain in your ear get a bit of waden dip it in the diuce of an ash tree and put it in your ear. NFCS 0746:555

### The bark was also used.

 A cure rheumatism in the olden days was to get the bark of an oak tree, boil it and drink a glass of it every night. NFCS 0082: 404

### And this is an interesting formula.

• Boil together elder leaves, the bark of an ash tree, and unsalted butter. When they are boiled enough, pour the grease into a jar and then it is ready for use.

From <u>https://www.duchas.ie/en/src?q=rheumatism&t=Cbe</u> <u>sTranscript&p=16</u>

### Bark of the ash was used for fractures.

The splint used for healing fractures was of Ash: 'I would be going by the diameter [--] as straight as possible [--] the diameter would be about 4 inches ... that branch then was cut'(VL 2012). He explained how the inside would then be hollowed out, 'and the ends bevelled back so that the skin would not be cut' (VL 2012). He emphasised how 'it had to be ash, as the ash had some healing property for the bone marrow' (VL 2012). Studies of the biological properties of ash have revealed its significant antimicrobial, anti-oxidative and photodynamic damage prevention activities, as well as wound healing, anti-inflammatory, immune-modulatory and anti-viral properties, thus supporting its use in traditional healing (Ivancheva, Nikolova, and Tsvetkova 2006).

Kingston, R. 2013. A Tale of Two Bonesetters. *Béascna* 8 (2013): 89-102

<sup>2) 1963</sup> The Sacred Trees of Ireland, Journal of the *Cork Historical and Archaeological Society* 68, pp16-54

<sup>3)</sup> Niall Mac Coitir 2006. Irish Trees: Myths, Legends and Folklore. Collins Press, Cork.



### Other ways it was used.

 There was an ash tree growing in Killone near St John's well and people say if you take a bit of the bark with you you will never get a sprain while it is in your possession. NFCS 0607: 364

### **Scientific** validation

### CHINESE STUDY

Osteoarthritis (OA) is a disease characterized by degeneration of the joint complex due to cartilage destruction. Fraxetin, a widely used and studied coumarin compound extracted from a traditional Chinese herb (Qin Pi), has shown anti-inflammatory and antioxidant properties, but its effects on OA have not been studied ... The results showed that fraxetin protected the cartilage against destruction. In conclusion, fraxetin could be a potential therapeutic for OA.

Fraxetin inhibits interleukin-1β-induced apoptosis, inflammation, and matrix degradation in chondrocytes and protects rat cartilage *in vivo* 

Qing Wang,  $^1$  Di Zhuang,  $^1$  Wenchang Feng,  $^1$  Bitao Ma, Liping Qin, and Lilun Jin'

### Abstract

Besides the well-known nonsteroidal antiinflammatory drugs (NSAID) for the treatment of rheumatic pain herbal medicine can also be applied successfully. Plants with antirheumatic efficacy include Fraxini cortex, Populi cortex/folia and Solidaginis herba. This review focuses on pharmacological and clinical efficacy of a combination of Fraxinus cortex, Populus cortex/folia and Solidago herba. Antiinflammatory and analgetic properties were shown in pharmacological tests. Clinical studies conducted in the indications of the different subtypes of rheumatic diseases such as rheumatoid arthritis or osteoarthritis pointed out a similar efficacy compared to NSAID applied in average dosages. Even the rate of adverse effects of the herbal combination was half of that registered in NSAID treated patients within the clinical studies.

[Pharmacological and clinical effectiveness of a fixed phytogenic combination trembling poplar (Populus tremula), true goldenrod (Solidago virgaurea) and ash (Fraxinus excelsior) in mild to moderate rheumatic complaints]

Klein-Galczinsky C

### **Author information**

Wiener Medizinische Wochenschrift (1946), 01 Jan 1999, 149(8-10):248-253

# Meet the Aster Family: A visual review of characteristics.

Presented by Robyn Klein



The Asteraceae is considered to be the largest of the angiosperms in terms of species diversity.

Some of the economically important food plants are in the Asteraceae: artichoke (*Cynara scolymus*), lettuce (*Lactuca sativa*), sunflower (*Helianthus annuus*).

Most herbalists can recognize yarrow, burdock, arnica, wormwood, calendula, boneset, and dandelion. But how many herbalists know how to identify the different species of goldenrod? And how to tell the difference between Mexican arnica (*Heterotheca inuloides*) and escoba de la vibora (*Gutierrezia sarothrae*)?

The Aster family is very distinctive because the inflorescence (group of flowers) is arranged in a compact head or capitulum. Some other plant families have species that also have a head or capitulum inflorescence such as red clover or monarda. But all species in the Aster family have a head inflorescence.

Under this head of flowers is a group of bracts called an involucre. Bracts are very important in this family and can help to differentiate between genera and species.



The flowers in the Asteraceae are either disk flowers or ray flowers. The head inflorescence can be a mix of both disk flowers in the middle and ray flowers on the outside, or a head of either disc or



ray flowers. For example, dandelion flowers are all disk flowers, whereas daisies have both disk and ray flowers.

All the flowers in the Asteraceae have inferior ovaries. This means that the fruits (called achenes) are below the flower petals.



One of the most unique parts in this family is the pappus. There is no calyx or sepals in this family. There is only pappus which is found attached to the top of the fruits. Though, some species have no pappus at all. The pappus can be different shapes such as scales, awns, or capillary bristles.

All these characteristics help to differentiate between species of the Asteraceae. It's not hard to key them out once you learn these five parts.

- Head inflorescence
- Involucre (set of bracts under the head)
- Disc and ray flowers
- Inferior ovary (called an achene)
- Pappus (ring of hairs or scales that are attached to the top edge of the achene)

### **REFERENCES AND LINKS**

### Botany Primer: Understanding Botany for Nature's Notebook

USANPN: National Phenology Network, 2015

https://www.usanpn.org/files/shared/files/USA-NPN\_Botany-Primer.pdf

Field Identification of the 50 most common plant families in temperate regions by Lena Struwe. 2014. Identifying\_50\_major\_ plant\_families.pdf (search online)

### Flora of China: Asteraceae

http://www.efloras.org/florataxon.aspx?flora\_id=2&taxon\_id=10074

### Flora of North America online

http://floranorthamerica.org/Asteraceae

### Hints for understanding Scientific Plant Names

https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ct/technical/ ecoscience/

#### Jepson eFlora: Asteraceae

https://ucjeps.berkeley.edu/eflora/eflora\_display.php?tid=58

### Keys to the Asteraceae of Wisconsin

https://wisflora.herbarium.wisc.edu/resources/Keys\_pdfs/KEYS\_ Asteraceae\_of\_Wisconsin.pdf

**Plant Identification Terminology: An Illustrated Glossary**, by James G. Harris and Melinda Woolf Harris, Second Edition.

### The families of flowering plants

https://www.delta-intkey.com/angio/index.htm

Vascular Plant Taxonomy is an excellent textbook of plant families. https://he.kendallhunt.com/product/vascular-plant-taxonomy

### Addressing Weight Stigma

Presented by Kaleigh McGregor-Bales

Weight stigma refers to the social and structural rejection and devaluation of those who **do not comply with prevailing social norms of adequate body weight and shape**. Weight stigma has serious psychological, physical, medical and economic consequences on people impacted (O'Brien et al., 2013; Phelan et al., 2015; Pearl et al., 2022).

**Structural connection:** When we tug at the thread of weight stigma, we come to understand that it's connected to racism and white supremacy, sexism and patriarchy, classism and settler colonialism (Strings, 2019).

Weight alone is not an indicator of health and should never be treated as such. But health care providers treat weight as a pathology and reinforce or actively encourage weight loss leading to weight cycling.

Weight cycling is the experience of losing weight and gaining it back repeatedly. Weight cycling **creates a big strain on our body systems**, especially the cardiovascular system and endocrine system (Kakinami, 2020). Weight cycling is independently linked to the health issues often blamed on large body size. Weight cycling, no matter what the person's body size increases risk of impaired glycemic management, osteoporotic fractures, gallstone attacks, muscle tissue loss, hypertension, cardiovascular disease.

# Weight Cycling & Weight Stigma are very bad for health and wellbeing.

HPA activation  $\rightarrow$  Cortisol  $\rightarrow$  Increased oxidative stress

 $\uparrow$  inflammation  $\downarrow$  insulin sensitivity  $\downarrow$  parasympathetic activation



### Building a weight-inclusive herbal practice

**Trauma informed:** There is a developed fear or trauma within larger bodied clients coming to health and wellness practitioners. It is our responsibility as herbalists to actively dispel the fear we will just be another horrible interaction.

**Scope & advocacy:** A vital part of practicing as a herbalist and completing a differential is knowing your scope and ruling out conditions that require medical care. It is very important as a herbalist to recognize that higher weight clients are more likely to have undiagnosed conditions and know how to spot red flags. The full range of treatment options are often not shared with higher weight patients. This is a place a medically aware herbalist can support with education and conversation on the full diversity of treatment options.

**Referrals:** As herbalists it's important to have a referral network of other practitioners for when something is outside of our scope and we need to make sure practitioners in our referral network are weight-inclusive in their practices.

**Prepared:** Clients will have weight bias they bring into the consultation. You will need to navigate this. Both how it impacts you as a practitioner and how it impacts the client themselves.

Language: "Obesity" and "Overweight" are not terms that I believe we should be using. They unnecessarily pathologize size diversity and there is an ask from people impacted by the pathologization and stigmatization that these words be removed from our clinical language.

Where you practice: In the physical space you are practicing in it is important to have chairs for big body sizes. This means sturdy well-built chairs without restrictive arm rests, not too low to the ground, nor super high. We also want to have wide passageways that people feel comfortable moving through. We want to make sure all the equipment in our space is available for all body sizes. We want to be aware of what and who is represented in the literature or pamphlets we have, what is on the walls, etc.

### Specific health & wellbeing support

### **BLOOD SUGAR MANAGEMENT**

Due to weight stigma, it is common for practitioners to recommend interventions based on impacting weight, assuming that a change in body size will change blood sugar. Yet, weight cycling is linked to impaired glycemic management. And many dieting behaviors can exacerbate blood sugar levels, for example avoiding fats when fat helps even out blood sugar spikes. As herbalists we can support clients with their blood sugar management with our herbal therapeutic strategies and materia medica. We can also bring in supportive and non-restrictive nutritional, food preparation and food combination strategies.

### FERTILITY SUPPORT

Fertility support is a place where bigger bodied people are highly discriminated against in health care (Legro et al. 2013; Salmon & Chastain, 2022). There is a lot of moralizing around body size and pregnancy, an emphasis on risk and denial of fertility support. Whereas the treatment of other pregnant people with a high risk of complications is supported, high weight folks are accosted with accusations about the potential harm to the future baby or their right to conceive (Koning et al., 2016). A causal link between high body size and low fertility is disputed yet health care providers operate as if it is unquestioned. Weight gain can be a symptom of pathologies that cause fertility issues (Salmon & Chastain, 2022). As herbalists we can support clients with their fertility with our herbal therapeutic strategies and materia medica.

### Lifestyle recommendations

### FOOD-BASED

An impact of weight stigma is that many of us of have a stressful relationship with food, and a stressful relationship with people giving us food or diet advice.

The scope of herbalists often includes providing diet and lifestyle recommendations.

It is important to deeply consider what your base of knowledge is when it comes to food and nutritional practices. Are you informed enough about nutrition to be giving advice around food and diet?

Have you considered food insecurity and what it means to be an herbalist when food access is limited? What you are doing to change that?

We want to eliminate language like "Cheat day" and "Guilty pleasure" that reinforce harmful relationships to food.

You can reinforce permission to eat enough food, or to think less about food, whatever your client needs to mend their relationship with eating.

If a client does want to work with you around their food intake and choices, Thomas Easley suggests that people are more likely to snap photos of their food than journal accurately. This can be less triggering for clients and practitioners with a history of disordered eating.

### MOVEMENT BASED

A lot of people have very messy relationships with exercise due to weight stigma and anti-fat bias.

We need to actually understand what we are recommending and why. Regarding blood sugar, resistance training can improve blood sugar regulation over the long-term. Exercise can increase blood sugar in the short-term and blood sugar lows can occur during movement too Clients may need to be mindful if they are prone to blood sugar swings.



Your referral network should include physiotherapists, personal trainers, other movement-based activities and classes that you know are fat friendly.

I encourage you to sit with how hostile many movement spaces are and how dangerous it can be if someone is working with a trainer or movement practitioner who doesn't understand working with their body type. Remember that pain is often ignored in fat clients and is this is an unacceptable as well as a barrier to movement practices.

### **Concluding Notes**

As practitioners we want to be competent providers where sessions with us are supportive, non-judgmental, evidence-based and focused on addressing what brought the client to us. This includes: understanding the medical/wellness trauma that clients have survived so far, having a space that is physically accessible, safe and comfortable, being able to see biases in research, teaching, and standards of care. Weight neutral health care doesn't mean we don't see body size, it means we aren't moralizing body size and aren't caught up in the violent cycle of recommending weight change and pushing our clients into greater disease states.

### Citations:

Barbagallo M, Dominguez LJ. Magnesium and type 2 diabetes. World J Diabetes. 2015 Aug 25;6(10):1152-7.

