

Herbal Mixology :

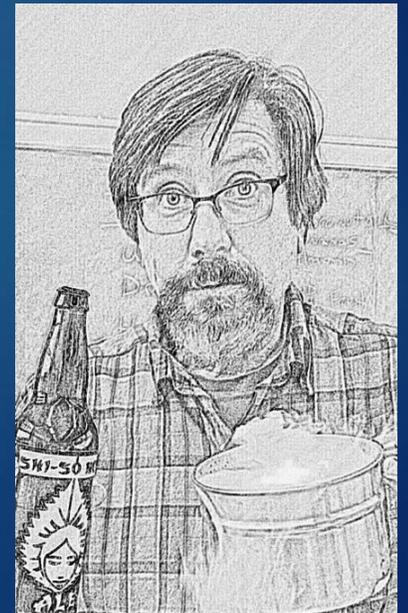
Bitters , Digestives and Aperitifs

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M.E.E.T The Herbs

My herbal philosophy

- ▶ Medicine making is a medicine.
- ▶ Experience is the best teacher, make it something to remember and experience
- ▶ Everyday practice your craft, your art.
- ▶ Taste is the teacher, the new active ingredient is Taste, smell, sight.



Smoking Kava Drink

Herbal Mixology: The New Paradigm: Outline

- ▶ The problem with herbal medicine
- ▶ The problem with Mixed drinks
- ▶ Taste is the active ingredient
- ▶ Alcohol as medicine?
- ▶ Organoleptics: the way of senses
- ▶ Herbs as medicine
- ▶ The Bitters



Herbal Mixology : Defined as

- ▶ **The power of herbal phytochemicals driven into the blood stream by alcohol and wrapped in an organoleptically rich sensual experience: This is the magic and power to Herbal Mixology.**
- ▶ The art and science of adding medicinal value and action to the world of tasty alcoholic drinks
- ▶ Bringing the value of medical tonics back to the roots of botanical medicine
- ▶ My path as an herbalist, naturopathic doctor
- ▶ Making medicine is medicine, DIY



The problem with Herbal Medicine

- ▶ Tincture are alcoholic and water extracts sold as food extracts
- ▶ Growing industry of nutritional supplements, Quality issues
- ▶ In general the problem as medicine is taste and compliance
- ▶ 90 % of medicinal herbs taste bad to the average patient.
- ▶ Placing herbs in tablet or capsules gives less value as the power is in the organoleptic experience.



The Problem with Mixed Drinks or Cocktail

- ▶ Mixology history comes from part herbal medicine and pharmacy
- ▶ After the end of prohibition there was the increasing commercialization of alcohol distillation
- ▶ Increasing acceptance of mixed drinks with high alcohol content
- ▶ Increase in bars and speakeasy selling good times, and pushing high alcohol , high tastes drinks
- ▶ Lead to over consumption of sugar and alcohol, which lead to negative health effects.



Medicinal Alcohol ?: An oxymoron

- ▶ Is alcohol medicinal?
- ▶ Studies about alcohol and health are mixed
- ▶ Depends on your Genetic make up, ethnic background, Sex and social environment
- ▶ It is clear Heavy drinking is bad for your health
- ▶ Moderate drinking has been found to be more beneficial than no drinking in some studies. Why?
- ▶ Stress, Social support for having drinks?
- ▶ I believe that by adding herbs to the alcohol extracts and by keeping to moderation that herbal mixology is medicinal
- ▶ Limit alcohol to less to one to 2 ounces a week.



Herbs and Alcohol

- ▶ Over 100 year history of extraction herbs into alcohol and water
- ▶ Called Tinctures, Extracts
- ▶ Dissolve lipophilic (alcohol soluble constituents) compared to water extracts (teas)
- ▶ Small amount of constituents in extracts can have a profound effect because of quick absorption and movement into the blood stream
- ▶ Many common alcohols have herbs in them
 - ▶ Gin : Juniper berry
 - ▶ Absinthe : Wormwood and other botanicals
 - ▶ Ouzo: Anise



Herbal Alcohol Extracts: Tincture

- ▶ In alcohol based herbal extracts the concentrations are expressed as weight to volume ratio (w:v). This refers to the dry weight extracted in the volume of solvent mixture (the menstrum).
- ▶ The weight to volume ratio is the amount of herb in the liquid volume and is one indication of the theoretical strength of the extract. It is only a theoretical indicator of strength as many other factors including the quality of the raw herb and extraction method used are also determinants.
- ▶ Tinctures are made to a concentration of 1:3, 1:4, 1:5, 1:8, or 1:10. The same amount of herb is extracted in more menstrum. Some extractions are 1:1 or 1:2, these are traditionally know as fluid extracts. Tinctures are ideal for very strong acting herbs e.g., *Capsicum* spp. or *Phytolacca*. Many people refer to all macerated extractions with alcohol as tinctures.

Pros and Cons of Herbal Alcohol

▶ **Advantages of tinctures**

- ▶ Constituents efficiently extracted with minimal processing
- ▶ The alcohol preserves the extract
- ▶ Alcohol is a driver moves herbs into circulation
- ▶ Readily absorbed, without digestion
- ▶ Convenient and versatile. They can be blended to make formulations

▶ **Disadvantages of tinctures**

- ▶ Contain alcohol. A problem for certain people for health or religious reasons.
- ▶ There can be sensitivities and it is a consideration in pregnancy and liver pancreatic or other diseases.
- ▶ Compliance issues.
- ▶ Cost issues, Expensive

Organoleptics: The Sensory Experience

- ▶ **Organoleptic Defined:** Making an impression upon an organ. Said of the effect or impression produced by any substance on the organs of touch, taste or smell, and also on the organism as a whole.

