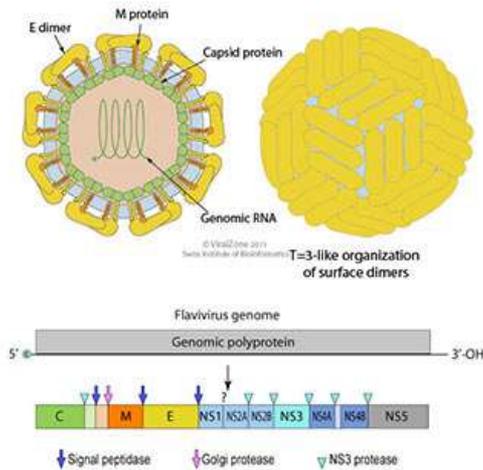
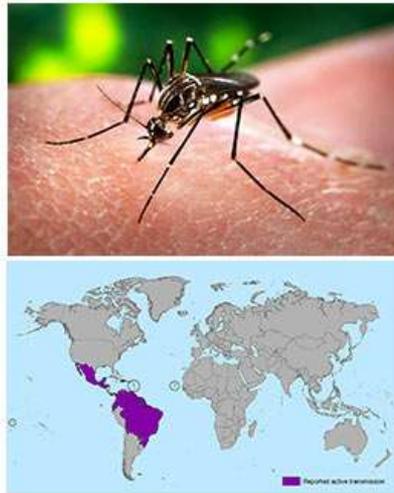


Treating Infections, Part 2

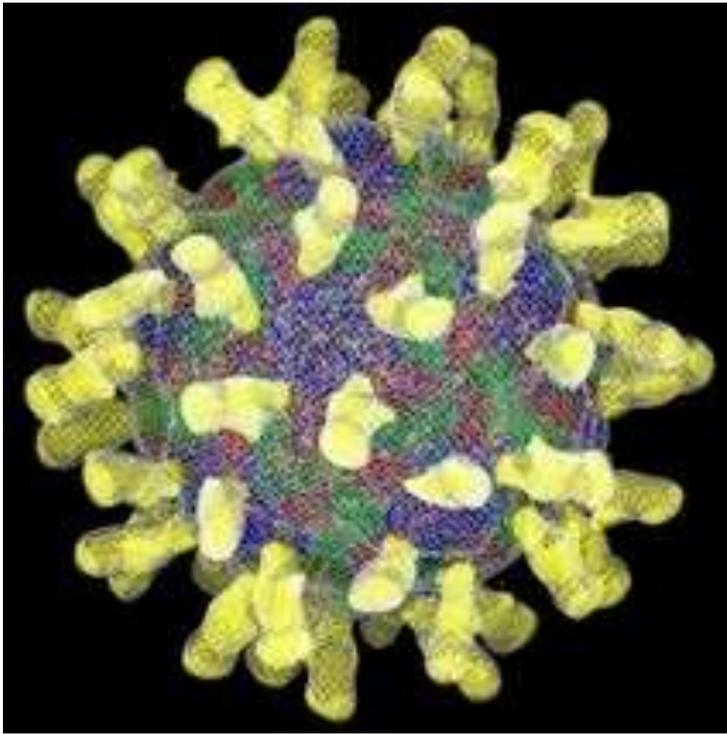


Zika



- Common colds
 - Additional herbs, symptomatic relief
- Sinusitis
- Flu
- Pneumonia, bronchitis
- Immune tonics
- Urinary tract infections
- Hepatitis
- Lyme's
- Herpes
- UTIs