Borgnakke WS, Ylöstalo PV, Taylor GW, Genco RJ. Effect of periodontal disease on diabetes: systematic review of epidemiologic observational evidence. J Clin Periodontol 2013;40(suppl 14)

Dodell, G. Dr., & Chastain, R. (2022). Weight Neutral Blood Sugar Management. Online Live Webinar, June 8 2022.

Easley, Thomas, RH (AHG). (2022). Fatigue Differential Class. Workshop.

Finch, Jessye, RH (OHA) Personal interview. (2022). Clinical Herbalist + Medicinal Herb Farmer https://futurespellcom/

Gorden, A. What We Don't Talk About When We Talk About Fat.

Harrison, Da-Shaun. Belly of the Beast. (2021)

Kakinami L, Knäuper B, Brunet JWeight cycling is associated with adverse cardiometabolic markers in a cross-sectional representative US sample *J Epidemiol Community Health* 2020;74:662-667.

Koning A, Mol BW, Dondorp W. It is not justified to reject fertility treatment based on obesity. Hum Reprod Open. 2017 Jul 28;2017(2):hox009.

Kuhn T. (1970). The structure of the scientific revolution. Chicago, IL: The University of Chicago Press.

Legro RS, Hansen KR, Diamond MP, Steiner AZ, Coutifaris C, Cedars MI, et al. (2022) Effects of preconception lifestyle intervention in infertile women with obesity: The FIT-PLESE randomized controlled trial. PLoS Med 19(1): e1003883.

Mercedes, M. (2022) No Health, No Care: The Big Fat Loophole in the Hippocratic Oath. Pipewrench. Issue 6.

O'Brien KS, Latner JD, Ebneter D, Hunter JA. Obesity discrimination: the role of physical appearance, personal ideology, and anti-fat prejudice. Int J Obes (Lond). 2013 Mar;37(3):455-60.

Park KY, Hwang HS, Cho KH, Han K, Nam GE, Kim YH, Kwon Y, Park YG. Body Weight Fluctuation as a Risk Factor for Type 2 Diabetes: Results from a Nationwide Cohort Study. J Clin Med. 2019 Jun 30;8(7):950.

Peters, E. (2020). Herbs and Hormones, Online Live Webinar, June 23 2020.

Pearl, Rebecca, Groshon, L., Fitterman-Harris, Hannah F. (2022). Weight stigma, Reference Module in Neuroscience and Biobehavioral Psychology, Elsevier. Phelan SM, Burgess DJ, Yeazel MW, Hellerstedt WL, Griffin JM, van Ryn M. Impact of weight bias and stigma on quality of care and outcomes for patients with obesity. Obes Rev. 2015 Apr;16(4):319-26.

Phelan SM, Burgess DJ, Puhl RM, et al. The adverse effect of weight stigma on the well-being of medical students with overweight or obesity: findings from a national survey. J Gen Intern Med. 2015;30(9):1251–8.

Salmon, N. & Chastain, R. (2022). Reproductive Care for Fat Patients. Workshop.

Schuler, Mischa, RH (AHG). (2022). Phone conversation.

Strings, S. Fearing the Black Body: The Racial Origins of Fat Phobia. New York: New York University Press, 2019.

Tomiyama, A., Carr, D., Granberg, E. et al. How and why weight stigma drives the obesity 'epidemic' and harms health. BMC Med 16, 123 (2018).

Tate, T. (2022). In-person conversation.

Ward, April, DM, CNM, MSN. (2022). Female Reproductive system Anatomy & PHYSIOLOGY for herbalists CLASS.

# Pharmacological insights into energetic botanical therapeutics

Presented by Gabriel Mojay LicAc, CertEd, FIFPA

# The pharmacoenergetics of herbs and essential oils

When researching the activities and benefits of medicinal and aromatic plants (MAPS) - in order to underpin and refine one's formulations as a herbal clinician - one may observe that the peer-reviewed literature can be broadly divided into two broad theoretical groups:

In terms of the **scientific** literature, the last decade or so has seen a considerable increase in the availability of full research papers relevant to a wide range of MAPS available, for example, on PubMed. And in terms of the literature we might loosely refer as '**traditional**' and/or '**energetic**' – in apparent opposition to the scientific literature – it has also been a cornucopian period. I am thinking in particular of the many excellent books published by Aeon, for example, that mine the rich traditional-empirical history of the use of MAPS the world over.

By considering in tandem, and in critical fashion, the synergistic pharmacological activities of the principal secondary metabolites of MAPS together with the sensory, empirical and classical phenomenology of their whole herbs brings us to a more integrated, dynamic understanding of their therapeutic functions and clinical uses. Indeed, framing examples of key pharmacological benefits of MAPS according to time-honored whole-system medical cultures such as TCM and Ayur Vaidya allows us to see those biological activities in a richer context — one which, as presented here, embraces the full dimension of what it means to be a human being.

Conversely, one as a practitioner and researcher can gain a more nuanced understanding of key energetic principles - for example those which inform the theory of the Five Elements in traditional Chinese medicine (TCM) - by relating these principles to important phyto-pharmacological activities as evidenced by *in vitro*, *in vivo*, and, ideally by clinical studies.



Terms which describe pharmacological activity in tandem with energetic action - when it is clear upon critical analysis that they share the same domain of activity - one may call, I have suggested, *pharmacoenergetic*.

### Vital energy (eg. Qi) as essence and function

It is important in the first instance to have a clear understanding of what we mean by *energetic*, or *vitalistic*, as a foundation for working with the *pharmacoenergetic* ontology. The late Giovanni Maciocia, leading author of TCM and Chinese herbal books in English, stressed the distinction between vital energy, or vital breath (*Qi*), as (1) a *vital essence* or 'essential substance' circulating around the body through the subtle channels or meridians; and (2) the *functional effects* of the vital substances and Organ systems (Maciocia, 1989).

An energetic understanding from the latter perspective rests on core theories in TCM such as *'the Liver regulates and ensures the smooth* [regular] *flow of Qi*, and the *'Heart houses the Shen*.' It is from this essentially empirical perspective that we can usefully apply a vitalistic interpretation to the researched activities of MAPS and at the same time gain a more clinically strategic, informed approach to applying classical constitutional frameworks such as the Five Elements to herbal and aromatic prescribing.

Herbalist and TCM expert Lesley Tierra expressed the full application of the *functional-energetic* approach when she wrote: "Chinese, East Indian Ayurveda, Tibetan, Middle Eastern Unani, and Native American Cherokee medicines are all founded on an energetic basis. To use herbs [or essential oils] energetically, we look **beyond the symptoms** of the disease to alleviating the **underlying imbalance** which **caused** the disease. This cause **varies according to each individual** because **all aspects of the person** are taken into account. Likewise, each herb [or essential oil] is evaluated energetically and **according to all of its aspects**, such as hot or cold effects, **tastes** [fragrances notes], properties, colors, growing conditions, **chemical constituents** and so on. Herbal [or aromatic] energies are **matched with that of the person, the disease and its cause**."

### The Oriental Five Elements, Organs and Spirits

Useful as an approach to psychological health assessment in particular, the Oriental Five Elements has a long cultural and clinical history together with the other main theory intrinsic to TCM: that of *yin* and *yang*. Indeed, the Five Elements can be considered a kind of seasonal, diurnal extrapolation of *yin* and *yang*, with each Element describing a phase within a constant cosmic cycle... from the renewing quiescence of *yin* in winter (Water)... through to the radiance of *yang* at its peak in summer (Fire)... followed by a return to *yin* with the ripening and descending qualities of the season of Earth: late summer.

The fact that the attribution assigned to each Organ is capitalized here (eg. *Heart*, as opposed to *heart*) is a reflection of the fact that the term in question describes not only a visceral network, but its *Qi* meridian and the associated psychological dimension (*Spirit*) which each Organ is said to 'house'. Critical to our proper understanding of each of these five Spirits - the Will (*Zhi*), Soul (*Hun*), Bodily Soul (*Po*), Intellect (*Yi*), and the uniting, integrating Spirit (*Shen*) itself, is how they are both affected by and affect the functional activities of the Organs.



# Wood/Liver/Hun disharmony and regulating the Qi

In the case of the Soul (*Hun*), for example – also known as the *Ethereal* Soul, to distinguish it from the *Bodily* Soul (*Po*) – its inherently forward-looking, purposeful nature, and its occupation with accomplishment in all its forms, makes it vulnerable to the nervous tension and frustration arising from feeling obstructed, overlooked or negated. This influence can be grasped by visualizing the effect of this frustration on the Qi — which is to inhibit and constrain it, resulting in the core condition of *Qi-stagnation* in TCM.

The tension and frustration associated with this condition together with its effect on the nerve, mood and musculature and mood makes it over time a factor that can result in a distinct yet common form of depression: *yu zheng* — a term in TCM meaning both 'oppression' and 'stagnation'. In keeping with *Qi*-stagnation, it is characterized by symptoms of nervous tension, frustration, irritability, moodiness and pessimism. The Soul (*Hun*) in health is otherwise viewed as our psycho-spiritual source of vision and determination — indeed, of optimism and hope.

Depressive symptoms of this nature can, as a result, be associated in the first instance with a disharmony of the Wood Element, while other Element disharmonies describe further manifestations of depressive states and feelings, according to the clinical indications of each type. Where depression is due, at least in part, to a disharmony involving stagnation of *Qi* and an afflicted Soul (*Hun*), herbs and essential oils that uplift the Spirit through *regulating* or



smoothing ('making regular') the flow of *Qi* in the body and mind are indicated— thereby releasing pathogenic constraint and tension.

Pharmacologically speaking, herbs, essential oils and their constituents that have demonstrated research-based antispasmodic and/or anticonvulsant activities excel in this regard — as to relieve spasm is to counter the same tense, spasmodic, distended and painful, or convulsive conditions described by and directly involving stagnation of *Qi*.

### Regulating—antispasmodic essential oils

Martinez-Perez et al. (2018) demonstrated that monoterpenes common to plant volatile oils are the leading class of natural molecules capable of exerting a clinically effective antispasmodic action, followed by flavonoids and alkaloids.

Heghes et al. (2019), identified 39 essential oil-bearing plants demonstrating an antispasmodic effect in preclinical studies. Mechanisms of action involved the inhibition of voltagedependent calcium channels, modulation of potassium channels, and modulation of intracellular cAMP. The majority of studies utilized complete essential oils as opposed to isolated chemical components, although Sadraei et al. (2003) demonstrated antispasmodic effects for both *Melissa officinalis* essential oil and for citral, one of its principal aldehyde-functional-group constituents.

The antispasmodic activity of essential oils was investigated in studies relevant to a range of clinical challenges including functional dyspepsia, irritable bowel syndrome, infantile colic and dysmenorrhea as well as discomfort produced by endoscopic procedures.

Essential oils investigated in the various studies including those of Anethum graveolens (dill), Artemisia dracunculus (tarragon), Cananga odorata var. genuina (ylang ylang), Carum carvi (caraway), Chamaemelum nobile (Roman chamomile), Citrus aurantifolia (lime), Citrus aurantium var. sinensis (sweet orange), Coriandrum sativum (coriander), Cymbopogon citratus (West Indian lemongrass), Cymbopogon martini (palmarosa), Elettaria cardamomum (cardamom), Foeniculum vulgare (fennel), Lavandula angustifolia (true lavender), Lippia alba (white verbena), Matricaria recutita (German chamomile), Mentha x piperita (peppermint), Mentha spicata (spearmint), Mentha x villosa (mojito mint), Ocimum basilicum (basil), Ocimum gratissimum (African basil), Origanum majorana (sweet marjoram), Pelargonium graveolens (geranium), Pimpinella anisum (aniseed), Salvia officinalis (sage), Salvia rosmarinus (rosemary), and Satureja hortensis (summer savory).

### The Shen as Spirit and the Shen as Mind

Despite the fact that a disharmony of the Wood Element and Liver is commonly identified among those presenting with despondency and depression, such conditions invariably involve an accompanying disharmony of the *Shen*, or Spirit/Mind, itself. Giovanni Maciocia spoke eloquently of the *Shen* when I studied with him in London in the late 1980s, and distinguished between *Shen* as spiritual essence or immanent 'spirit' (its first translation into English in the 1970s), and *Shen* as 'mind' — that is, consciousness itself; and so embracing thinking, feeling, imagination and sensation. Indeed, one role of the *Shen* is to integrate the other four principal psychospiritual factors or 'spirits' housed by each of the other main *yin* organs [as illustrated in the chart].

In clinical practice, a disharmony of the Heart and Fire element is identified whenever the *Shen* as Mind is disturbed in some way presenting primarily as nervous stress, despondency, anxiety and/ or depression. While the plant *Energeia* called for in the case of a disharmony of the Liver and Wood Element is above all regulating and antispasmodic, restoring harmony to the Fire Element and *Shen* requires a botanical intervention that is *harmonizing* and/or *centering* in therapeutic action.

### Dynameis and Energeia

The influential Renaissance alchemist and herbal physician Paracelsus (1493-1541), in his various writings on medicinal herbs, insisted on the importance of discovering the *signatum* (signature) of medicinal plants (Leprêtre, 2021). He wrote in Astronomia Magna (1538): "The soul does not perceive the external or internal physical construction of herbs and roots, but it intuitively perceives their powers and virtues, and recognizes at once their signatum... This signatum is often expressed even in the exterior form of things, and by observing the form we may learn something in regard to their interior qualities."