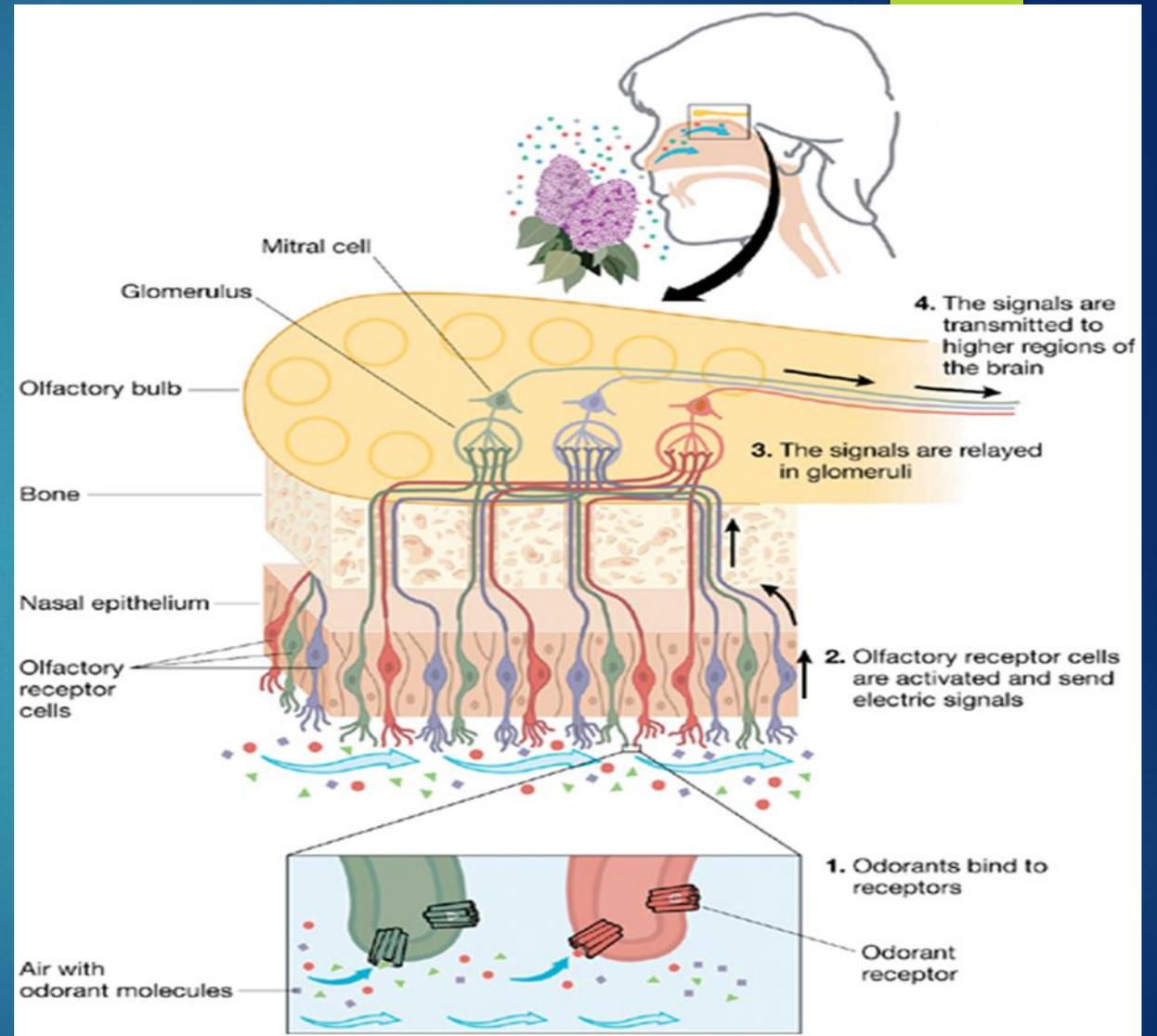


		COLOR	TASTE	SMELL	OVERALL IMPRESSION
er	1:5 Herb Pharm 72-75% EtOH	yellowish	clear	-	
omeu	Dry ErH 1:1.24 55% EtOH	clear	pale	strong alcohol	
ca	1:1 Fresh 35-45% EtOH	light	chunky thick	Spicy	1 drop very strong
C.	1:1 62-65% Gaza 50% EtOH	orange yellow	thick	good mellow	light Spice less spice w/ fresh
ic	40-45% WW fresh	red orange	med thick	light Spice	none
on	WW 1:4 dry 65-70% EtOH	orange brown	Shiny light thick.	Sharp then post acid	light ErH
Ma	WW 1:4 dry 40-45% EtOH	brown black	clear	floral light sweet	light sweet
Ma	Dry 1:5 Herb Pharm	light yellow	lighter pale	OH light	light OH
n	1:1 Fresh ErH WW 40-45% EtOH	light brown	cloudy pale	green herbaceous	light herbaceous
Ria	1:3 45% 1:2 Herb Pharm	red orange	clear medium	acid bitter	OH
toza	Herb 1:1.6 30% 1:2	orange red	med. thick	light sweet	caustic a resin
Dioka	Herb 1:1.6 30% 1:2	orange red	pale clear.	Very bitter	OH
Fran	Herb 1:2 65% EtOH	orange			

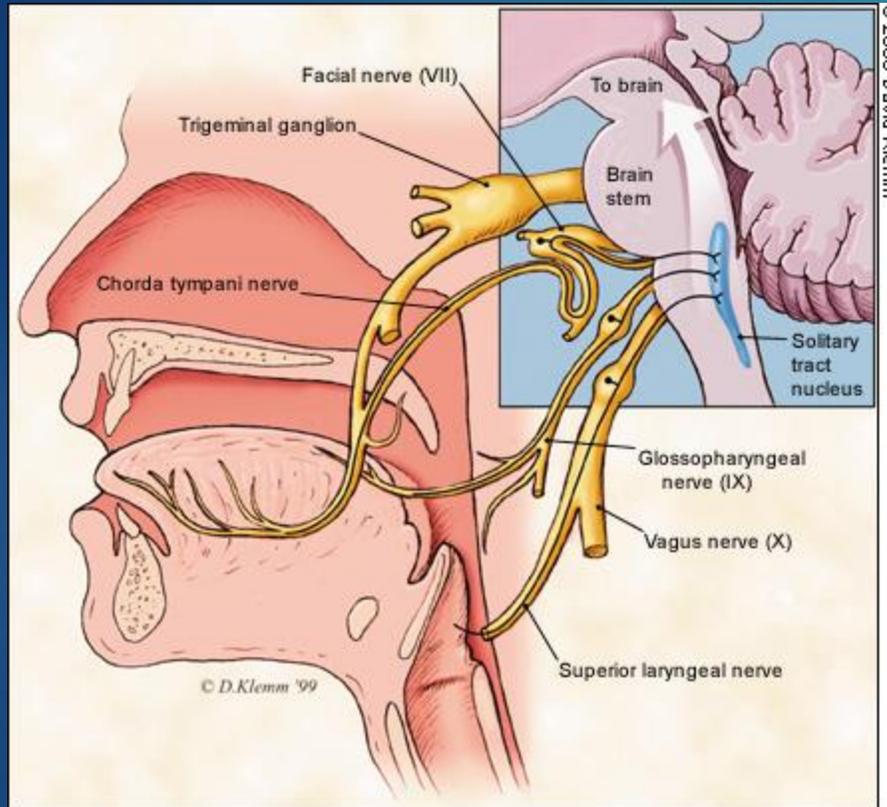
The Powerful Influences of Scent on Body and Mind

- ▶ The sense of smell is the only one of the five senses that is directly linked to the limbic lobe of the brain. This is associated with the emotional control center and profound effect on the brain. The limbic lobe is a group of brain structures that include the hippocampus and the amygdala located below the cerebral cortex.
- ▶ The limbic lobe can also directly activate the hypothalamus which can release chemical messengers that can affect the production of growth hormones, sex hormones, thyroid hormones and neurotransmitters.
- ▶ When we inhale a scent the odor molecules travel up the nose and are trapped by the olfactory membranes in the lining of the nasal passages.

- ▶ Each odor molecule fits like a lock and key onto a specific receptor site on the olfactory epithelium. When stimulated the epithelium triggers nerve cells electrical impulses to stimulate the olfactory bulb in the brain.
- ▶ The olfactory bulb stimulates impulses to the gustatory center for taste, the amygdala where emotions and memory are stored.



The Senses of Taste and Smell



This is why that a simple smell can effect mood, blood pressure, heart rate, breathing, memory, hormone levels and stress levels.