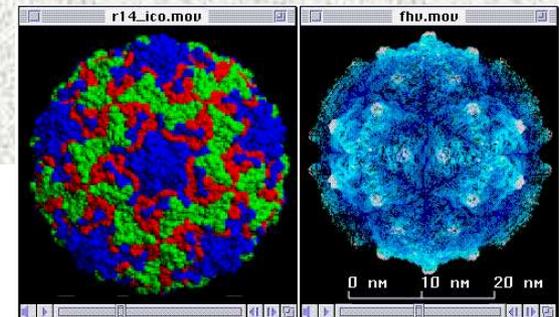
Viral Infections



- Respiratory tract infections
- All likely viral, with subsequent bacterial infection possible
 - Common cold
 - Sinusitis (viral subsequent to cold)
 - Influenza
 - Bronchitis
 - Pneumonia

Common Cold

- U.S. average—2.5 colds/year = 0.75 billion
- Myalgia, fatigue, rhinitis, excessive mucus discharge (watery), sore throat, usually no fever
- Pulse and tongue often normal, “surface” condition
- Appetite often not affected



Treatment Plan-common cold

- Warming herbs to dispel wind and/or cold from surface (ginger, cinnamon, elecampane)
- Antiviral herbs (direct or by host immunity)
- Symptomatic relief (cough, sore throat, energy, mucus, pain, etc.)
- Ephedra (and moderating herbs)

Suggested Herbal Protocol

Common cold (standard practice)

- **Antiviral herbs** (andrographis, elderberry, pelagonium, etc.)
- **Diaphoretics** (to ease symptoms of myalgia, congestion)
- *cup of hot chamomile, elderflower, yarrow, linden tea (Weiss)
- *elder flower (lowers fever, increases non-specific resistance, antiviral)
- *linden flower tea (calming, diaphoretic)
- *ginger tea (warming, diaphoretic, anodyne)
- **Baths:** lavender, ginger, rosemary, camphor (diaphoretic, anodyne, calming, invigorating)
- **Immunomodulating**
 - echinacea (immune enhancement, antiviral through host immunity)
 - Thyme tea (reduce chance of secondary bacterial infections, expectorant)
- *Licorice tea (expectorant, reduces inflammation, immunomodulating)
- *Sage tea (a gargle for sore throats)

Common Cold (science-based)

- **Antiviral** (also can reduce symptoms, shortens duration)
 - Andrographis, standardized extract (dose)
 - Elderberry syrup or concentrated extract (tablets, capsules)
 - Pelargonium, standardized extract (liquid or tablets)
 - Garlic syrup (with honey and orange oil), allicin-insured capsules
- **Antibacterial** (helps prevent secondary infections)
 - Thyme, oregano tea, essential oil in tea (1-2 drops)
 - Berberine (in goldenseal, coptis, or berberine sulfate tablets)
 - Garlic syrup, garlic enteric-coated allicin-insured capsules, tincture

Colds—symptomatic relief

- **Expectorant**
 - Licorice, yerba santa, elecampane, cayenne, lemon tea or tincture
- **Congestion**
 - Eucalyptus (steam, tea, baths, use oil, 2-3 drops in tea or bath)
 - Cang er zi (cocklebur fruit, extract in tablets, capsules)
- **Cough**
 - Coltsfoot tea, yerba santa tea, peppermint, eucalyptus, pine bark, mullein leaf tea, loquat syrup
- **Prevention**
 - Turkey tail, shiitake, cordyceps, reishi extracts, teas

Colds/Flu

Symptomatic Relief 2

- **Myalgia**

- Peuraria, meadowsweet, wintergreen, willow bark (standardized or not; high salicin content), cayenne liniment, St. John's wort oil, hot bath with strong yarrow, meadowsweet, rosemary, and/or lavender tea added (consider adding essential oils also)

- **Headache**

- Liver/GB (temples and over eyes): blue vervain, centaury, feverfew, fringe tree, blessed thistle, boldo, wormwood tea, mugwort tea
- Tension (occiput, general): rosemary, willow bark, meadowsweet, wintergreen tea, shepherd's purse, betony*, greater periwinkle*, hops, *kava*, birch bark tea or tincture, catnip, chamomile (both), skullcap
- External application, baths: rosemary, lavender essential oils (30-70 with fixed oil), liniment, or tea compress, St. John's wort oil, liniment