As Matthew Wood (1992) explains, "the idea is that the shape, color, appearance, environmental niche, taste, smell, etc., of a plant or medicinal agent will display the tell-tale signs, marks, or configurations indicating how that agent may be used in medicine. This is called the signatum, or signature."

Essentially the same interpretive-intuitive understanding occupies a central place in Chinese herbal medicine; a concept in which Peter Holmes (1989) distinguishes between two core aspects: (1) a more objective qualitative domain, identified through observation and organoleptic analysis; a framing in particular of a phytomedicine's taste and/or odor; its dynameis (cardinal active qualities); and, (2) a more subjective sensioneural domain, assessed through effective terms such as regulating and harmonizing actions; a framing of a phytomedicine's sequential energetic effect transmitted and modulated via its taste and/or odor; its energeia (secondary active qualities). As Peter writes, "Greek and Chinese herbal medicine make no real distinction between the quality of a medicinal plant per se and its functional effects. In Greek pharmacognosy [qualities such as aroma, heat and coldness, moisture and dryness, sweetness, spiciness, sourness, etc] are called dynameis, and their functional effects, energeia."

### Pharmacoenergetic Properties

When prime herbal–aromatic *energeia*, or energetic actions, align with significant, often well-researched pharmacological activities, we can identify in turn a range of major *pharmacoenergetic properties* common to MAPS.



As an example, essential oil of *Lavandula angustifolia* (true lavender) has become a safe and effective botanical intervention for clinical anxiety due, in pharmacoenergetic terms, to its ability to *regulate* the *Qi* in the body and mind (reflected in its sweet-herbaceous fragrance energy) working in tandem with its capacity to *harmonize* and *clarify* the *Shen* (evident in its fresh-floral odor) — and so quell anxiety.

True lavender essential oil's pharmacoenergetic harmonizing, ultimately *homeophoric* property -from the Latin prefix *homeo*-('stasis'; 'balance') and suffix *-phoric* ('to bear'; a 'state' or 'feeling') – is critically reinforced in theoretical terms by the fact that doubleblind, randomized, placebo-controlled trials have shown that essential oil of *Lavandula angustifolia* exerts significant anxiolytic effects in subthreshold anxiety, generalized anxiety disorder, and mixed anxiety and depressive disorder, while showing favorable tolerability and safety, and contributing to improvements in health-related life-quality (Dold, 2023). As well as enhancing serotonin levels, lavender essential oil has been shown to dose-dependently suppress the breakdown of tryptophan - the biosynthetic precursor of serotonin – in human peripheral blood mononuclear cells (Gostner et al, 2014).

I go on to focus on further key pharmacoenergetic properties in my accompanying recorded presentation, each with example herbal-aromatic formulae, principally:

- the anti-inflammatory, cooling and organoprotective properties of Matricaria recutita (German chamomile) herb and essential oil;
- the acetylcholinesterase-inhibiting *neurotonic* and *sensioneurodynamic* properties of *Salvia lavandulifolia* (Spanish sage) essential oil and *Salvia rosmarinus* (rosemary) herb and essential oil;
- the antioxidant, Jing-Essence *protecting* and *immunomodulating* properties of *Santalum spicatum* (Western Australian sandalwood) essential oil and nut oil.

### References

Dold M, Bartova L, Volz HP, Seifritz E, Möller HJ, Schläfke S, Kasper S. Efficacy of Silexan in patients with anxiety disorders: a meta-analysis of randomized, placebo-controlled trials. *Eur Arch Psychiatry Clin Neurosci.* 2023 Oct;273(7):1615-1628.

Gostner J, Ganzera M, Becker K, Geisler S, Schroecksnadel S, Überall F, Schennach H, Fuchs D. Lavender oil suppresses indoleamine 2,3-dioxygenase activity in human PBMC. *BMC Complement Altern Med.* 2014;14:503.

Heghes SC, Vostinaru O, Rus LM, Mogosan C, Iuga CA, Filip L. Antispasmodic effect of essential oils and their constituents: a review. *Molecules*. 2019 Apr 29:24(9):1675.

Holmes P. The Energetics of Western Herbs. Boulder: Artemis Press; 1989.

Leprêtre M. Paracelsus, his *Herbarius*, and the relevance of medicinal herbs in his medical thought. *Daphnis*. 2021;49(3):324-378.

Maciocia G. *The Foundations of Chinese Medicine*. Edinburgh: Churchill Livingstone; 1989.

Martínez-Pérez E.F., Juárez Z.N., Hernández L.R., Bach H. Natural Antispasmodics: Source, Stereochemical Configuration, and Biological Activity. *Biomed Res. Int.* 2018;3819714:1-32.

Sadraei H., Ghannadi A., Malekshahi K. Relaxant effect of essential oil of *Melissa* officinalis and citral on rat ileum contractions. *Fitoterapia*. 2003;74:445-452.

### The Connection to Plant Medicines, Moon Cycles & Building Relationships Within the Body

Presented by Laura Mushumanski

nanâtawihowin ocêpihkwa itamahcihowin kiskinohamâtowin

### HEALING ROOTS HEALTH EDUCATION

Before engaging with plant medicines, it is important to understand the teachings of the body- emotional, mental, physical, and spiritual health and how this directly relates to how we overuse herbal medicines.

This presentation aligns with the teachings of truth, meaning integrity and being accountable for how a person conducts themselves in their everyday life. The presentation will start with the teachings of the star chart and how this directly relates to behaviors, that are actions coming from a place of emotional pain and how to build a relationship with the body, so a person's perspective of plant medicines teaches the connection to spirit by doing all things with love.

The start chart from a *nehiyawe* worldview consists of spirit markers with teachings from the 8 directions on how to conduct oneself in an honourable way. Each direction speaks to the connection Mother Earth, Spirit, and Self. These teachings coincide with how one can walk gently on Mother Earth as one learns, grows, and connects with their external world through the teachings of the moon cycle- Grandmother Moon.

Grandmother Moon nourishes us with 13 moons every year, and within those 13 moons there are 28 days per moon cycle that teach us how to reorganize neural pathways- build resiliency within the body and outwardly form healthy behaviours that support our emotional, mental, physical, and spiritual health.

The foundation of our emotional, mental, physical, and spiritual health is deeply rooted within our own lived experiences starting from in the womb till age 12 – when our nervous system, sensory motor processors, and brain start to develop. From age 12 to 18, during our adolescent stage of life this is when we start to engage with the world around us utilizing our 5 senses to find both safety and perceived threats. And during adulthood, this is when we are able to cognitively understand the world around us, as well as understand and connect with our gifts and how we can share them with the world.

Each moon cycle will teach you how to build resiliency within the body by becoming familiar with unfamiliar people, places, and things. These teachings will support the understanding of what anxiety, panic, rage, depression, joy, excitement, and peace



feels like within the body. These teachings will also support any addictive behaviours, how to understand them from a physiological perspective, and the importance of accountability within our own behaviours so our relationships within the external world are built on connections instead of attachments.

### **Natural Dyes**

Presented by Sarah Orlowski, BFA, MH

### **Brief History**

Naturally occurring pigments have been used by humans since the dawn of civilization. Mineral pigments were used to paint on cave walls in ancient times. In the Lascaux caves in France, some of the paintings have been dated to be 17,000 years old. The colours used included red, yellow, white, black and a warm red. The black was made from charcoal or manganese oxides, while the red was typically iron oxide. These were the two main pigments used. The yellow ochre often came from limonite and the white derived from a variety of sources such as kaolin clay.

When pigments were used on fibre rather than stone walls, the source was often plant material. Due to decomposition and the lack of preservation, there are not always sources of historical proof. However, in 2016, a 6,200 year old fabric piece was discovered in Peru. This is likely the oldest proof of an indigo dyed material (from the indigenous plant *Indigofera suffruticosa*. Thus, indigo is thought to have been first used in South America, before *Indigofera tinctoria* was used in India. Historically, India does, however, have a very long tradition of dyeing. For instance, during the excavation of the Harrapan culture, which existed from about 3300 – 1300 BCE, cloth dyed with madder was found.

Since before recorded history, dyes have been used to colour food, shells, hides and textiles. In China, there is evidence of the use of natural dye materials as early as 2600 BC. It has been found that in hieroglyphs from ancient Egypt, in-depth descriptions of dyeing processes have been recorded. In ancient Rome, as early as 715 BC, the field of dyeing of wool was already established. By the time of Pliny the Elder (23 – 79 AD), he reported that the colours worn by priests and priestesses were red, orange and purple. Emperors, along with their high officials, wore purple, which came from the *Murex* species of molluscs, which were overharvested for their dye resulting in severe depletion of the population. This colour, called Tyrian Purple or Imperial Purple, required an immense amount of these shellfish for only a very small amount of dye.

Because pigments have been found from sources that are not local to the area in which they have been used, it indicates the importance of colour and that trade in dyestuffs existed from a very early time.

Towards the end of Alexander the Great's rule, his army captured the capitol of Persia in 331 BC. In the royal treasury of Susa, they found purple-dyed robes that were close to 200 years old. Accounts of Alexander the Great also mention their findings of Indian cotton with beautiful prints in 327 BC.

Although the invention of synthetic dyes in 1856 spelled the near death of natural dyes, they are having a comeback due to increased awareness of the severe ecological hazards of synthetic dyes. Today more and more people are turning to plants not just for food and medicine, but for the extraction of their arrays of colour to impart beauty to our clothing, accessories and fabric art.

### **Natural Dyeing Methods**

Acknowledging that there are very many different approaches and techniques to natural dyeing, the following is a guide to the basic methodologies used.

### **Equipment Needed:**

- Large Pot for heated dyes. Non-reactive pot such as enamel or stainless steel is usually best. Iron, aluminum or copper will change the dye colour but if you want, you can use them for specific effect. Dye pots should be kept separate form food pots.
- Glass jars or plastic buckets with tight fitting lids for decomposition dyes or cold extracts
- Plastic wrap for decomposition dyes in jars with metal lids
- Rinse Tub a large bucket or plastic garbage can
- Strainer or Cheesecloth to remove dye material from solution
- Long Spoon or Stirring Stick
- Measuring Cup
- Scale
- Stove or Hot Plate
- Rubber gloves

**Optional**: pot holders, panty hose, cheesecloth or jelly bag (for separating dye material from fibre when using them simultaneously), thermometer, pH indicator paper (litmus).

### Ingredients:

Natural fibre yarn or fabric, dry & unbleached (bleaching wool white weakens the fibre).

**Mordant** – These are used to make the fibre colourfast and lightfast. Mineral salts are commonly used. Alum with Cream of Tartar and tannin are enough to start and are non-toxic. Other mordants include tin, copper, iron, aluminum and chrome. Some are very toxic (such as chrome and tin) and require proper disposal and good ventilation. These are no longer popular though they were often used in the past. Some plants contain naturally occurring mordants such as tannin, making it not totally necessary to purchase mordants. You can also use the pot-as-mordant method, where the metal of the pot acts as a mordant but this will have a weaker effect.

**Dyestuff** – This can be whatever natural dye source you have collected or purchased. This can include root, twigs, leaves, berries, flowers, bark, and even insects and shellfish.



**Water** - Neutral pH, soft water is best. Rain water can work well, unless it is highly acidic.

Accelerants/Auxiliaries – These get used to increase the rate of dye uptake in the fibre, adjust the pH or to change the colour. Examples, past and present, include soda ash, borax, baking soda, vinegar, salt, ammonia, yeast, bran, sugar, burnt ashes, animal dung and urine.

### Wool & Other Fibres

Commonly, 100% wool is used for natural dyeing. Wool fleece tops (unspun) or yarn may be dyed. Other natural fibres and fabrics such as cotton, linen, hemp and silk may be dyed with natural dyes.

Animal origin fibres (wool, mohair & silk) are made of proteins and respond very well to natural dyes. Cellulose fibres are of plant origin and include cotton, linen, hemp, jute and ramie. These can be dyed but require different mordants as they don't take up the dye as readily as protein fibres.

Tannins tend to work well as mordants on cellulose fibres such as cotton, depending on the dyestuff being used. A mordant bath of tannin is usually used before using another mordant on cellulose fibres as the tannin opens up the fibre, making it more receptive to subsequent mordants and to the dyes. Synthetic fibres do not readily absorb natural dyes and are, therefore, not recommended.

### 1<sup>ST</sup> STEP: PREPARING THE YARN INTO SKEINS:

To prepare the yarn, it is best to take a pound of wool and make it into several smaller skeins (2 - 4 oz. each). This can be done by wrapping it around the back of a chair or wrapping it around your arm from the thumb to the elbow, the same way one might roll up a rope. These oval skeins should then be tied off in at least 4 places so that they don't become tangled during dyeing. The two original ends can be tied together so that it does not become undone. The tie should be white or unbleached so that it does not affect the dye-bath. They should be tied loosely enough to allow the dye to reach the fibre beneath the tie, unless you want a tie-dyed effect.

These smaller skeins can be removed from the dye-bath at different intervals to allow for different shades from one colour. A helpful trick in tying off the skeins, if you are going to be using several different mordants, is to alter the number of knots in the ties to signify the particular mordant into which it is going. Then later, when you put several differently mordanted skeins into one dye-bath, you will immediately know which mordant is helping to create which colour. For example, the ties on the skeins mordanted in alum may have only one knot each, while the skeins done in iron may have 2 knots per tie, the ones done in tannin may have 3 knots per tie, etc.