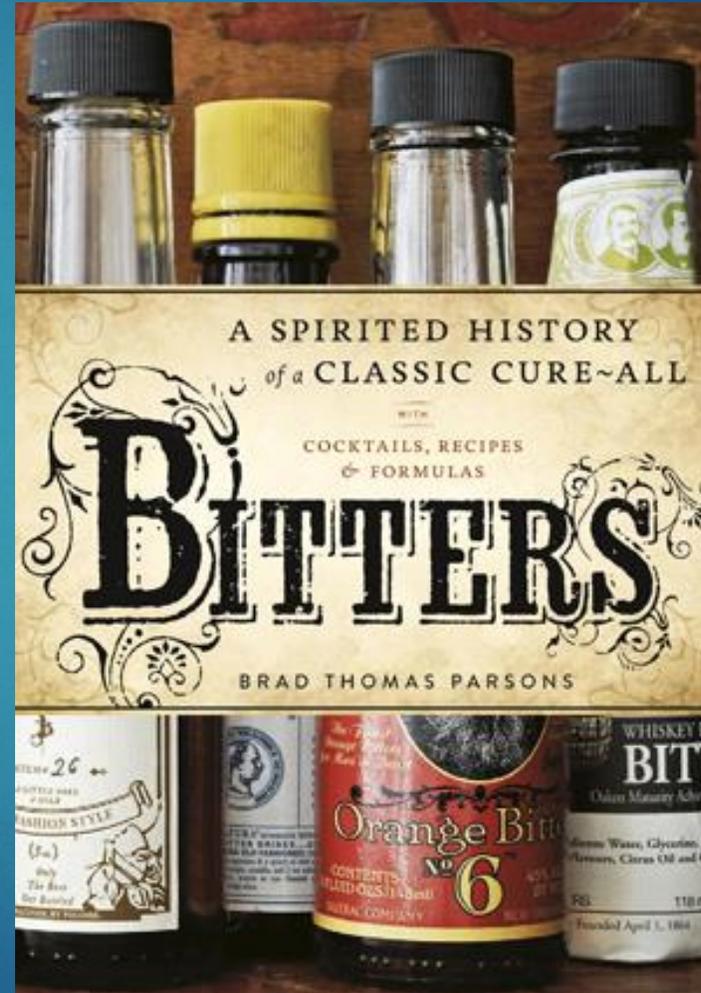
Organoleptics and Herbal Mixology

- ▶ There is power in bringing an agent to all sensory levels
- ▶ Some of life's most powerful experiences are perceived on all levels
- ▶ Touch, Smell, Sight, Sound, Taste, and the Sixth sense.
- ▶ Bringing this awareness to herbal mixology is to create an experience that through the alchemy of blending alcohol, herbs and other botanical agents to create a healing organoleptic experience taking cocktails beyond a good drink.
- ▶ The power of herbal phytochemicals driven into the blood stream by alcohol and wrapped in an organoleptically rich sensual experience: This is the magic and power to Herbal Mixology.

Herbal Bitters



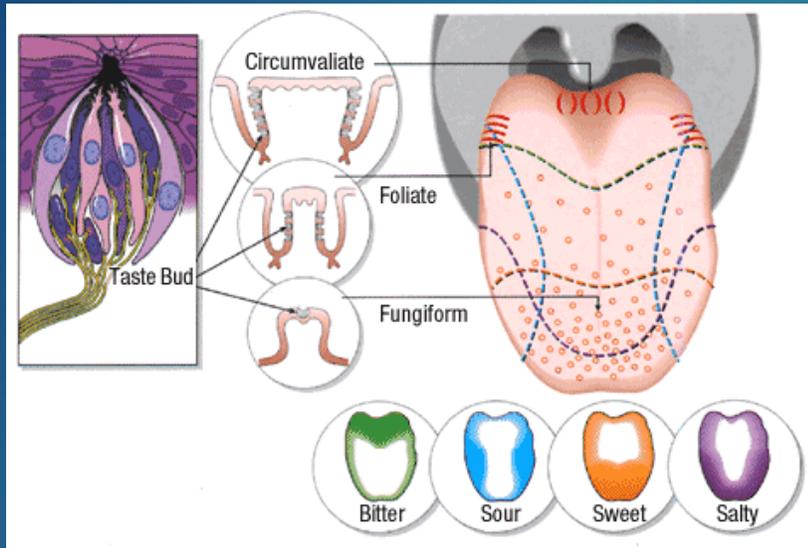
And you call this
medicine!



Herbal Bitters

- ▶ Any plant that tastes bitter is bitter
- ▶ Has a long historical use as medicine
- ▶ Many herbal drinks are bitter
- ▶ Many Bitters are also classified as a tonic.
- ▶ You know when it is bitter!!!
- ▶ Long history in Medicinal use.
- ▶ Re discovered recently in food and medicine.

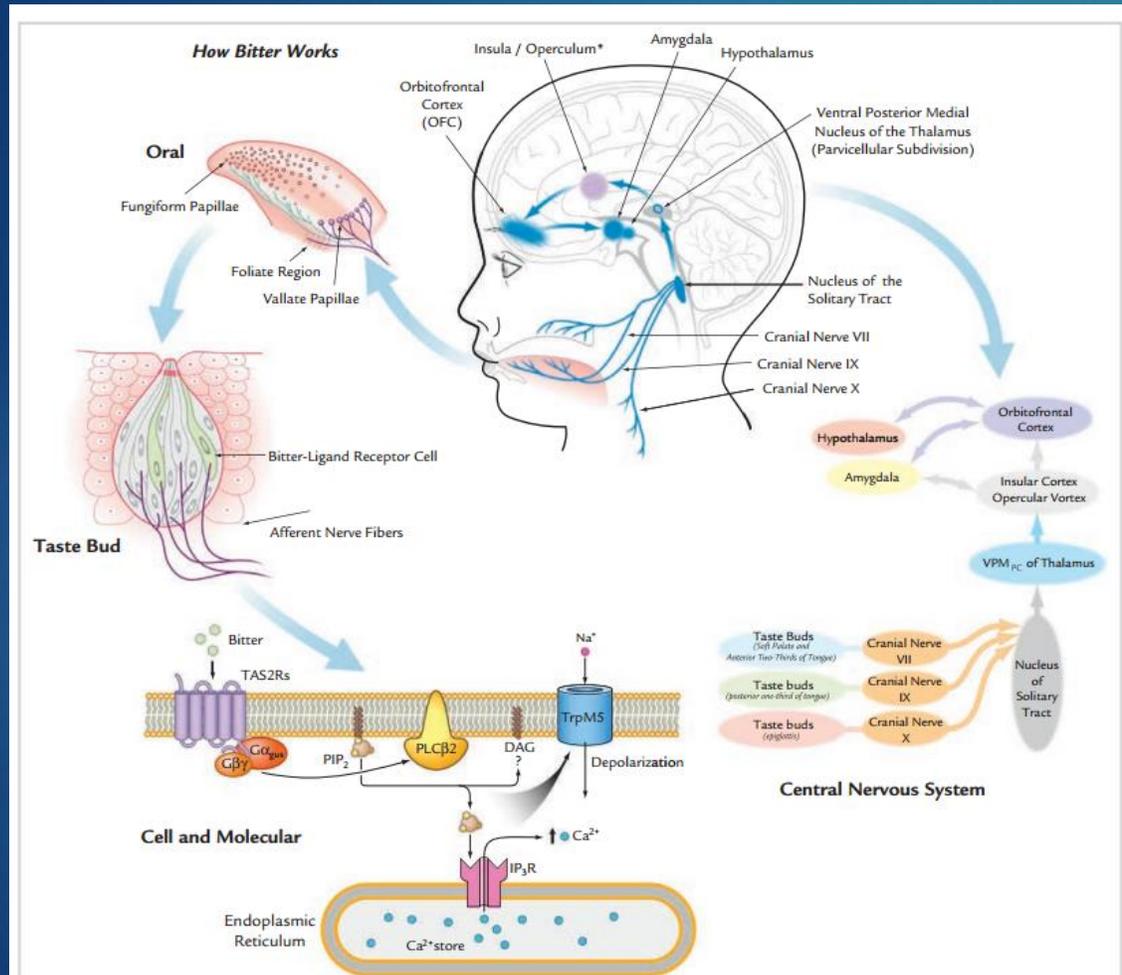
Bitter receptors



THE BITTER REFLEX AND ITS IMPLICATIONS

- ▶ When a bitter substance is recognized by bitter receptors on the tongue, a chain of neural and endocrine events begins, labeled as the “bitter reflex.” Mediated by the release of the gastric hormone gastrin, this reflex results in an overall stimulation of digestive function, which over time strengthens the structure and function of all digestive organs (liver, stomach, gallbladder, pancreas, etc.)
- ▶ Starting in your mouth, you’ll notice that your salivary glands have increased their output of enzyme-rich saliva, helping to break down complex starches into smaller and more easily digested oligosaccharides.
- ▶ In the stomach, the hormone gastrin has stimulated the secretion of hydrochloric acid.
- ▶ The acidity helps break down protein, enhances the bioavailability of many minerals (especially calcium) and destroys any harmful microbes present in your food.