Symptomatic Relief 3

- **Fever**

- Diaphoretics: yarrow, elder flower, blue vervain, ma huang, boneset, catnip, mormon tea, life everlasting, lobelia, feverfew
- Antipyretics: willow bark, meadowsweet, birch bark, dogwood bark (either pacific or streamside), quaking aspen bark
- With deficiency of yin: coral root (*Coralarrhiza* spp.), American ginseng
- With fast pulse: add linden flower, passionflower

- **Fatigue:**

- With fever: eat lightly, especially broths made with green leafy vegetables, barley, a little fish or chicken; add herbs like American ginseng, turkey tails, cordyceps, witch's butter; use gentian or centaury tincture before meals sparingly
- With deficiency of Kidney yin or Qi or Spleen Qi deficiency: American ginseng, codonopsis, burdock root, false Solomon's seal

Symptomatic Relief 4

- **Rhinorrhea**

- Clear mucus: magnolia buds, cayenne, sage leaf, eyebright
- Highly viscous mucus: saponin-containing herbs (violet leaf, evening primrose root, *Trillium* spp., *Smilacina* spp., fenugreek, licorice, cayenne, primrose root (cowslip), starflower (*Trientalis* spp.), shooting stars (*Dodecatheon* spp.), *Eryngium* spp., English ivy tips)

- **Nasal congestion**

- Antihistamines: nettle leaf, goldenseal, Oregon grape root, goldthread, goldenrod, ginger*, lemon, orange, tangerine peel, aged tangerine peel (also contains a sympathomimetic alkaloid, synephrine), *Eucalyptus*, and steams
- Sympathomimetics: ma huang tincture, tea; tangerine or orange peel

Additional warming Herbs

Warming herbs, release surface

- Elecampane
- Wild ginger
- Ginger
- Pine bark
- Yerba mansa
- Osha
- Grindelia
- Cinnamon