The wool skeins will have to be weighed while dry as the recipes are usually based on weight and all recipes should be recorded so that one knows what has been done, especially if a particularly good result warrants repeating. After that, the skeins are scoured (soaked in soapy water to remove any oils or dirt that might interfere with the wash process), rinsed and left to presoak (for several hours to overnight) to ensure that the fibre will take the dye efficiently and evenly.

### 2ND STEP: SCOURING

Scouring must be done before mordanting & dyeing to remove oils, grime, wax, pectins, etc. If not done properly, then the dye will take unevenly, resulting in blotches. Also, colourfastness is not reliable as mordanting may not take evenly either. Different fibres require different scouring techniques. This is why some people have poor results dyeing cottons & other fibres. They have not scoured them properly. Always scour in a nonreactive vessel i.e. enamel, stainless steel, etc. Scoured fibre may go directly into a mordant or dye bath or may be dried & stored for later use.

**Note:** Soda ash/washing soda is alkaline. Vinegar is acid. Do not combine in the same scour bath as they neutralize each other.

### Wool

For 1 pound of wool use 4 - 6 gallons of hot water (120 - 140 F). Add 1 tbsp Calgon water softener or <sup>1</sup>/<sub>4</sub> cup white vinegar if water is hard. Add 1 - 2 tbsp soap or detergent. Make sure water is not too hot or it will cause the wool to felt when added, due to the drastic temperature change. Add yarn, fleece or material. If using fleece, it is helpful to place in a loose mesh bag first, such as an onion bag. Leave in a minimum of 2 hours or even better, overnight. Turn occasionally but do not agitate as the wool may turn to felt. If the wool is especially oily or dirty (fresh from the sheep) you may have to repeat with fresh solution. Rinse gently at approximately the same temperature as the final solution at end of soaking.

**Important:** All temperature changes must be gradual when using wool. Drastic temperature changes and agitation can cause felting, which is irreversible.

### Silk

For every pound of silk use 8 gallons of room temperature water. Silk fleece can be put in a mesh bag. Add 2 - 3 tbsp of Ivory Liquid soap or 4 ounces of Ivory powdered soap. Stir to dissolve. Add silk. Heat to a simmer for 30 - 60 minutes or until silk is no longer slimy. Remove, cool and rinse thoroughly. Overheating silk will result in a loss of luster.

### Cotton

Use at least 1 quart of water per ounce of cotton yarn or 2 quarts of water per ounce of fabric. For every gallon of water add 1 tsp. detergent & 2 tsp of washing soda or soda ash. Add the yarn or fabric & simmer for 2 - 8 hours. Rinse thoroughly 2 - 3 times.

### Linen and Hemp

For 6 ounces of linen or hemp, use 2 gallons of room temperature water. Add 3 tbsp of Calgon water softener, 1 ounce of washing soda (or soda ash) & 1 ounce of Ivory Liquid Soap or a castile soap such as Dr. Bronners. Stir to dissolve well. Add fibre & heat to a



simmer. Keep simmering for 1 hour. Rinse well once, then repeat the whole procedure. Rinse 2 - 3 times.

**Note:** In this case, do not replace Calgon with vinegar as the acid of the vinegar will neutralize the alkalinity of the washing soda, and combined, they will produce CO2 fumes. If Calgon is unavailable, one can increase the washing soda a bit for a more softening effect.

### About the Waterbath:

Indicator paper or litmus paper will tell you the pH of your water. A reading of 7 is considered neutral. Numbers below 7 are acidic and above 7 are alkaline. Rainwater used to be ideal, but acid rain has affected it. Acidic water is neutralized by 1 tsp. or less of borax, washing soda or baking soda. Too much washing soda however, can make the wool slimy or even break it down. Alkaline or "base" water is neutralized by a little white vinegar being added.

"Hard" water has a high mineral content & may interfere with dyeing. Hard water may be softened by adding a commercial water softener from the grocery store. It can also affect the pH, thus add it prior to testing. Pet shops often carry both litmus paper & mineral tests for aquariums that can be used for dye baths. If water evaporates during the dye process it must always be topped up as too little water or overcrowding of the dye-bath will result in patchy dyeing, referred to as "unlevel" dyeing.

### **Mordants**

Mordants are substances that are used to treat the fibre before, after or during dyeing to increase the colourfast & lightfast capabilities of the dye. Usually mordanting is done before the dye-bath. Most dyes would allow the colour to quickly wash away or fade without the use of a mordant. These are called fugitive dyes. Dyes that contain naturally occurring mordants within them, such as those rich in tannin, are called substantive dyes.

Many mordants are metals and may be purchased in powdered form at a dye shop such as Maiwa's Handprints on Granville Island in Vancouver or try <u>elitespun.com</u> in Ontario or any chemical supply house. Some produce toxic fumes (such as tin) and require adequate ventilation during use. Some are also toxic to the environment and require proper disposal. These are not recommended. There are non-toxic alternatives.

Some dye materials contain naturally occurring mordants such as tannins (black tea, sumac leaves, oak galls & tree barks are rich in tannin), aluminum (black tea or club mosses) or other chemicals. These dyes will not require additional mordants to preserve the colour of the dye. Or these natural mordant plants can be used with other mordants or dyes in some cases. For example, rhubarb leaves make a good mordant due to their high oxalic acid content. The colour of subsequent dyeing, it is pale enough to make further dyeing feasible. Tannin will preserve the colours from onion skins, fustic, cutch & walnut hulls but may not work with some other dyestuffs. Tannins work well on cotton.

Mordants may be used to alter the shade of the dye. For example, iron is said to "sadden" a colour by darkening it & muting it with a greyish hue. Iron can be purchased powdered or else rusty nails can be added or the dye bath can be done in an iron pot. The latter two methods, however, make the results less controllable. Iron water can be made by leaving a handful of rusty nails in a bucket of water with a cup of vinegar added for 1 - 2 weeks. Use as needed and top up with more water.

Tin brightens a colour but due to its high toxicity, it is not recommended. Alum generally leaves the dye colour close to its original shade. It can be purchased in the form of potassium aluminum sulphate or aluminum ammonium sulphate. Or the alum plant (*Heuchera spp.*) can be used instead. Other mordants include copper & chrome. Chrome may make a colour a little more brassy and/or darker. It is, however, another one that is very toxic to the environment so its use is discouraged. When purchasing mordants, powdered form is best (or granular) as crystal form means that you will have to smash it to powder yourself, using a hammer. Chemical Supply Houses usually offer these as well as various grades. The cheapest "technical" grade is fine for dyeing.

**Note:** Powdered forms of mordants and dyes can absorb moisture from the air, making the weight heavier. Thus, one may measure out less than is actually needed. Therefore, it is best to keep them in sealed containers to prevent moisture absorption.

### When to Mordant

If there is no naturally occurring mordant in your plant material, then you must mordant to make the dye last. Otherwise it will wash out or fade drastically. As mentioned, mordanting may be done to wool before, after or during a dye-bath. If you are only doing one colour & type of dye, mordanting during the dye process is the fastest, most convenient way. However, if you are doing many different dye-baths or want to increase your variety of colours from just one dye-bath, then mordanting separately makes more sense.

A basic wool mordant can be made (for every 1 pound of wool being dyed) by dissolving 3 ounces of alum (aluminum potassium sulphate or aluminum ammonium sulphate) into ½ cup warm water. Add this to the dye-bath. Then dissolve 1 ounce cream of tartar in another ½ cup of warm water and add this to the dye-bath. This mordant works simultaneously with the dye.

Cotton and linen are cellulose fibres rather than protein fibres. Most metal mordants (except iron oxide) do not bind well with cellulose unless the fibre is first mordanted with tannin. Or the tannin may be used alone as a mordant. To do this, dissolve ½ ounce to 1½ ounces of tannic acid into 4 - 6 gallons of hot water. (130 - 170 F). The lesser amount should be used if you want to dye light colours, the larger amount can be used if you are planning to dye dark colours, as tannin will darken the fibre. Place the scoured fibre in the bath, and wearing rubber gloves, work it in for several minutes. Submerge & steep for 8 - 24 hours. The mordanting will occur at room temperature. Remove & rinse once. Dry & store or add directly to another mordant, if desired.



**Note:** For the equivalent of 1 ounce of tannic acid, boil for 30 - 60 min.: 4 ounces dried or 8 ounces fresh sumac leaves & shoots or 10 ounces oak galls. Tannic acid may also be purchased.

# Basic Alum Mordant for Cotton or Linen (best with tannin mordant first)

For 1 pound of cotton dissolve 8 ounces of potassium alum or aluminum sulphate in 2 - 3 quarts hot water (130 - 170 F). Allow to cool, then dissolve 1 ounce (5 level tsp) of washing soda in 1 pint of water. While stirring, slowly add the soda solution to the alum bath. Carbon dioxide gas will bubble up. When this is finished bubbling, the mordant can be used. Add more room temperature water to the bath (3 - 5 gallons for 1 pound of linen or cotton). Add scoured fibre, work in for a few minutes. Water should just cover fibre but no more. Submerge & leave for 6 - 24 hours. 6 hours is sufficient if fibre has already been tannin mordanted or if you want very light colours. Remove & squeeze out. (This mordant can be used repeatedly but will get weaker each time.)

It is best to dry & air the fibre for 1 day before use, then rinse 2 -3 times more before dyeing. Alternatively, use a fixing solution just before dyeing. To do this, add ½ to 1 ounce of sodium phosphate or powdered chalk (traditionally, 1 - 2 ounces of cow or sheep dung was used) to each gallon of hot water (110 - 150 F). Dissolve well, work in and soak fibre for 30 minutes in solution. Rinse well. Dung was used for centuries as a fixative as it contains sodium & calcium phosphates.

Unlike wool, cotton prefers the mordant to be less acidic. Whereas wool uses cream of tartar to make the alum mordant more acidic, cotton uses washing soda to make it less acidic. Basic alum or aluminum acetate works far better on cotton than alum-tartar. Aluminum acetate works on cotton without the tannin but is more expensive & harder to access.

### **Basic Alum Mordant for Silk**

For 1 pound of silk, dissolve 8 - 16 ounces of aluminum sulphate or potassium alum in 3 gallons of hot water. Allow to cool. Add scoured, wet silk. Work for several minutes, submerge & steep for several hours. Remove, squeeze out carefully & hang to dry.

**Note:** If the above is unavailable, you can use the standard alumtartar mordant used for wool, however, it must be done hot & this tends to destroy the luster of the silk.

To achieve very deep colours, repeat this mordant process just before silk is dry. Rinse & dry or add directly to dye pot.

**Note:** The cheapest source of aluminum sulphate is from the garden store. Sometimes, however, it is contaminated with iron and then the colour of it will be brown upon purchase. This will darken or dull your dye colour. To test for sure, dissolve 1/8 tsp of it into 1 ounce of water. Add a few crystals of potassium ferrocyanide & stir. If the solution turns Prussian blue, it shows the presence of iron.

# Commonly Used Mordants (Fixatives)Used by First Nations

- Red algae that rises out of springs or creeks Dried & baked in fire. It contains iron oxide
- Black earth that bubbles out of certain springs Rushes were buried in earth for several days to achieve a black colour. It contains iron compounds with organic acids
- Black oak soaking in "dead water" for 2 years Hardens into a whetstone. The dust from the whetstone is collected & used as a mordant. It contains an iron-based silt. Ordinary grindstone dust may also be used.

### About Dyestuffs:

When using heated dyes, best colours are produced by harvesting dye plants at their optimum ripeness and using them clean & fresh. Wash if necessary as dirt can dull the colour. Soaking the dyestuff in water frees the dye and shortens the cooking time. Soak for at least a few hours or overnight. Yellow & red colours will work better if soaked for a long time & then heated at a lower temperature than other dye-baths, as anthocyanin pigments that produce yellows, oranges & reds are destroyed by heat. Thus, 170 F (77 C) instead of the typical190 F (88 C) for a short time will produce a better dye. In this case, longer cooking will destroy rather than improve the colour.

### Making the Fresh, Heated Dye

Place the dyestuff in a minimum of 2 - 3 gallons of cold water (ideally it should already be presoaking in it) and slowly bring to a simmer. Keep simmering for 1 hour (for light materials like flowers) to several hours (for harder materials like berries). When the water is no longer darkening, you can turn off the heat source. If your dyestuff is small or granular like coffee or tea, you can place in a cheesecloth or muslin bag for easy removal. Otherwise you will usually have to strain the plant dyestuff out of the bath before adding the wool. Remember that the colour will look darker while textile is wet so consider this when deciding if you have the shade that you want, as it will dry several shades lighter. When removing textile, rinse in several changes of soft water until water runs clear.

### Making a Decomposition Dye

A very old method of dying is the decomposition dye. Indigo is a form of decomposition dye, though its complexity requires a full focus on indigo alone, and thus, it will not be addressed here in any detail. This decomposition dye method may result in different colours than if the same plant were used in a heated dye bath. Decomposition requires a longer time to get the results and must be started well before the dying day.

### **DECOMPOSITION METHOD:**

Place the chopped plant parts into a jar or bucket (with lid). Cover with a measured amount of water. The water should be distilled or de-ionized so that it does not affect the dye colour. For each 1 cup



of water used, add 1/4 tsp granulated sugar. This is to accelerate the decomposition. Other types of accelerators commonly used in the past were yeast, bran or urine (especially in the north where lichens were used as a primary dye source). Ammonia can be used in place of urine.