How Bitter Works



- Taste buds are distributed in distinct fields in the oral, pharyngeal, and laryngeal epithelia, with each field innervated by a different cranial nerve branch.
- Only the taste buds on the tongue are depicted in the figure. The taste buds of the laryngeal epithelium are thought to be involved more with protection of the airways. Taste receptors have also been identified in a variety of nongustatory tissues, such as the gut, where they have been proposed to play a role in nutrient and toxin sensing.
- The taste signals course through the brain and provide input to circuits that subserve various functions, such as motor and physiological reflexes, discriminative perception, and affective processing.

The Bitter Truth: Its good for us!

- ▶ The effect of bitters also extends to the pancreas. With bitters, digestive enzyme secretions are increased, helping to promote the complete breakdown of nutrients into their absorbable units, preventing gas formation when large molecules are acted upon by bacteria further down the small intestine.
- ▶ The complete breakdown of proteins is particularly important, as the cross reactivity of immune cells between undigested protein molecules and intestinal cells plays an important role in the etiology of conditions such as celiac disease and allergies
- ▶ Insulin and glucagon secretions are stimulated, helping to normalize blood sugar levels.
- ▶ Our cravings for sweetness may mask cravings for bitterness.
- ▶ Thus, the taste of bitter can be used to strengthen the most fundamental aspect of our health—the ability to extract the nutrients from our foods and nourish our bodies. Over time, they will lessen symptoms of poor digestive function such as gas and bloating, constipation, loose stools and food allergies; enhance vitamin and mineral absorption; promote balanced blood sugar levels; protect the liver and strengthen eliminatory function; heal inflammatory damage to the gut wall; and reduce the incidence of allergic disorders. Wow!

Gastrointestinal Bitters

- ▶ True Bitters: only bitter
- ▶ *Centaurium umbellatum*
- ▶ *Gentiana lutea*
- ▶ *Hydrastis canadensis*
- ▶ *Mahonia aquifolium*
- ▶ *Aloe* spp. Bitter Aloe (Not aloe gel but the yellow resin)
- ▶ *Eupatorium perfoliatum*
- ▶ *Menyanthes trifoliata*
- ▶ Cinchona bark
- ▶ Quassia bark

- ▶ Aromatic Bitters: bitter with flavor
- ▶ *Artemisia absinthium*
- ▶ *Achillea millefolium*
- ▶ *Humulus lupulus*

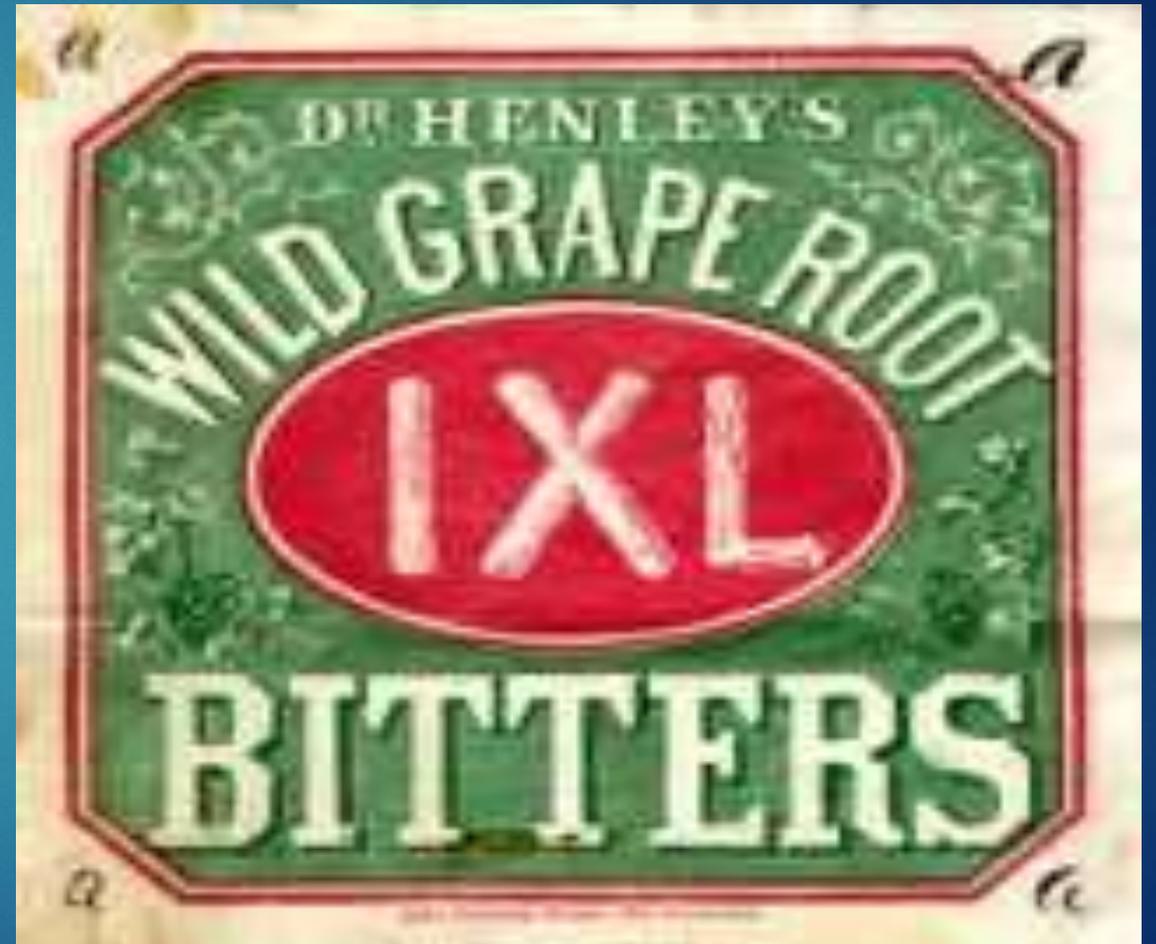


Indications for Bitters

- ▶ Loss of appetite, low HCL
- ▶ Indigestion, bloating, gas
- ▶ Nausea, diarrhea, constipation
- ▶ Abdominal distention
- ▶ Malnutrition, malabsorption
- ▶ Weakness, pale skin with edema
- ▶ Yellow or white tongue coating
- ▶ Atonic digestion and elimination
- ▶ Depression and or mood disorders
- ▶ Digestive issues that come with aging.

Old Saying about Bitters

- ▶ Sweet to the taste buds, bitter to the stomach
- ▶ Bitter to the tongue, then sweet to the stomach
- ▶ Bitters are generally avoided by most patients.