- Echinacea
- Chinese Patents



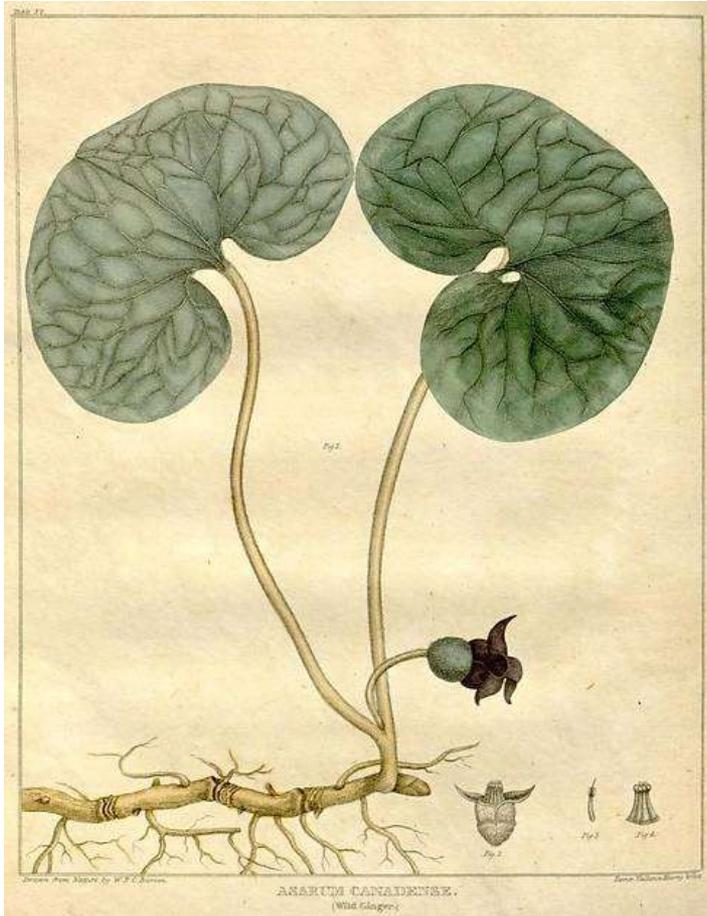
Elecampagne

Inula helenium



- Common western garden herb for centuries
- Warm, spicy
- Coughs, bronchitis, expectorant
- Antibacterial (*S. aureus*, including MRSA (O'shea *et al.*, 2009))
- Antiinflammatory (Park *et al.*, 2013)
- Immunomodulating
- Teas, pills, liquid extracts

Wild Ginger (*Asarum* spp.)



- *A. sieboldii* and other spp. is Chinese herb, xi xin
- spp. are likely interchangeable
- “Powerfully aromatic...relieves pain”
- “Disperses cold, releases the exterior” (B&G, 3rd)
- “An excessive dosage will exhaust the qi and increase the pain” (use 1-3 g with other herbs only)

Wild ginger as a western herb

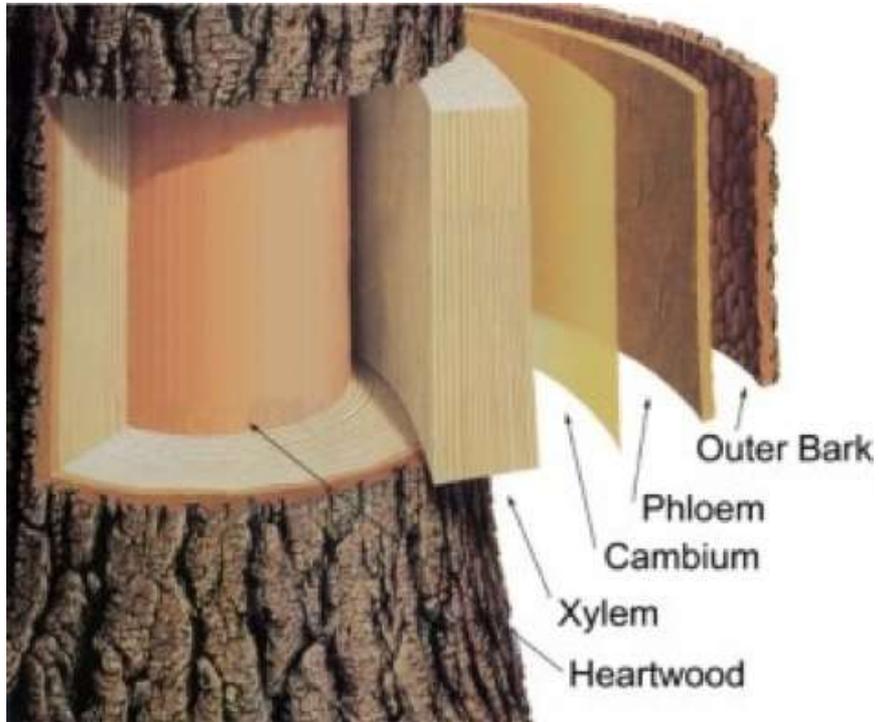
- Aristolochic acid
- Powerful immune stimulant
- Chronic, higher dose uses associated with several deaths (kidney failure)
- Mutagenic, carcinogenic
- *Asarum* spp. contain much less AA than *Aristolochia* spp.
- *Aristolochia* (snake root) is used to treat toxic bites, etc.; contains higher amounts of AA
- Used for 2,000 years at least
- Essential oil with asarone
- Use lower doses in herb mixtures for acute symptoms only
- Leaves are powerfully emetic
- “warm stimulant and diaphoretic (Bigelow, 1817)
- Used in chronic pulmonary affections” (Felter-Lloyd)
- “Warm infusion promotes profuse sweating”
- “Sudden colds”
- Dose: ½ ounce (14 g) to 1 pint water (infusion); drink 2-3 x daily (freely in original)

Ginger (*Zingiber officinale*)



- Warm, spicy
- Benefits digestion
- “dispersing in nature, benefits the Stomach, alleviates nausea, stops coughing, transforms phlegm”
- “Releases the exterior and disperses cold: for exterior cold patterns (B&G)
- Warms, benefits digestion, relieves nausea
- “Warms the Lungs and stops cough: for cough due to both acute wind-cold cough patterns and chronic Lung disorders with phlegm” (B&G)
- Dose: 3-9 g (make your own extract!)