Seal jar or bucket. If lid is metal, place plastic wrap between dye bath & lid so that the metal does not react with the dye. Shake well and label with date, plant & plant part. This decomposition dye can then be either placed in the sunlight (especially if no other accelerator is used) or in the dark. The sunlight may affect the colour.

Open jar at least once per week to stir the contents. When the liquid no longer darkens with the leached colour, then the dye is ready. Be prepared for the smell of the dye because decomposition is exactly that: decomposition, and it does smell. Strain the decayed plant matter out of the dye bath & pour into a new container.

Top up with more water. Add scoured, rinsed, squeezed wool to dye bath. Stir well. Leave up to 1 week, stirring or shaking contents 1 -2 times daily until desired colour (remember that it will dry lighter) is achieved or if textile no longer appears to be darkening.

Record the start date & finish date & remember to keep information from original jar's label during decomposition phase. When removing textile, rinse in several changes of soft water until water runs clear. To get rid of decomposition odour, remove yarn from last rinse, add a little bit of Ivory Snow or other mild detergent or soap. Mix well. Add the yarn back in & squeeze soap suds through fibre until it is thoroughly cleaned.

### **Drying and Aftercare:**

Dyed fibres should be dried away from direct sunlight. Often they are left to "cure" before multiple rinsings. Soft water is best for the rinse baths. Sometimes they are steamed to further fix the dye. Wash in cold water, separately from other colours in case of colour bleeding.

### Fertility Autonomy & Herbal Abortion

#### Presented by Ember Peters, RHP (HANS) (they/she)

The following information is not a replacement for appropriate medical care, advice or services. While we know that herbal abortions can be safe and effective, there are many cases of herbal abortions causing harm. This is not a how-to guide - do your research and seek out support. Please be mindful of safety and security when reaching out to potential providers, many will not respond when asked about these services via social media, for instance, due to legal risks.

### **Historic and Current Context**

Herbs have been used by women and uterus bearing people since the beginning of our species in order to control fertility. Written record of abortifacients and contraceptives goes back to Ebers Papyrus from Egypt 1500 BCE, and Avicenna from Persia/Iran 1000 CE. During the 14th to 17th century "the Burning Times" in Europe, the Church led a campaign of social control and fertility control and began persecuting the source of knowledge of abortifacients and birth control, along with all traditional medicine knowledge. Midwives and wise women were targeted heavily during this time.

On Turtle Island, enslaved African women used herbs to abort pregnancies as an act of resistance to chattel slavery (see article on Cotton Root by Karen Culpepper). Genocide against Indigenous peoples includes criminalizing traditional ways of life including midwifery and fertility practices. The legal situation has fluctuated here on Turtle Island between criminalization and limited abortion access. Criminalization of providers, often poor, Black, or Indigenous has continued to limit access especially of herbal or at home abortions.

Stigmatization and silencing has kept the knowledge of herbs for fertility autonomy mostly underground, and is not generally welcomed as a topic to be discussed in the herbal community. The recent research paper published in the Journal of the American Herbalists Guild, "A Place for Herbal Abortion in Clinical Herbalism" looks at recent case studies by experienced providers. While herbal abortion is not a replacement for clinical abortion care, this study offers a glimpse of what might be possible with herbs.

Thank you to my co-authors of this paper, Daena Horner, Molly Dutton-Kenny, Cheré Suzette Bergeron, and Amanda Jokerst and the AHG Journal for the opportunity to publish the findings of our research.

### **Summary of the Research Findings**

A IRB approved Community Based Participatory Research Study in 2018-2021 gathered information about 168 home abortions from 25 providers. Herbs were recommended as a primary method of abortion in 30 cases: 13 herbal only and 18 combining herbs and misoprostol. Of the 13 herbal only cases, 7 were successful on the first attempt. The remaining 6 cases were completed at home using other methods.

In our research, we looked in the dataset for patterns to see if there were factors that seemed to increase or decrease the potential success of a herbal only abortion protocol. We looked at: support, gestational age, dosage and timing, protocol flexibility and formulation.

### SUPPORT:

This data was specific to people who sought out an experienced community provider, and that provider may have been a part of a larger support system themselves. Research shows having



support often leads to better outcomes, no matter the abortion method chosen.

### GESTATIONAL AGE:

Gestational age was the clearest marker for success in this small case set. When herbs were started by 4 weeks LMP (since last menstrual period), termination was 100% effective. When herbs were started by 4.5-7 weeks LMP, termination was 60% effective. At > 7 weeks, herbs alone were 0% effective (all successfully completed at home with another method).

### DOSING:

It appears to be important for dosing to be consistent, every 4-6 hours and sometimes recommended throughout the night. Dosing is on the relatively high end for each herb, but within dosage levels considered clinically safe. The average time from the start of herbs to complete abortion was 8.8 days. Some required dosing for as little as 2 days and some as many as 18.

### PROTOCOL FLEXIBILITY:

In 75% of cases, the protocol changed at least once throughout the process. Protocols are changed to meet client's needs, respond to side effects, or improve the actions and synergy of the plants. This is closely tied in with the support that each client was receiving from a trained provider. This shows the importance of the person taking herbs to be actively paying attention to what's going on in their body. This is why there is no "best herbal abortion recipe!" - for safety and efficacy, protocols should be tailored to the person.

#### FORMULATION:

While the formulas were different in every case, we looked for similarities and differences in the herbs based on mechanism of action and synergy of actions. Each of the effective protocols included herbs to accomplish the following goals: inhibit progesterone, increase oxytocin, stimulate uterine contractions and soften the cervix (all but one case).

We theorize that pregnancies that have not been terminated will have a more difficult time being expelled. For this reason, we think it is especially important in earlier gestations to include progesterone inhibition for termination of early pregnancy. Herbs that help stimulate the release, such as oxytocic herbs, uterus stimulants and cervical softeners, may be more effective if taken after a short period of progesterone inhibitors.

We also noticed that simpler protocols may have been more effective, and formulas or protocols that included many (more than 4 or so) plants may have led to more side effects, and overall less effectiveness. See the resources section for links to the tables including all cases.

# Theoretical ideal timing of herbal actions based on physiology:

Progesterone inhibitors (cotton root bark, vitamin C)

Interference with the corpus luteum formation causes an interference with the production of progesterone, which causes the uterine lining to be unsupportive to a fertilized egg. Likely effective at any point during the protocol, including earlier gestations (3-6wks LMP) to send signals to the body to stop development of the fetus when other stimulating herbs might not be as effective.

Volatile oil rich uterine stimulants (mugwort, pennyroyal)

Likely effective at any point during the protocol, including earlier gestations combined with progesterone inhibitors.

<u>Blood moving herbs</u> to stimulate blood flow (angelica, Dong Quai, ginger, motherwort)

Can take throughout, though likely more effective at later gestations or in a second phase of formulation once development has stopped from progesterone inhibition.

<u>Oxytocic herbs</u> to stimulate uterine contractions (cotton root bark, blue cohosh)

Can take throughout, though likely more effective at later gestations or in a second phase of formulation once development has stopped.

Uterine relaxants (black cohosh, Dong Quai, angelica)

Likely more effective at later gestations or in a second phase of formulation after taking progesterone inhibitors, combined with cervical softeners.

Cervical softeners (parsley, lobelia, evening primrose oil)

Likely most effective after some time (3-5 days) of progesterone inhibitors, and combined with uterine relaxants and/or stimulants, to induce final release.

# Considerations for success based on available research

- Started herbs at 4-5 weeks LMP
- Some required consistent dosing up to 18 days, with one day breaks if needed
- Side effects were managed by taking a day break or changing protocol if needed
- Staged protocols used in some of the successful cases: started with progesterone inhibiting and uterine stimulating herbs, then added blood movers, uterine relaxants and cervical softeners after 3-5 days
- Most commonly used: cotton root bark, parsley, black cohosh, Dong Quai, mugwort, vitamin C
- It is important to be prepared to combine with another method for any case, especially for gestations over 4 weeks LMP.

# Patterns of cases that required an additional method for complete abortion:

• Many started herbs at later gestations



- All that started at 7 weeks LMP or earlier didn't take herbs for more than 5 days (average for success was 8.8 days)
- Side effects impacted the ability to keep taking herbs, possibly due to too many herbs at once
- 2 seemed like more adherent pregnancies
- Some missing cervical softening in the protocol

### **Potentials and Limitations of Herbal Abortion**

- Sharing cases and stories, and overall destigmatizing the practice, will give us more information, improve outcomes, safety and protocols, and deepen the collective well of knowledge.
- Legal or social implications make it so most providers don't feel safe being public about their offering of this type of care, limiting access.
- Any upscaling of access to herbal abortion options means increasing body literacy, fertility awareness, comprehensive sex education and connections to our bodies and the earth
- Offering herbal care alongside medication or medical abortions allows for holistic, integrated health care, and improved outcomes.
- Herbs could potentially fill a gap in abortion care for very early pregnancy terminations in some cases, especially if offered by skilled providers

### **Moving forward**

- Build trusted circles and care
- Build referral spaces and networking
- Continue learning
- Respect boundaries and security protocols of practitioners and clients: safety as a community care practice

### Resources

Our paper "A Place for Herbal Abortion in Clinical Herbalism" <u>Www.</u> <u>HomeAbortionResearch.Com</u> hint: the resources section at the end of the paper is full of rich gems of information ;)

Cotton Root Bark: A Symbol of Herbal Resistance by Karen Culpper <u>https://www.</u> americanherbalistsguild.com/gossypium-spp-cotton-root-bark-symbol-herbalresistance-karen-l-culpepper

Sharing Knowledge of Blue Cohosh by Claudia Ford <a href="https://www.calameo.com/read/0045807301fb181ffd5ae">https://www.calameo.com/read/0045807301fb181ffd5ae</a>

Wild Carrot Exploration by Robin Rose Bennett and Mischa Schuler <u>https://www.</u>robinrosebennett.com/musings/resources/wild-carrot-exploration-summaryaugust-2011

Molly Dutton-Kenny workshops <u>http://www.mollyduttonkenny.com/workshops</u> Holistic Abortions workshops and resources <u>https://www.holisticabortions.com/</u>

### Gallstones Case Review

### Presented By Ember Peters, RHP (HANS) (they/she)

### "Jasper", 30 y/o, non-binary (they/them)

Client first came to me when they were experiencing acute right upper quadrant (RUQ) pain for 3 days and I referred them to the hospital. Their sx included: pain and swelling in RUQ, fullness, bloating, pain with deep breaths, worse with excessive fats in the diet. At the hospital they were referred for an ultrasound 2 days later, which showed many gallstones, maximum 10mm in size. Severe acute pain lasted for four days. The doctor put them on a waitlist for a cholecystectomy (gallbladder removal surgery), estimated wait time 6-12 months. They soon came back to see me in the clinic with goals to dissolve their gallstones and keep their gallbladder.

### Notable Subjective Data:

### DIGESTION

- Digestive issues began about ten years prior when eating poorly. They started experiencing constipation, pain, gas, cramping, bloating. Their diet improved in 2017 when they went vegan and started cooking. Bowel movements are constipated and somewhat loose, 1x/day, not pale.
- Onset of potential gallbladder symptoms five years prior, first mis-diagnosed as muscle pain. Pain in RUQ with bloating has occurred a few times since 2017, lasting a few days.
- Diet is mostly carbohydrates (crackers, bread, pasta, grains), some root vegetables and fruit, and overall not much protein. They start the day with black coffee.
- Client has a history of weight loss obsession and disordered eating, and would like to avoid a restrictive diet.

### NEUROENDOCRINE

- Client has been experiencing a very short fuse, feeling helpless and spinning into a frustrated rage, 2-3x/week Feels out of control and shame. Similar symptoms have occurred before, connected with gallbladder pain. They would like to feel more in control of their emotions.
- Sleeps 8-9 hours and energy is always low

### CIRCULATORY

- Warm core and cold extremities
- Numbness in extremities at night
- Toes are purple all winter

#### SKIN:

• Itchy/flakey skin on scalp, skin overall dry

<u>Tongue</u>: Pink with reddish edges and tip, white coat, medium moisture, slight feathery cracking in the middle, dip in the tip, wide, trembling

#### **CLINICAL ASSESSMENTS:**

- 1. Liver sluggishness, deficient bile: gallstones, itchy/ flaky/dry skin, bitter deficient diet, constipation
- 2. Heat in liver: rage, gallstones, pain in RUQ, red edges of tongue
- 3. Blood deficiency and stagnation: cold/numb extremities, fat and protein deficient diet, weak pulses, low energy
- Tension: gallbladder spasm, rage/ irritability, tongue trembling



Assessment summary: Diet deficient in fruits/veg/bitters/fiber over the long term with an excess of simple carbohydrates decreases bile production and increases cholesterol production, over time leading to formation of gallstones. Potentially also a link with blood sugar dysregulation hepatic insulin resistance though not conclusive.

<u>Herbalist Goals</u>: Support liver – increase bile flow, reduce tension in lv/gb, move blood, build/nourish, release liver heat, dissolve stones

<u>Herbal actions required</u>: bitter, hepatic, anti-inflammatory, antispasmodic, circulatory stimulant, nervine, antilithic

### Herbal formulas recommended:

### 1) TEA:

6g Taraxacum officinale root 4.5g Mentha × piperita 3 g Matricaria recutita 1.5g Citrus sinensis peel =15g/day

Simmer dandelion+orange peel 20 mins, in 3-4 cups h2o, then remove from heat and add pep+cham, steep 15 mins, covered. Drink  $\frac{1}{2}$ -1 cup before meals.