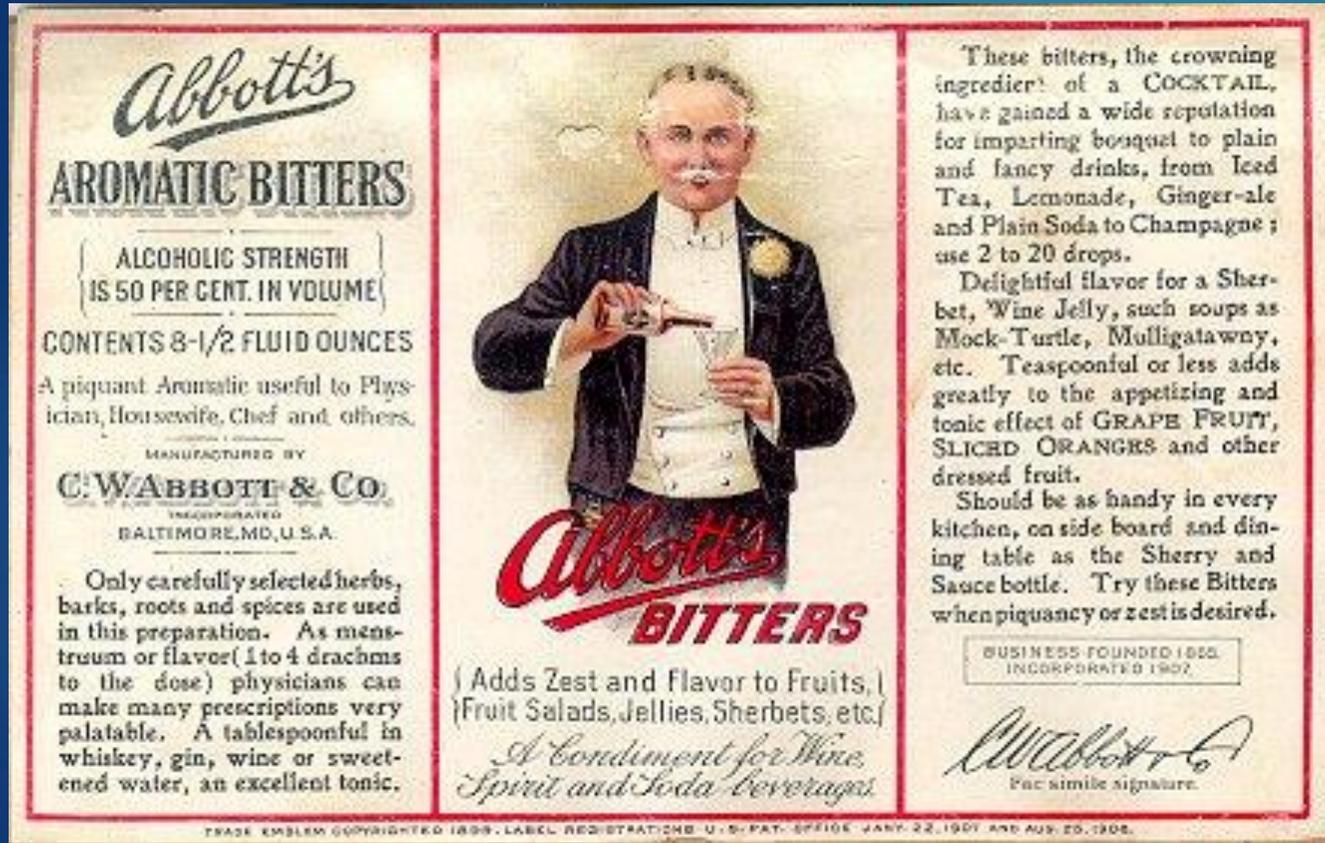


General Contraindications for Bitters

- ▶ Pregnancy
- ▶ Kidney stones
- ▶ Gallbladder disease
- ▶ GERD
- ▶ Gastritis
- ▶ Peptic Ulcer
- ▶ Diarrhea



Bitters in Formulation



Abbott's
AROMATIC BITTERS

ALCOHOLIC STRENGTH
IS 50 PER CENT. IN VOLUME

CONTENTS 8-1/2 FLUID OUNCES

A piquant Aromatic useful to Physician, Housewife, Chef and others.

MANUFACTURED BY
C. W. ABBOTT & CO.
INCORPORATED
BALTIMORE, MD., U.S.A.

Only carefully selected herbs, barks, roots and spices are used in this preparation. As menstruum or flavor (1 to 4 drachms to the dose) physicians can make many prescriptions very palatable. A tablespoonful in whiskey, gin, wine or sweetened water, an excellent tonic.

Abbott's
BITTERS

Adds Zest and Flavor to Fruits,
Fruit Salads, Jellies, Sherbets, etc.

*A Condiment for Wine,
Spirit and Soda Beverages.*

These bitters, the crowning ingredient of a COCKTAIL, have gained a wide reputation for imparting bouquet to plain and fancy drinks, from Iced Tea, Lemonade, Ginger-ale and Plain Soda to Champagne; use 2 to 20 drops.

Delightful flavor for a Sherbet, Wine Jelly, such soups as Mock-Turtle, Mulligatawny, etc. Teaspoonful or less adds greatly to the appetizing and tonic effect of GRAPE FRUIT, SLICED ORANGES and other dressed fruit.

Should be as handy in every kitchen, on side board and dining table as the Sherry and Sauce bottle. Try these Bitters when piquancy or zest is desired.

BUSINESS FOUNDED 1850.
INCORPORATED 1907.

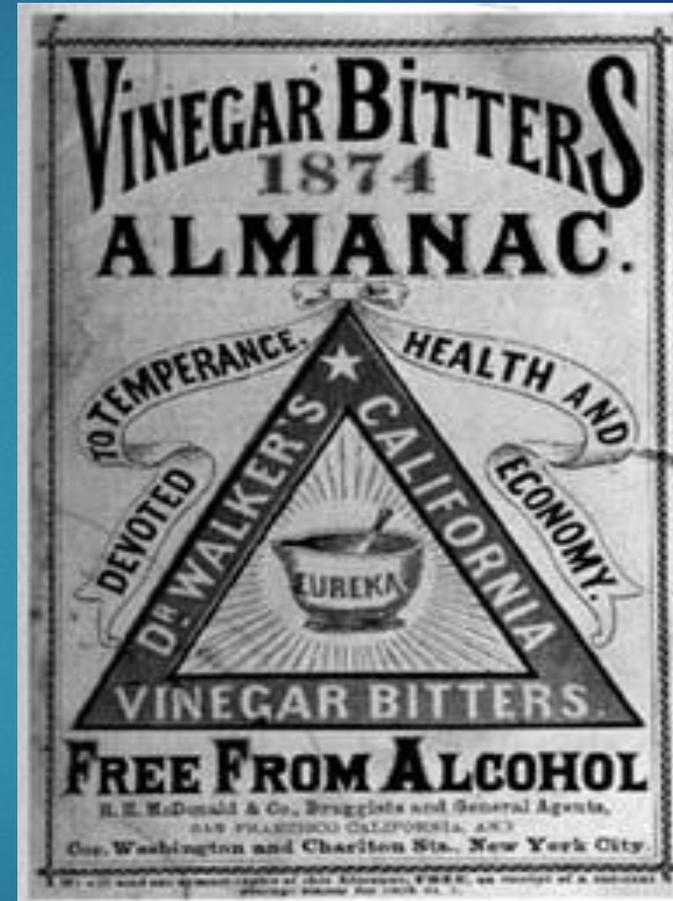
C. W. Abbott & Co.
Fac simile signature.

TRADE EMBLEM COPYRIGHTED 1899. LABEL REGISTRATION U. S. PAT. OFFICE JAN. 22, 1901 AND AUG. 20, 1908.