Pine bark



- Inner bark of 2-3 year old growth; leaves; oxidized pitch
- Contains polyphenols, antioxidant
- Resins, essential oil
- Antibacterial, expectorant, decongestant
- Pleasant taste (infusion)
- Dose: 9-12 g/day; infusion

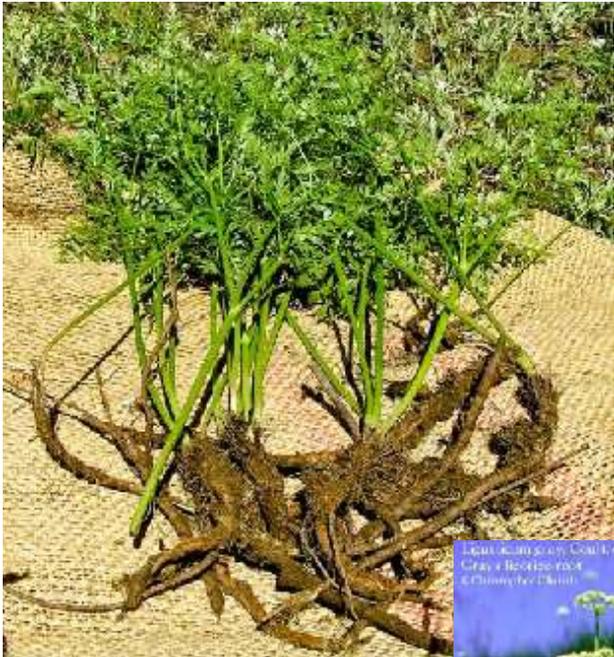
Yerba Mansa

(*Anemopsis californica*)



- Native to many sites around sw U.S. in boggy areas
- “natives frequently carry the root with them, chewing it and swallowing the juice, and consider it a certain remedy for cough and pulmonary affections (F&L).
- Dose: 3-6 g, infusion or light decoction; 1 mL tinc. in water or tea, every 2-3 hours

Osha (*Ligusticum grayi*, *L. porteri*)



L. porteri



L. grayi

- Chuan xiong in TCM
- Not particularly for URI; does not enter lung channel
- Strongly potentiates antibiotics against MDR *S. aureus*
- “most popular "remedio" in San Luis Valley for treating colds, sore throats and stomachaches” (Bye *et al.*, 1986)
- Root chewed or tea decoction consumed
- Hispano Americans in the San Luis Valley of south-central Colorado, USA

Grindelia spp. (gumweed)



“At non-cytotoxic concentrations, the *G. robusta* extract inhibited dose-dependently the secretion of IL-6, RANTES, MCP-1 and, to a lesser extent, PGE(2) and TNF-a (La *et al*, 2010)

- Widespread along roads throughout the western U.S.
- *G. camphorum*, *G. squarrosa*
- Tincture, infusion
- Lung channel
- Warm, sticky, resinous
- Efficient in bronchial affections, in pertussis
- *Asthmatic breathing, with soreness and raw feeling in the chest; cough, harsh and dry; breathing labored*” (F&L)
- Resin made up of diterpenes; flavonoids, saponins
- Expectoating, antimicrobial