### 2) BITTER TINCTURE:

- 2 ml Curcuma longa 2 ml Berberis vulgaris 1 ml Foeniculum vulgare glycerite 1 ml Verbena hastata 1 Apium graveolens seed 0.5 lavendula angustifolia =7.5ml/day
- 2.5 ml or ½ tsp 3x/day before meals
  3) Gallbladder Pain:
  2.5 ml *Dioscorea villosa*2.5 ml *Valeriana officinalis*2.5 ml *Viburnum opulus*2.5 ml *Matricaria recutita*=10ml

3-5 droppers up to 3x/day

### NUTRITION/LIFESTYLE RECOMMENDATIONS:

- Cook with unsaturated fats like olive oil, in small tolerable amounts
- Increase fruits and vegetables to 4-5 servings daily, especially roots, dark leafy greens, mushrooms, citrus.
- Eat protein at least 2x/day
- · Be sure to eat something with or before coffee in the AM
- Continue to drink plenty of fluids
- Reduce refined sugar and simple carbohydrates linked as

a major risk factor in gallstone formation. Replace with whole grains, naturally sweetened snacks

• Daily movement/exercise for at least 30 mins.

### FOLLOW-UP #1 - 1 MONTH AFTER INITIAL

- Taking tea and tincture consistently.
- Overall WAY less anger, less short fuse, doesn't feel out of control.
- Digestion overall is way better with bitters, more regular bowel movements, less constipated, more formed and complete, bloating completely resolved
- Took acute tincture once at onset of symptoms, didn't become a full on attack, able to sleep it off. Took a few times the next day and the pain did not come back at all

### FOLLOW-UP #2 - 3 MONTHS AFTER INITIAL

- Energy still low, we decided to replace *Matricaria recutita* with *Tilia* × *europaea* in the tea
- HA1C, liver panel and lipids all came back normal on blood work
- Eating more citrus and greens now with the spring
- Able to eat more fat and it's been fine. Feels exciting.

### FOLLOW-UP #3 - 5 MONTHS AFTER INITIAL

• Client reported they were able to get another ultrasound done and it shows no apparent gallstones. Recommended to continue bitters and dietary changes at a lower dose to prevent recurrence.

### Sacred Smoke: Crafting Incense from local plants for Healing

#### **Presented by Maria Recchia**

Declaration of War Against Exploiter's of Lakota Spirituality. June 10, 1993. <u>http://www.thepeoplespaths.net/articles/ladecwar.htm</u>

### **Some Good Incense Herbs**

- Spruce (gum) Picea spp.
- Balsam poplar (leaf buds) Populous balsamifera
- Cedar (needles) Thuja spp
- Fir (needles) Abies spp
- Juniper (needles) Juniperus spp
- Pine (needles & sap) Pinus spp
- Yarrow (above ground parts in flower) Achillea millefolium
- Tansy (above ground parts in flower) Tanacetum vulgar
- Rosemary (leaves and \*stems) Rosmarinus officinalis
- Lavender (leaves) Lavandula officinalis
- Artemisias (above ground parts in flower) Mugwort, Sweet Annie
- Bay Laurel (leaves) Laurus nobilis
- Garden Sage (leaves) Salvia officinalis
- Goldenrod (flowers and leaves) Solidago spa



- Pearly Everlasting (above ground parts in flower) Anaphalis margaritacecea
- Coltsfoot (leaves) Tussilago farfara
- Mullein (leaves) Verbascum sap
- Chaga Inonotus obliquus

### The Magic Mist

#### Presented by Steven Taylor

The Magic Mist is an ancient fairy tale from Donegal in the far west of Ireland. The story as told has been taken from 'Fairy tales of Ireland' by Sinead De Valera<sup>4</sup> (1878-1973). In the tradition of oral story telling I have not repeated the tale word for word as written, but tell it as a unique spontaneous exposition. In this way of interpreting Oral traditions the main themes and motifs remain as the central core, but the actual recitation is a spontaneous improvisation.

Prior to the spread of literacy, Oral recitations were the means of communicating information, wisdom and culture. All global cultures have their own rich Oral tradition carried in story, song and poems. In western culture the remnants of these oral traditions can still be accessed through folkloric tales and fairy Stories. Many of these tales can be traced back to Bronze Age and earlier cultures through their shared early Indo-European linguistic structures<sup>5</sup>.

Within these tales there are repeating motifs and symbols that communicate cultural beliefs, philosophical concepts and spiritual viewpoints. In the context of our story 'The Magic Mist' we can see how these ancient concepts are presented in the following ways:

### The Number Three

Numbers in ancient cultures are seen as signifiers of a broad range of concepts that underpin ancient philosophical and spiritual viewpoints. Three is the number of the ancient triple white goddess in the form of Maiden, Mother and Crone, representing birth, life and death<sup>6</sup>. It is seen as the cosmic number of dynamic change and regeneration, and we see it arising in symbols such as the triskele in Neolithic petroglyphs, the three muses, the triple faces of Hecate, the Christian holy trinity, and in many more instances.

It is seen as a signifier of challenge and change, and we still linguistically refer to it with sayings such as 'Try, try, and try again' and 'Third time lucky'. For an exploration of these concepts in living European tradition please refer to '*We borrow the Earth*', written by the Romani author Patrick Jasper Lee<sup>7</sup>.

### The Hero's Journey

Central to many ancient stories is the hero's Journey<sup>8</sup>. It can be understood as the description of a personal inner and outer journey each individual must take throughout life to discover inner truths and life purpose. It involves a calling and departure, an initiation; including facing challenges and tasks and the potential death of oneself to be reborn renewed, for the final triumphant return.

In these tales the importance of love, the goddess, having courage, and trusting in the supernatural are all central themes.

### **The Elements**

We see the main elemental forces of Earth, Air, Fire and Water presented as signifiers of different challenges to overcome and thus gain personal resources<sup>9</sup>. These elements also correspond to the ancient European concept of the 'otherworlds'. This idea recurs throughout European mythological traditions, and is especially notable within the Norse tradition where the Ash tree represents the world Tree 'Yggdrasil'. The world tree has roots in the lower world, branches and leaves in the upper world with the middle world that we inhabit being the trunk. These magical worlds correspond to elemental aspects, with the lower worlds being ruled by the elements of Earth and Water, and the upper worlds being ruled by the elements of Fire and Air. According to Jasper Lee the Romani author, these world aspects are clearly represented within the structure of the European fairy story tradition<sup>10</sup>.

The Air element pertains to youth, wits, adventure, but also the wisdom of elders and ancestors. Often the colour white is symbolic of its presence as well as high places, castles and abodes high up in the air. In the Romani tradition it is personified by a wise sky ancestor called grandfather sky- 'Ravnos'. In the magic mist we see it arising in the call to adventure, in Aegna the wise druid, in the climb up to the abode of the 'Hag of the Rocks'. It emphasises the skill of developing and using our 'wits' to overcome adversity.

The Fire element pertains to danger, action, focus, protection, warrior action, courage, leadership, warmth, generosity and fatherhood. In our story it is signified by the rising sun, the father figure Fergus, and in particular the courage needed to rescue Aideen. In the Romani tradition they personified this element as the greater ancestor; Father Sun-'Kam'.

The Earth Element pertains to steadiness, stamina, loyalty, ancient Earth knowledge, deep hidden treasures, the knowing that comes from seeing the repetition of many seasons, moons and cycles. In Romani Tradition it is personified as Grandmother Earth- 'Puv'. In our story we see the earth represented by the ancient Hag of the rocks, who also lives in a cave in the rocks, with her power to overcome and assist all challenges, but also demanding of us that we show commitment and trust in nature and her power. We also

<sup>4)</sup> De Valera, S. Fairy tales of Ireland. 1967. Four square books. London.

<sup>5)</sup> Graca da Silva, S. Tehrani J. *Comparative phylogenetic analyses uncover the ancient roots of Indo-European folktales.* 2016. Royal Society open science.

<sup>6)</sup> Graves, R. *The white Goddess.* 1948. Faber and Faber Ltd. London.

<sup>7)</sup> Lee, P.J. We borrow the Earth, An intimate portrait of the gypsy shamanic tradition and culture. 2000. Thorsons. London.

<sup>8)</sup> Campbell, J. The hero with a thousand faces. 1993. Fontana. London.

<sup>9)</sup> Lee, P.J. We borrow the Earth, An intimate portrait of the gypsy shamanic tradition and culture. 2000. Thorsons. London.

<sup>10)</sup> Ibid.



see her presence in the house keeper Macha, who knows what to do in a crisis, representing the validity of the wise woman and the wisdom that she carries.

The Water element pertains to dreams, visions, romance, emotions, song, fertility, acceptance, tolerance and nurture. In Romani tradition it is personified as Mother Moon-'Shon'. In or story, both Aideen and her Mother Una represent the maiden and mother, the silver twine also represents the connection to the aqua vitae or life force, and by holding onto that in their journey the young adventurers return to the land of the living. It is also evident that their love, passion and romantic feelings for each other is central to the story, and particular to their safe return. The silver river and the silver weed are also directly connected to the power of the Moon Goddess showing her central role in our story. In the Sinead De Valera version of the story this plant is described as the silver grass that grows by the stream, so I have taken the licence to nominate it as being Silver weed (Potentilla anserina) as this is a common plant of the British Isles, and was formerly much praised as a medicine with a link to the planet Venus and thus to the ancient white Goddess herself; 'This plant is under Venus, and deserves to be universally known in medicine'.(Culpeper 165211)

### **The Trees**

In all Celtic languages the word for letters is the same as the word for Tree. The ancient Tree alphabet or Ogham is thought to have come to the British Isles via the migration of tribal peoples from an area between north western Greece and the black sea. It is said that when the first Druid Amergin stepped ashore on the coasts of western Ireland, he recited the alphabet of trees, which is known as the 'Song of Amergin'. This set of verses is also known as 'the battle of the trees' and has been passed down in written form within a number of ancient literary sources. The renowned academic, author, and mythologer Robert Graves<sup>12</sup> fully explored this ancient text in his book 'The white Goddess'.

The letters of the tree alphabet are written in the form of lines inscribed on the edge of stones found on a variety of megalithic monuments across Ireland, Wales and the west of England. It is believed that the language was also communicated as a sign language using the five finger digits held against the nose, fore-arm or shin bone, and only during the later phases of Druidic culture did it begin to be inscribed on the edge of monumental stones and onto pieces of wood. As in our story it was also likely to have been used as a divinatory tool.

It is a symbolic language, with each tree being aligned with specific deities, elements, and spiritual or metaphysical concepts. The alphabetical trees correspond to the thirteen annual lunar cycles, and the four main solar events. It consists of twenty trees, thirteen of them directly correspond to the thirteen moons, thirteen being the sacred number of ancient moon Goddess, two of the months also have an extra tree aligned with them making up to fifteen the number of the Moon Goddess trees. The number fifteen

includes the Pentad (Group of five) which is also a manifestation of the ancient white Goddess. These first fifteen moon trees are all represented as consonants, whilst the five vowels correspond to the solar solstices and equinoxes. The winter solstice has two trees assigned to it, one being for the ending of the Solar year, the other being for the beginning of the new Solar cycle.

### The divinatory trees in our story are:

'Idho'-The Yew Tree, along with the Oak, the Yew was considered the most sacred of the Druidic trees. It represents Death and the void from which all things arise. It is connected to Ether, the magical element of divine connection that exists in all things but has no form of its own. It is the silent source from which all of the cosmos emanates from and returns to. Its line in the Song of Amergin reads: 'Who but I can unfold the secrets of the unhewn dolmen?'

'Ruis' -the Elder tree, representing the thirteenth moon, the end of cycles, the little people, the otherworld and death, its corresponding line in the Song of Amergin is 'I am a wave of the sea'.

'Saille'- The Willow tree, representing the fifth moon, death and rebirth, a journey to the otherworld, associated with the goddess Hecate, and connected to journeying beyond the current realm and springing forward ( it is the origination of the phrase 'to sally forth') Traditionally ruled by the Moon in humoral medicine<sup>13</sup>. Its line in the Song of Amergin is: 'lam a hawk upon the cliff'.

Quert- The apple tree, it is the ninth moon representing opportunity, wisdom and fulfilment. It is central to the ancient cults of Dionysus, Diana, and to the Welsh Maiden Goddess Olwen, as well as Freyer from Norse legend. If an apple is sliced across its centre the core is in the shape of a five pointed star, the pentad, sacred to the ancient triple Goddess. It is associated with immortality as well as love, and in the Song of Amergin its line reads: 'I am a lure from paradise.' The Golden apples of Immortality are central to many ancient tales including the story of Hercules, and are a central theme associated with love and rebirth in many European fairy stories<sup>14</sup>.

### Rhododendron groenlandicum (Oeder)

Presented by Rachelle Walker

Formerly known as Ledum groenlandicum

Common name: Labrador tea, Trappers tea, Swampy tea, Marsh tea, The grandmother of herbal teas

Family: Ericaceae Parts used: Leaves

<sup>11)</sup> Culpeper, N. Culpeper's complete Herbal. (1652) reprint: Foulsham. London.