- ▶ True Bitters are commonly and historically mixed in combination with aromatic and carminative herbs
- ▶ Lessens the ability of bitters to cause bowel cramping
- ▶ Warms the formula
- ▶ Commonly use mints, fennel, anise, calamus, Ginger or aromatic bitter herbs in combinations

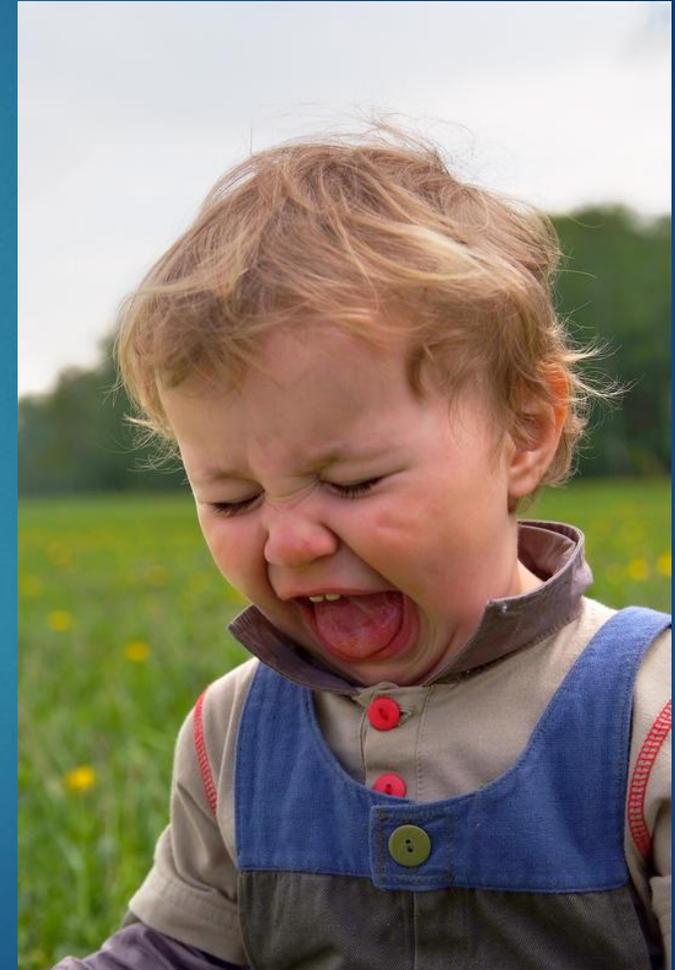
Dosing Bitters

- ▶ Generally small doses
- ▶ 5-15 drops
- ▶ Before meals
- ▶ Present to the taste buds as tea or tincture
- ▶ Capsule and tablet which can not be tasted are less useful



Take the 30 day Bitter Challenge !

- ▶ To improve your digestion and overall health take the 30 day bitter challenge.
- ▶ Find a bitter formula, herb or combination that has one of the true bitters.
- ▶ Take 10-30 drops of the bitter before meals, ideally 10 minutes,
- ▶ Take enough to get strong bitter sensation and “ bitter shutter”
- ▶ Continue for 30 days, moving the dose up or down depending on reaction
- ▶ Assess your health before or after.





Gentiana lutea L. — Gelber Enzian.



Gentiana lutea (Gentian)

- ▶ **Common names:** Bitter Root, Bitterwort, Gall Weed, Gentiana, Gentianae radix, Pale Gentian, Stemless Gentian, Yellow Gentian, Wild Gentian, Qin Jiao .
- ▶ **Family:** Gentianaceae
- ▶ Listed in the USP 1820-1955, and the NF 1955-1965
- ▶ **Medicinal parts:** root and rhizome
- ▶ **Preparations:** dried root may be decocted or powdered and encapsulated. Dried or fresh root may be tinctured

Gentiana

CHEMICAL CONSTITUENTS

- ▶ *Gentiopicrin*- a bitter principle. One of the most bitter substances known. Synonymous with *Amarogentian*. Comprises 1-2% of the fresh root.
- ▶ *Genistic Acid* (Genistin) - an organic acid
- ▶ *Tannic acid* - tiny amounts
- ▶ *Quinnic acid* - minute amounts
- ▶ Alkaloids - small amounts of *Gentianine* and *Gentialutine*
- ▶ Volatile Oil
- ▶ Gentian contains very little tannin and is considered a pure peptic bitter.

Gentiana

ACTIONS

- ▶ Cholagogue
- ▶ Bitter tonic
- ▶ Gentian is stimulating to digestive organs, mucosal tissues, and portal circulation.

INDICATIONS

- ▶ GI atony, poor digestion, low stomach acidity.
- ▶ Portal Congestion
- ▶ General GI debility, atony, flatulence, anorexia
- ▶ Malaria - Gentian is reported to be toxic to Plasmodium

CONTRAINDICATIONS

- ▶ Avoid in cases of acute GI inflammation
- ▶ Avoid in pregnancy
- ▶



Gentiana

Specific Indications (Felter)

- ▶ Sense of epigastric depression, with physical and mental weariness
- ▶ Atony of stomach and bowels, with imperfect digestion.

Action and Therapy.—One of the best of the simple bitter tonics. However, large doses can produce nausea, vomiting, and diarrhea, and fullness of the pulse, with headache.

- ▶ Chief use is to promote appetite and improve digestion in states of chronic debility.
- ▶ For atony of the stomach and bowels, with feeble or slow digestion, it is an ideal stimulating tonic; and after prolonged fevers and infections, when the forces of life are greatly depressed and recovery depends upon increased power to assimilate foods, gentian may be used to improve gastric digestion and thus hasten the convalescence.
- ▶ Gentian is especially useful in anorexia, in the dyspepsia of malarial origin, and in subacute gastritis and intestinal catarrh.

Gentiana Summary

- ▶ Gentian is the quintessential bitter. It is one of the most bitter substances on the planet.
- ▶ Gentian has tonic effect on the entire constitution. It has the classic “sweet taste, followed by bitter taste” characteristic of many constitutional tonics (example: ginsengs).
- ▶ Gentians are found all over the planet. Every indigenous people has had access to a gentiana.
- ▶ A true bitter can taste in a 1 to 30,000 dilution
- ▶ Cold nature and drying

Quassia: *Quassia amara*

Quassia amara

Formaly as: *Picraena excelsa* (LINDL.)

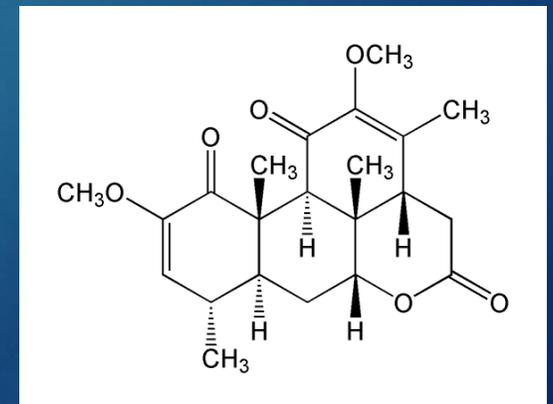
Family: N.O. Simarubeae

- **Synonyms---**Bitter Wood. Jamaica Quassia. Bitter Ash. Quassia Amara (Linn.). Quassia Lignum, B.P.
Part Used---Wood of trunks and branches.
- **Habitat---**Jamaica.
- Quassia, also known as Jamaica Quassia and Bitter Wood, is a small, shrubby tree native to the West Indies. Its species name, *amara*, is derived from the Spanish word *amargo*, which means "bitter."
- The name fits since the bark of **the tree contains quassin, a substance 50 times more bitter than quinine**. In fact, it's the bitterest naturally-occurring chemical known to exist. Although quassia bark is an ingredient in herbal bitters in moderate amounts, the presence of this highly bitter phytochemical makes infusions made with this herb very effective natural insecticides.