<sup>12)</sup> Graves, R. *The white Goddess.* 1948. Faber and Faber Ltd. London

<sup>13)</sup> Taylor, S. The Humoral herbal. 2021. Aeon books. London.

<sup>14)</sup> McLeish, K. Myths & Folkstories of Britain and Ireland. 1986. Longman. Harlow, England. P.176.

#### NOTE ON TAXONOMY:

There are three species, all known to be called Labrador tea:

- 5. *Rhododendron tomentosum*, formerly known as *Ledum* palustre, commonly known as Northern Labador Tea
- 6. *Rhododendron groenlandicum*, formerly known as *Ledum groenlandicum* or *Ledum latifolium*
- 7. *Rhododendron neoglandulosum*, formerly *Ledum glandulosum* or *Ledum columbianum*, commonly known as western Labrador tea, or trapper's tea

### Constituents<sup>1516</sup>

- Volatile oils 0.3-2.5%
  - » Camphor
  - » Ledol
  - » Palustrol
  - » Sabinene
  - » Limonene
  - » Cyclocolorenone
  - » Germacrone
  - » p-cymene
  - » y-terpineol
- Terpenes
  - » Ursolic acid
- Tannins (8-17%)
  - » Catechin tanins
- Flavonoids
  - » Quercetin
  - » Hyperoside
  - » Arbutin
  - » Catechins
  - » Procyanidins
  - » Cholorogenic acid

• Renor

16) Farnsworth ND (ed.). 1999. NAPRALERT: Natural Products Alert Database. Program for Collaborative Research in the Pharmaceutical Sciences, Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University Illinois at Chicago, IL.

15) Duke JA. 1985. CRC handbook of medicinal herbs. CRC Press, Boca Raton, FL.



 $C \times C$ 

R. Groenlandicum growing in churchill, MB.

### **Nutrients**

- per 100g dry weight, 42% moisture
- Niacin 92mg
- Vitamin C 98.2mg
- Calcium 215mg
- Phosphorus 93mg
- Sodium 3.7mg
- Magnesium 73mg
- Copper 31mg
- Zinc 2.4mg
- Iron 184mg
- Manganese 45mg

### Actions

- Analgesic
- Anti-bacterial
- Anti-parasitic
- Anti-inflammatory
- Decongestant
- Antimutagenic
- Antidiabetic
- Insecticidal
- Kidney trophorestorative
- Renoprotective
- Mild narcotic
- Mild sedative



### **Clinical applications**

- Type 2 Diabetes Mellitus and Insulin Resistance
  - » *R. groenlandicum* reduces blood glucose and insulin while improving response to an oral glucose tolerance test<sup>17</sup>
  - » Activates the AMPK pathway to increase ATP synthesis in response to metabolic stress and increase basal glucose uptake in skeletal muscle cells - effect seen up to 18 hours administration
    - » study was done using an ethanol extract in vitro18
- Improve liver function
  - » prevents diet induced hepatic steatosis
  - » 42% reduction in hepatic triglyceride levels 19
- Improve kidney function in obesity and T2DM
  - » improves microalbuminuria and significantly reduces renal fibrosis and renal steatosis<sup>20</sup>
    - » albumin/creatinine ratio (ACR) was reduced by 23% after 16 weeks of treatment with an 80% ethanol extract of *R. groenlandicum.*
    - » *R. groenlandicum* effectively prevented renal interstitial fibrosis in a mouse model fed a high fat diet
    - » *R. groenlandicum* reversed the glomerular and renal proximal tubule hypertrophy observed in the high fat diet mice
  - » Arthritis
  - » Cold and flu
  - » Headaches
  - » Eye infections

### Posology

- 3-4 whole fresh leaves per cup of boiling water
- 1 tsp of dried and cut leaves per cup of boiling water, steep for 5 minutes.s
  - » 1 cup a day is recommended as a maintenance dose
- Smoking the leaves produces a mild narcotic and sedative effect
- Sun infusion using 5-6 leaves per cup of water

### Synergistic flavour profiles

#### \* from plants growing in the same habitat

17) Li, Shilin, et al. "Rhododendron groenlandicum (Labrador tea), an antidiabetic plant from the traditional pharmacopoeia of the Canadian Eastern James Bay Cree, improves renal integrity in the diet-induced obese mouse model." Pharmaceutical biology 54.10 (2016): 1998-2006.

18) Martineau, Louis C., et al. "Enhancement of muscle cell glucose uptake by medicinal plant species of Canada's native populations is mediated by a common, metformin-like mechanism." Journal of ethnopharmacology 127.2 (2010): 396-406.

19) Ouchfoun, Meriem, et al. "Labrador tea (Rhododendron groenlandicum) attenuates insulin resistance in a diet-induced obesity mouse model." European journal of nutrition 55 (2016): 941-954.

20) Li, Shilin, et al. "Rhododendron groenlandicum (Labrador tea), an antidiabetic plant from the traditional pharmacopoeia of the Canadian Eastern James Bay Cree, improves renal integrity in the diet-induced obese mouse model." Pharmaceutical biology 54.10 (2016): 1998-2006.

- » Blueberries (dried berries or leaves)
- » Dried crowberries
- » Yarrow flowers or leaves
- » Coltsfoot leaves
- » Fireweed flowers and leaves
- » Horsetail

### **Cautions and Contraindications**

- Avoid in pregnancy due to abortifacient activity (R. tomentosum)<sup>21</sup>
- Contains toxic Ledol
  - » There is a significant variance in the concentration of ledol depending on where the plant is harvested.
    - » For example, in Northern Canada, where traditionally the tea (*R. groenlandicum*) has been consumed by many nations, samples collected showed no measurable amount of ledol; compared to samples of *R. tomentosum* shoots in Lithuania containing 30.5% ledol and another sample showing 3.9% ledol found in Tomsk, Russia.<sup>22</sup>
- Contains Grayanotoxin (AKA Andromedotoxin) when this compound is consumed in large concentrations can cause headaches and vomiting or death<sup>23</sup>.
  - » Grayanotoxins are polyhydroxylated cyclic diterpenes, a hydrophobic molecular structure and therefore very little is present when Labrador tea is prepared in the traditional form of an infusion. Steeping it uncovered will result in more volatile oils evaporating, and a less potent concentration in the brew.
  - » Greyanotoxins have biological activity similar to *Veratrum* alkaloids
- Caution when using the volatile oil as an insect repellent, it is very effective as such, but should not be applied directly on the skin.

Note on safe upper limits: in my clinical experience, there is a wide therapeutic range for Labrador tea dosing dependant on the vitality of the individual - loose stools are a common first sign that the upper limit for that individual has been reached.

### Energetics

- Diffusive
- Drying

<sup>21)</sup> Dampc, Anna, and Maria Luczkiewicz. "Rhododendron tomentosum (Ledum palustre). A review of traditional use based on current research." Fitoterapia 85 (2013): 130-143.

<sup>22)</sup> Dampc, Anna, and Maria Luczkiewicz. "Labrador tea-the aromatic beverage and spice: a review of origin, processing and safety." Journal of the Science of Food and Agriculture 95.8 (2015): 1577-1583.

<sup>23)</sup> kuhnlein HV, turner NJ. 1991. Traditional plant foods of Canadian indigenous peoples: Nutrition, botany, and use. Gordon and Breach Science Publishers, Philadelphia, PA.

### Ethnobotany

- Labrador tea can be poured over the hot rocks of a sweat lodge as an aromatic (Practice of the Cree people from Nelson house)
- Wildly used as an infusion or decoction amongst the Cree, Dene and Metis peoples of the Churchill and surrounding Northern Manitoba areas.
- Out of 17 herbs studied in the Cree pharmacopea used to treat insulin resistance , *R. tomentosum* was found to be ranked #1, and *R. groenlandicum* #2 most effective out of the 17<sup>24</sup>
- Used to stuff dolls for trappers families around the Hudson Bay area, tea would be used while out on the land and replenished in the doll when back in its growing habitat
- Labrador tea as an act of resistance and symbol of independence: in the 17th century, drinking this tea was an act of rebellion against the imported black tea as well as an essential part of the nonconformist life of western trappers<sup>25</sup>
  - » trappers would also chew leaves to quench thirst while hunting<sup>26</sup>
- Strong decoction has been used for labour pain
- Dene Teachings From Eva Yassie
  - » Powdered leaves mixed with lard can be used topically for skin burns
  - » Boil the leaves and stems three times to help get a restful deep sleep
  - » Drink all winter long to keep colds away
  - » Labrador tea is simply medicine, it can be used for any disease

### Harvesting practices

- identification:<sup>27</sup>
  - » Aromatic evergreen shrub.
  - » Leaves are linear alternate, 10-25cm long, leathery with rolled margins, dark green above and rusty to white wooly beneath, fragrant when bruised.
  - » Spicy small white flowers are born in terminal umbel-like clusters with 5 oval spreading and separately deciduous petals with a very small 5-toothed calyx.
  - » Stamens usually 10, pedicles of the flower and capsule bent into a hook at tip
  - » Fruit a persistent brown capsule
  - » Flowering: late July early August Often found growing amongst the spruce and tamarack trees in both moist

24) Harbilas, Despina, et al. "Evaluation of the antidiabetic potential of selected medicinal plant extracts from the Canadian boreal forest used to treat symptoms of diabetes: part II." Canadian journal of physiology and pharmacology 87.6 (2009 ): 479–492

25) Dampc, Anna, and Maria Luczkiewicz. "Labrador tea-the aromatic beverage and spice: a review of origin, processing and safety." Journal of the Science of Food and Agriculture 95.8 (2015): 1577-1583.

26) Angier, Bradford. Field Guide to Medicinal Wild Plants. Stackpole Books, 2008.

27) L. Johnson, K. (n.d.). Wildflowers of Churchill and the Hudson Bay Region (1st ed.). Manitoba museum of Man and Nature. and dry peaty places.

- » In my experience the larger more fragrant leaves are found in moist environments with a dense lichen ground cover, in the partial shade of black or white spruce trees and most often found on the perimeters of caribou moss (*Cladonia rangiferina*).
- Only harvest a few leaves per plant, grazing walking harvest
- Leaves with a fresh white fuzzy undercoating are this years growth, leaves with a brown fuzzy rust coloured underside are last years growth.
- Harvest timing
  - » The Haida peoples gather leaves in the springtime before the flowers appear
  - » Th Nuxalk and Comox peoples pick the old reddish leaves in the winter
  - » The fresh leaves can have up to 3x larger concentration of the essential oils<sup>28</sup>
- Drying methods
  - » Individual leaves can be dried on a drying rack, in a brown bag out of the sunlight or in a dehydrator on the lowest setting
  - » trimming whole sprigs and hanging to dry is not advised due to the slow-growing nature of this plant, cutting whole sprigs is not a sustainable harvesting practice

### Notes:

- Dried and ground leaves are used to spice meats (particularly strong tasting meats like bear), soups, sauces, salads, beer and cakes
  - » Labrador tea was historically used to flavour beer, until it was discovered that it promoted aggression. Certain microbreweries have rekindled the practice
- Volatile oils show repellent activity against moths, cockroach, bedbugs, fleas, lice and ticks<sup>29</sup>
- Hairs on the underside are very sensitive to airborn pollutants like Pb from bitumen mining. Labrador tea shows great promise as a tool for biomonitoring of air quality

Disclaimer: this monograph focuses on ethnobotanical uses and the specific use in diabetes. This is by no means a complete monograph.

Dampc, Anna, and Maria Luczkiewicz. "Rhododendron tomentosum (Ledum palustre). A review of traditional use based on current research." Fitoterapia 85 (2013): 130-143.

Jaenson, Thomas GT, Katinka Pålsson, and AK. BorgKarlson. "Evaluation of extracts and oils of tickrepellent plants from Sweden." Medical and veterinary entomology 19.4 (2005): 345-352.



### Goulds Natural Medicine – A Brief Introduction

Presented by Greg Whitten



Goulds Natural Medicine is rather unique enterprise, consisting of an Apothecary and Clinic in central Hobart, Tasmania, and Goulds Herb Farm in Allens Rivulet, about half an hour drive south of Hobart.



The Apothecary itself has a long history. Mr Henry Gould came to Tasmania from England in 1881 and practised as a homeopathic pharmacist in Hobart. He subsequently took over a homeopathic pharmacy in Elizabeth St, which later moved to its current site in Liverpool St in 1914, over 100 years ago.

Goulds Pharmacy was run by three generations of the Gould family until it was sold in the 1980s to Roger McLennan, a pharmacist with an interest in traditional and natural medicine. He maintained it as a pharmacy and gradually expanded the range of natural medicines and health care products, before changing the business name to Goulds Naturopathica.

Goulds Naturopathica changed hands in 2006 to the current owners, a collaboration between four Naturopaths (Dawn Whitten, Dr. Jason Hawrelak, Belinda Robson and Daniel Robson) and medicinal herb farmer, Greg Whitten. Keeping the style, furnishings and overall look of the shop as traditional as possible, we have further expanded the range of natural medicines further and discontinued the pharmaceuticals. Greg's small herb farm was expanded to produce an increasing range and volume of medicinal herbs for the Apothecary. One of the core values of our business is to maintain a connection with the medicinal plants that we use and prescribe, and to ensure that their production is of the highest quality and ethical standard. Goulds Medicinal Herb Farm grows and processes about 40% of the herbs used in Goulds' herbal teas, liquid medicines and creams.

Clients can come into Goulds Apothecary for a free short overthe-counter consultation or they can pay a longer comprehensive consultation in Goulds Clinic. Our Naturopaths all hold 4-year degrees in Naturopathy and have spent time being mentored by our senior Naturopaths. The Goulds paradigm is based on a synthesis of traditional and evidence based natural medicine, and empirical experience.



In August 2015, we changed name of the business to Goulds Natural Medicine, to herald a new era. A multi-disciplinary Natural Medicine Clinic was opened adjacent to the Apothecary and connected by a doorway between the two spaces. The Clinic houses practitioners of numerous modalities, including Naturopathy, Traditional Chinese Medicine (Acupuncture), Massage, Counselling, Lactation Consultancy, and Sex Therapy.



The Goulds Herb Farm is located in a rural area, surrounded by native Eucalyptus forest, with about a hectare devoted to the production of over 80 species of medicinal herbs. It is a labour-intensive operation, operating on organic and biodynamic principles, and the farm has organic certification.

The herbs are harvested by hand and shade dried in a dedicated solar heated drying shed, with dehumidifiers and a heated cabinet dryer sometimes used as a backup. Once dry, most of the leaf



herbs are then rubbed and screened to remove the stalks. The dried root herbs are milled in a hammermill.

A few of the herbs are also processed as fresh herbs to make fresh plant tinctures and many of the dried herbs are made into ethanol-based tinctures by Goulds naturopaths in a dedicated tincture making facility on the farm. We make around 2000 litres of tincture a year and this is all for dispensing in Goulds Apothecary.

We produce about 900kg a year of dried herbs and about 200kg of fresh herbs. Virtually all of this production goes to the Apothecary as dried herb and tincture. We plan our production to meet the Apothecary's requirements plus hold some in reserve, so we do frequent stocktakes and monitor our usage and production carefully.

Most herbs from temperate regions of the northern hemisphere do well in Tasmania. We have a maritime climate of relatively mild summers with occasional hot spells and cool winters with occasional frosts and snow. Our weather is notoriously changeable though, and it is not uncommon to experience four seasons in one day. This seems to bring out some wonderful qualities on our herbs, especially those containing essential oils, as they respond to these challenges.

The farm employs several people on a permanent year-round basis. We have a long growing season and our winters are mild compared to Canada. There are a number of activities such as root harvesting and compost making that can take place during winter, so we are able to productively employ our staff all through the year, though we do encourage them to take most of their holidays in winter. We have a great farm team who enjoy what they do and are very capable and dedicated.

We attribute much of the success of our enterprise to the quality of the herbal medicines that our naturopaths use, and their skill and expertise in prescribing them.

### Principles of Propagation: Exponential Growth

### Presented by Dane & Storii Wild

### Intro:

Intention of our Presentation: Our goal is that after our workshop, you will have the understanding, energy and empowerment to enrich your own personal growing practices, or be inspired to start your own gardens. Through plant anatomy, basic chemistry, magic and intuition, we will share with you the principles on how to grow more plants than you could ever imagine.

### Wheel of the Year:

To successfully propagate plants, it is important to understand the flow of energy that cycles through our environment. Night and day, the seasons, the wind, the rain, the sun, the moon, and the tides. There is a cyclical flow of energy that washes over us which we refer to as the wheel of the year. The wheel is a series of sabbats that mark particular peaks, valley's and equilibriums in this flow. People have been following and tracking this wheel since time immemorial, and it turns out that plants are directly connected to it.

### Energy (Carbon and Cells):

To propagate plants we must understand them as organisms; what they are and what they have in common. And what all living things have in common turns out, is a lot. It all centers around a simple but profound observation; all living things are made of tiny little sacs of water. Simply, we are all made up of cells. Once you gain an understanding of what plant cells are and how they work, it will change the way you look at plants forever.

### The Plant Body – Plant Anatomy:

Life has a beautiful way of creating endless variation from a few basic body plans. The main example which we are all familiar with (and has been drilled into us since we were very little) is the basic plan of vertebrates. Two eyes, two ears, a nose, a heart, lungs, muscles, and a backbone. Vertebrate animals all have very similar bodies, and this innate understanding gives us something to anchor to while we explore all the differences (the cow goes moooo!).

Plants are very much the same in that they all have a similar body plan, and understanding the basics of the plant body will dramatically expand your propagation skills. This starts by looking at the plant embryo, specifically in seed plants. Like the womb in mammals and the eggs of birds, seeds are special vessels that contain an embryo while it is developing. Seeds are unique in this respect however, because they are in a state of hibernation, waiting to wake up. This awakening is called germination and can be anticipated by us because seeds germinate by reading the energy of the environment. Plants grow everywhere and different seeds have different needs. Some common germination techniques include scarification, stratification, & more.

### **CUTTINGS**:

What makes plants unique, at the cellular level, is that they keep their stem cells for their entire life. These cells can be captured in little packages called "meristems". To understand where to find the meristems on the plant is the beginning of being able to propagate, taking one plant and making MANY.

Animals grow from embryo to maturity in a coordinated fashion, they are always getting bigger proportionally. Think of a growing child, where their feet, hands and bodies are all growing together at the same rate, until adulthood. This is called determinate growth. Plants, however, have indeterminate growth, which simply means that the meristems of plants grow, stop, grow again, stop and grow again. At each one of these growth cycles, they continue to produce more stem cells. In this way, plants can successfully suffer catastrophic damage to their bodies and regrow from only small portions of themselves.



This is the magic that can be captured and manipulated by any gardener or green thumb alike, the ability to take one plant and turn into many, exponentially.

A simple key to this practice is to identify the meristems...

The most obvious meristems to work with are at the tip of growing plants. All the meristems in a plant communicate with each other using hormones to balance the body of the plant. We can take advantage of this by taking cuttings. A cutting is simply, snipping off a growing part of a plant and stripping some of the leaves, finally placing it in water or soil. What happens next is that the meristems that all used to be "shoot meristems", start to communicate with each other on how to regrow a whole new plant body from the original little cutting. Where the leaves are stripped, there will be little bundles of stem cells that were once ready to grow into new shoots, and they will now instead start to grow into roots. Ultimately balancing out your plant cutting.

A simple way to understand hormone balance in plants is through the "root:shoot ratio". The growing tips of plants send hormones down to the roots, and the growing roots of plants send hormones up to the shoots. It is in this way that plants "know" how much root or shoot to produce, respectively. When a cutting is taken, this root hormone is shut off, and an excess of the hormones being sent downward will cause roots to grow. This is a natural process, however artificial and natural hormones can be purchased or prepared to speed up the process.

### Some examples are:

Rooting Powders & Gels (can be found in most garden center's)

Freshly growing Willow and Poplar leaves and buds

The best time for cuttings is when the plants are growing new fresh shoots, early Spring – Summer.

### **RHIZOMES, RUNNERS & STOLONS**

Not all growing tips of plants each up and out towards the sky. Some plants run through other plants (runners), some creep along the top of the soil (stolon's), and some plant stems even run underground (rhizomes). There are many classes of plants that do this, several of which are our more common medicinals such as lemon balm, skullcap, chamomile & fireweed. Identifying these creeping stems is easy once you know what to look for; and they are propagated much like cuttings, arguably even easier. What the plant is doing with these offshoots, is intending for roots to grow out of the bottom of each node. So, all we must do is take small pieces of the rhizome, stolon or runner and cut them up and replant them. The clearest example of this that most people have experience with is strawberries!

### FLOWERS:

The most obvious and beautiful way that plants are reading the energy of the Wheel of the Year, and respond visually is through

their flowers. Each flowering plant has a unique time of the year that they do this. Finding the flowers is how you find... the seeds!

The basic mantra is that "all flowers turn into fruits, and fruits contain seeds".

### **ROOTS & CROWNS:**

As the Wheel of the Year turns, and the energy dips and wanes, plants naturally die back, and some plants store all their energy in their roots and crowns. These crowns (aka the swollen base of the stem) are ready to spring up again next year because they are full of meristems!

Identifying the meristems gives you the potential to take one crown and divide it into many pieces, and once re-planted, it will grow into a whole new plant. Many, many medicinal herbs can be divided this way, some examples are:

- Valerian
- Marshmallow
- Elecampane
- Licorice
- Wood Betony
- Hyssop
- Meadowsweet
- Lovage
- Yarrow & many others.

### Further resources for propagation:

Propagation Basics – Steven Bradley

Plant Propagation – Alan Toogood

Friends of the Trees Botanicals – Michael Pilarski (https://friendsofthetreesbotanicals.com/)

How To Grow More Vegetables – John Jevens

The Organic Medicinal Herb Farmer – Jeff & Melanie Carpenter

The Winter Harvest Handbook – Eliot Coleman

Performance in the Garden & Reverence, Obedience & The Invisible in the Garden-Alan Chadwick

### Somatic Herbalism

Presented by Marie Zak & Travis Cartwright

### What Does 'Somatic' Mean?

The term Somatic is rooted in the Greek word, "Soma." It is a term used to distinguish the body from the mind, soul or spirit. Somatic therapy is a modality focused on learning the language of the body and working with this somatic intelligence to guide people towards deeper states of nervous system regulation, trauma resolution, and embodied living. It is quickly becoming one of the most sought out forms of therapy and is gaining a reputation for being effective and empowering.

As herbalists we can learn from the work being done by somatic therapists, and begin to study the language of the body in order to



better meet the individual needs of our patients. There are times when an herb may sound like the perfect medicine on paper, but it may interact with our patient in a way we didn't expect. Learning to read the body, and encouraging our patients to track how herbs feel in their body can greatly enhance our capacity to pick up on subtle nuances that inform the way we formulate.

# Traditional Herbal Systems Are Somatically Informed

Traditional herbal systems such as Traditional Western Herbalism, Traditional Chinese Medicine, and Ayurveda were developed prior to modern scientific ways of assessing plants or the body. People used their senses to assess plants and derive key information about how to work with them. They also assessed their patients from an embodied sensory lens, using techniques like pulse and tongue diagnosis, iridology, smell, and various constitutional models.

These models of medicine offer herbalists the ability to understand universal patterns while also attuning to the unique individual in front of them. They go beyond book learning, and require deep presence and awareness from the practitioner and patient for best results.

### How to Integrate Somatic Awareness into Your Herbal Practice

Knowing your action words and phytochemistry is extremely valuable, but if we only formulate from this information we can easily miss vital details that require our somatic awareness. When we incorporate a somatic lens we show up with our whole being, not only our cognitive experience, which gives us the capacity to create more holistic formulas and healing protocols.

Working with traditional modalities such as those listed above requires us to assess energetic patterns, which are observed through the senses. In Traditional Western Herbalism this include three key qualities:

temperature (hot/cold), tone (tense/relaxed), and moisture (damp/ dry), and differs somewhat from modality to modality.

With our client we can notice how the plant directs energy (qi) in their body. Does it move up/down or have an expansive/contractive quality? This is important to note because it can dramatically change how the person feels while taking their formula.

Finally, each plant has a unique feeling tone, and this quality is felt through the body. A plant that may make logical sense for someone on paper, may be jarring or harsh in their felt experience, or may cause their body to react in the opposite way that we expect.

Simply taking the time to offer your client an opportunity to try each herb individually, and notice how they feel on a sensory level can inform us about how that plant may interact with the individual patient we're working with. Some patients may not notice much, while others may be able to describe a very distinct shift in their body while trying a new herb. Encouraging your clients to notice and record subtle shifts in their body over time with their formula(s) will help them grow their capacity to listen to their body and trust their own experience. It will also offer you insights about their unique constitution and how plants impact them.

### Case Study #1

A 35 year old female patient was suffering from anxiety and night terrors. She has a history of trauma and is hyper vigilant. Sedating nervines and spasmolytics aggravated her experience; her nervous system didn't feel safe to calm down due to her history. After trying drop doses of a few relaxing herbs that didn't feel good in her body (they caused an increase in tension and anxiety), she tried Devil's Club. Immediately she felt an internal sense of ease and safety, and felt her body become relaxed and even sleepy. In her mind's eye she saw an image of herself sleeping with a protective bubble around her, created by the plant. This became her primary sleep aid and anxiety support, and she continues to take it a year later. Over time we added in additional nervine support to restore her nervous system after years of insomnia and nervous system dysregulation.

### **RESTORATIVE TONIC**

25ml Reishi 25ml Milky Oat 20ml St. John's Wort 20ml Wood Betony 15ml Liquorice Dose: 5ml 2-3 x/day Devil's Club Dose: 5-15 drops as needed.

### Case Study #2

A 32 year old female patient was experiencing muscular pain, body tension, and eczema; upon further investigation she was also struggling with a deep sense of overwhelm, anxiety, anger, and frustration. We quickly learned that warming herbs such as a Tulsi and Calendula caused her to feel dissociated or increased her sense of irritability, and her body could only tolerate cooling herbs. She often didn't feel comfortable expressing boundaries or feelings, leading to trapped heat in her body. We worked with cooling depuratives, hepatics, spasmolytics, and nervines over several months, which helped to manage her eczema, relaxed her body tension, and created more ease of emotional experience.

### **COOLING TONIC**

25 Nettle 25 Yarrow 20 Reishi 20 Lemon Balm 10 Blue Vervain Dose: 5ml 3x/day