Quassia amara: Tropical Bitter

- ▶ In the wood a share of 0.09 to 0.17% of quassin and 0.05 to 0.11% of neoquassin was detected in Costa Rican plants.
- ▶ Quassin is one of the most bitter substances found in nature.
- ▶ Other identified components of bitterwood are: beta-carbolines, beta-sitostenone, beta-sitosterol, dehydroquassins, gallic acid, gentisic acid,



Dandelion: Earth Nail



Taraxacum officinale

- ▶ **Family:** Compositae
- ▶ **Habitat:** Found throughout most of the world, particularly the Northern hemisphere
- ▶ **Collection:** The roots are best collected between June and August when they are at their most bitter. Split longitudinally before drying. The young leaves may be collected at any time, although those collected in the spring are less bitter.

- ▶ **Part Used:** Root and/or leaf
- ▶ **Taste:** Bitter, salty, sweet
- ▶ **Temperature:** Cold
- ▶ **Channels:** Liver, Gall Bladder, Spleen, Bladder



Taraxacum officinale



- ▶ **Actions:** Diuretic (leaf), hepatorestorative, hepatoprotective, choleric, cholagogue, anti-inflammatory, anti-rheumatic, gentle laxative, alterative, anti-hypertensive, stomachic, tonic, bitter.

Taraxacum officinale

- ▶ Root is for liver, leaves are for kidney
- ▶ Leaves are a potassium sparing diuretic and contain potassium. Useful in hypertension
- ▶ Root is a choloretic and cholagogue. Useful for liver and biliary problems of all kinds.



Taraxacum officinale

▶ **Preparations & Dosage:**

- ▶ Decoction: put 1-3 teaspoonfuls of the root into one cup of water, decoct for 10-15 minutes.
- ▶ If using leaves, infuse rather than decoct for 10-15 minutes. This should be drunk three times a day.
- ▶ The leaves may also be eaten raw in salads or steamed as a spring green.
- ▶ Juice of the pureed leaves; sig up to 20 ml/ day
- ▶ Tincture (1:5 25%): 3-10ml of the tincture up to qid. Root and/or leaf.
- ▶ Fluid extract (1:1 30%): 2-8ml TID



Cynara scolymus
(Artichoke)





Cynara scolymus (Artichoke)

- ▶ Common names: Artichoke, globe artichoke, Eaten as a vegetable.
- ▶ Member of the daisy (Compositæ) family.
- ▶ Pleasantly bitter taste.
- ▶ Combines both liver and gallbladder activities, though the gallbladder predominates.

Cynara

- ▶ Anti-toxic
- ▶ Liver tonic, restorative, stimulates bile production, relieves gas, relieves cramping, relieves nausea
 - ▶ Promotes liver cell regeneration
 - ▶ Promotes blood flow to the liver
 - ▶ Stimulates bile production (Caffeoylquinic acids, e.g. Cynarin)
- ▶ Aids in metabolism of blood lipids
- ▶ Decreases cholinesterase and fatty liver degeneration.
- ▶ Classic remedy for indigestion

Cynara

Chemical constituents

- ▶ Up to 2% phenolic acids, mainly 3-caffeoylquinic acid (chlorogenic acid)
- ▶ 1,5-di-O-caffeoylquinic acid (cynarin)
- ▶ caffeic acid
- ▶ 0–4% bitter sesquiterpene lactones of which 47–83% is cynaropicrin
- ▶ 0.1–1.0% flavonoids including glycosides
 - ▶ luteolin-7-b-rutinoside (scolymoside)
 - ▶ luteolin-7-b-D-glucoside
 - ▶ luteolin-4-b-D-glucoside
- ▶ Phytosterols (taraxasterol)
- ▶ Sugars
- ▶ Inulin
- ▶ Enzymes
- ▶ Volatile oil consisting mainly of sesquiterpenes
 - ▶ b-selinene
 - ▶ caryophyllene

Cynara Pharmacology

- ▶ The choloretic (bile stimulating) action of the plant has been well documented in a placebo-controlled trial involving 20 healthy volunteers. After the administration of 1.92 grams of standardized artichoke extract directly into the duodenum, liver bile flow increased by 127.3% and 151.5% at the 30- and 60-minute mark, respectively.
- ▶ Artichoke leaf may work by interfering with cholesterol synthesis. Besides cynarin, a compound in artichoke called luteolin may play a role in reducing cholesterol.
- ▶ **Medicinal actions:** Diuretic, alterative, choloretic
- ▶ Lininger et al: *Healthnotes: Clinical Essentials*, Herb Monographs Prima Publishing, Rocklin, CA. 2001.
- ▶ Kraft K. Artichoke leaf extract—recent findings reflecting effects on lipid metabolism, liver and gastrointestinal tracts. *Phytomedicine*. 1997;4:369–378.

Clinical Use: Cynara

- ▶ Gastrointestinal Conditions:

- ▶ **Constipation and indigestion:** In a study persons suffering from non-specific digestive disorders (including dyspepsia and indigestion), 320–640 mg of a standardized artichoke extract given three times a day was effective in reducing nausea, abdominal pain, constipation, and flatulence in over 70% of the study participants.

- ▶ **Fatty liver of “sluggish liver”:** Cynarin caused an increase in fecal bile acid excretion in a small study on healthy volunteers and four patients with fatty liver. Other studies support its use as a choleric.

Dosage: Cynara

- ▶ Tincture for Bitter stimulation:
- ▶ Fresh or dry leaf, 1/5 40% ETOH
- ▶ Dose: 30- 60 gtts

- ▶ Hepatoprotective: Eat the hearts of artichoke
- ▶ Standardized extract: for Lipids
- ▶ 1800-1920 mg per day in 2 to 3 divided doses has been used
- ▶ The isolated constituent cynarin 60-1500 mg per day has also been used



Saffron Bitters: Most expensive spice

- ▶ **Saffron** is a spice produced from the dried flower stigmas of *Crocus sativus*, commonly known as **wild crocus**. Although it is commercially grown in several European and Asian countries today, **saffron** was first domesticated by the ancient Minoans that inhabited the island of Crete in the late Bronze Age.
- ▶ Harvesting **saffron** is a laborious task because the delicate thread-like strands must be hand-picked from each flower. It takes an estimated 210,000 flower stigmas to obtain a single pound of **saffron**. When you consider the fact that each crocus flower only produces three threads,



Saffron Bitters

- ▶ **Background:** If you've ever enjoyed Indian cuisine, you've probably eaten saffron. It's a very popular culinary herb in Indian cooking. In addition, it is used in Greek and Italian food. It was also used as a dye for beauty products.
- ▶ **Description:** Saffron is a perennial herb. It is native to India and the Mediterranean region. It is also cultivated in other parts of Europe and the Middle East. It has purple flowers and red stigmas.
- ▶ The stigmas and styles are harvested in the fall. Saffron contains more than 150 volatile and aroma-yielding compounds. It also has many nonvolatile active components, many of which are carotenoids, including zeaxanthin, lycopene, and various α - and β -carotenes. However, saffron's golden yellow-orange colour is primarily the result of α -crocin.
- ▶ The bitter glucoside picrocrocin is responsible for saffron's flavour.
- ▶ When saffron is dried after its harvest, the heat, combined with enzymatic action, splits picrocrocin to yield D-glucose and a free safranal molecule. Safranal, a volatile oil, gives saffron much of its distinctive aroma



Saffron as Medicine

Avicenna J Phytomed. 2015 Sep-Oct; 5(5): 376–391.

PMCID: PMC4599112

The effects of *Crocus sativus* (saffron) and its constituents on nervous system: A review

- ▶ Anti-oxidant and anti-inflammatory effects of the extracts of *C. sativus* and its constituents (crocetin, crocins, safranal) implies saffron therapeutic potential for various nervous system disorders. Based on the literature, beneficial effects of the plant and its components on neurodegenerative disorders such as Alzheimer and Parkinson's disease are mainly due to their interactions with cholinergic, dopaminergic and glutamatergic systems. It is assumed that saffron anticonvulsant and analgesic properties and its effects on morphine withdrawal and rewarding properties of morphine might be due to an interaction between saffron, GABA and opioid system.
- ▶ According to human and animal studies, saffron and its constituents have been shown to be effective in the treatment of mild to moderate depression which may be because of an interaction with the serotonin and noradrenaline system. However, to have a detailed perspective of saffron effects on nervous system, more mechanistic investigations are highly advised.

agents in the treatment of nervous system disorders.

Aperitif and Digestif

- ▶ **Apéritifs** and **digestifs** are drinks, typically alcoholic, that are normally served before (apéritif) or after (digestif) a meal.
- ▶ An apéritif is an alcoholic beverage usually served before a meal to stimulate the appetite and is therefore usually dry rather than sweet. Common choices for an apéritif are vermouth champagne; pastis; gin; rakı; fino, amontillado or other styles of dry sherry (but not usually cream sherry, which is very sweet and rich); and any still, dry, light white wine.
- ▶ "Apéritif" may also refer to a snack that precedes a meal. This includes an amuse-bouche, such as chocolate, crackers, cheese, pâté or olives.
- ▶ "Apéritif" is a French word derived from the Latin verb *aperire*, which means "to open." The French slang word for "apéritif" is "apéro."

Recipes for Bitters

▶ Smokey Bitters with Oregon grape

- ▶ 8g Oregon grape bark, fresh and shredded
- ▶ 2g Oregon grape bark, dry and shredded
- ▶ 10g juniper berries, dry
- ▶ 1.5 g wormwood, fresh (1 sprig)
- ▶ 250mL single malt Scotch (Bowmore)
- ▶ 1,000mL bourbon (cheap stuff)
- ▶ 6 sticks of charred cedar planks, ~ 1/2" x 1/2" x 6"
- ▶ 50 grams of Rehmannia root

NW Cynar: Artichoke Digestiff

- ▶ 20g artichoke leaves, fresh and chopped
- ▶ 5g motherwort leaves, fresh and chopped
- ▶ 5g wild ginger root, Fresh and chopped
- ▶ 10g yarrow leaves, Fresh and chopped
- ▶ 3g Lomatium dissectum leaves, Fresh and chopped
- ▶ 6g St. Johns Wort leaves, Fresh and chopped
- ▶ 3g Juniper berries, dried
- ▶ Zest of ½ grapefruit
- ▶ 5g Angelica fresh leaves, Fresh and chopped
- ▶ 9.1g fresh fennel leaves, Fresh and chopped
- ▶ 4g fresh lovage leaves, Fresh and chopped
- ▶ 4g fresh catnip leaves, Fresh and chopped
- ▶ 3g figwort leaves, fresh and chopped
- ▶ 50 grams of black seed (Nigella seed)
- ▶ 750 mL 3Wishes chardonnay, 1 bottle 13%
- ▶ 300 mL Baijiu rice vodka 40% Etoh
- ▶ 750 mls of Vodka 40 % Etoh
- ▶ 1.5 cup of white sugar

Rapid Orange Bitters

Adapted from Dave Arnold

- ▶ Ingredients:
- ▶ 3-4 cloves
- ▶ 2.5 green cardamom seeds removed
- ▶ 2 grams caraway seeds
- ▶ 25 gram dry orange peel
- ▶ 30 grams fresh orange peel
- ▶ 20 grams fresh lemon peel
- ▶ 25 gram fresh Grapefruit peel
- ▶ 10 gram Dandelion Root
- ▶ 2.4 gram goldenseal root
- ▶ 5 gram turmeric dry
- ▶ 450ml neutral vodka (Ketel)

Rapid Orange Bitters

Adapted from Dave Arnold

- ▶ Crack cloves, cardamom, caraway seeds , mix with all dry ingredients and place in in half liter isi extractor.
- ▶ Charge with one whipper of NO₂
- ▶ Shake for 30 seconds, leave under pressure and place in a pan of simmering hot water for 20 minutes, cool and filter, squeeze out and filter.
- ▶ Enjoy.

Bitters for Spring

- ▶ **Chocolate/Chaga Bitters:** Artichoke leaf (bitter), Chaga (color and actions), Chocolate nibs (contrast, flavor) Vanilla (Sweetness), Hazelnuts, cardamon for flavor, New deal #88 Vodka, ND Mud puddle Chocolate Vodka
- ▶ Combines the medical mushroom Chaga that has anti cancer and immune stimulating properties with complementary Cacao and the bitter spring leaves of Artichoke. We add sweetness of vanilla and cardamon. Using a high proof clean tasting vodka by New Deal and Hazelnuts for complementary flavor.



Spring Bitters

- ▶ **Red Currant/Black currant** :, Currant leaves(Bitter) Black currant concentrate (sour, sweet) Centaurium (Bitter), Lemon, Lime and bergamot oil. Vodka
- ▶ Combines two of the most prolific NW Native flowers the beautiful Red flowering Currant blossoms with leaves. (*Ribes sanguineum*) which are abundant in the woods and landscaping.
- ▶ The Red currant have medicinal properties as well as a unique musty aromatic bitter. Combine this with the May flower (*Crataegus monogyna*) an naturalized Hawthorn from Europe which is found growing on the edges of yards, parks and trails. It has the medicinal flavonoids which relax the heart. It has a sweetness, strong astringency and a unique earthy smell. This give a nice contrast, adding the black currant cousin of the red currant for its dark anthocyanin pigments as well as orange zest and orange water for aromatic contrast.



Coconut / Almond Bitters

- ▶ Add the wonderful full fat coconut milk , with Almonds which are toasted, Bitter root from Gentiana, Artichoke leaves and some almond essential oil.



Resources:

- ▶ Books: Medicine makers Handbook by James Green
- ▶ The Compleat Anachronist #60 – Alcoholic Drinks of the Middle Ages By Mark Shapiro, Published March 1992
- ▶ Making Liqueurs for Gifts By Mimi Freid, Storey Publishing Bulletin A-
- ▶ 101 Kitchen Cordials By Nancy Crosby & Sue Kenny,
- ▶ Herbal Cookery – Herb Recipes from a Kitchen Garden By Dixie L. Stephen Hearts & Tummies Cookbook Company, ISBN 1-57166-094-1
- ▶ Bitters by Brad Thomas Parsons
- ▶ A Sip through Time – A Collection of Old Brewing Recipes By Cindy Renfrow, ISBN 0-9628598-3-4
- ▶ Homemade Liqueurs By Dona and Mel Meilbach, ISBN 0-8092-7582-1
- ▶ Cordials from Your Kitchen By Pattie Vargas & Rich Gulling,
- ▶ Shrubs: an old fashioned drink for modern times by Michael Dietsch