Cinnamon bark



- The beneficial health effects of CZ:
- “a) anti-microbial and anti-parasitic activity
- b) anti-oxidant and free-radical scavenging properties” (Ranasinghe *et al.*, 2013).
- Test of cinnamon essential oil against respiratory pathogens:
- inhibitory and bactericidal concentration against *Streptococcus pyogenes*, *S. agalactiae*, *S. pneumoniae*, *Klebsiella pneumoniae*, *Haemophilus influenzae*, *Staphylococcus aureus* isolated from clinical specimens
- Cinnamon and thyme showed the strongest action followed by clove”
- A lot of cinnamon on the market is *not* true cinnamon (*Cinnamomum verum*, *C. zeylanicum*), but *C. cassia*

Echinacea Background

- Most widely-used herbal remedy for colds
- 1800s, native Indian uses
- Years of research back to the 1930s in Germany
- Hundreds of studies, but past studies are usually of poor design
- Tincture from fresh tops and roots typically preferred



Echinacea—Immunomodulation

- Positive, shortened duration of symptoms (Linde, 2006)
- Negative, no statistically sound benefits shown (Turner *et al.*, 2005)
- Early use at first signs of infection may be more effective (Schoop *et al.*, 2006)

- Activates cellular and humoral immune functions (Ritchie, 2011)
- Acute-phase immune activating proteins (IL1- β , IL-6, IL-12 and TNF- α)
- Recent studies equivocal
- Positive, shortened duration of symptoms (Linde, 2006)

Echinacea

Safety, meta-analysis

- Appears safe for children (>5 years old, Saunders *et al.*, 2007)
- Most recent, largest meta-analysis (Karsch-Volk *et al.*, 2014)
 - 24 RDBPC trials (n=4631), 33 comparisons of echinacea with placebo concluded that clear statistically-significant benefits for reducing symptoms of common cold were not found
 - Large heterogeneity in study designs, plant parts, species, extraction methods makes conclusions less satisfying; many positive individual studies
 - Few side effects
 - No significant herb-drug interactions

Other supported interventions

- Vitamin C
 - Incidence only (500 mg daily)
- Zinc lozenges
 - Shortens duration (15 mg, chelated)
- Probiotics
 - 20 billion or 200 billion *L. pentosus*; n=300, elderly adults; incidence of colds = 47.3, 34.8, 29% (placebo, low-dose, high-dose)
- Beta-glucans (yeast, mushrooms)

Vitamin C



- 5-year, PCDB study (Sasazuki *et al.*, 2005)
- n=439 (244 finished)
- (50 mg or 500 mg daily)
- Regular vitamin C significantly reduced incidence of colds, but did not affect severity or duration.
- Similar study found that 1 g/day did not reduce severity or duration (Audera *et al.*, 2001)

Zinc chelate

- 23 clinical trials on www.pubmed.gov
- 7 meta-analyses (1997-2013)
- Typical dose is 15 mg zinc chelate
- Lozenge or syrup most common preparations
- Some studies show lozenges work best, but have taste issues; syrup is also effective in some studies (Kurugöl *et al.*, 2006)

Zinc trials 1

- RDBCT (n=100, 3 mos., school age children, 8-13)
- 15-mg chelated zinc (zinc bis-glycinate) given once a day for 3 months during the winter season to healthy school children aged 8-13 years
- No difference in incidence of common cold between groups
- Duration of cough, rhinorrhoea, having 2 or more symptoms was significantly improved in intervention group
- Rerksuppaphol & Rerksuppaphol, 2013

Zinc trials 2

- RDBPC study (n=50, 24 hours after first symptoms of common cold; 7 days duration)
- Zinc group had a shorter mean overall duration of cold (4.0 vs. 7.1 days; $P < .0001$) and shorter durations of cough (2.1 vs. 5.0 days; $P < .0001$) and nasal discharge (3.0 vs. 4.5 days, $P = .02$)
- Symptom severity scores were decreased significantly in the zinc group. Mean changes in plasma levels of zinc, sIL-1ra, and ICAM-1 differed significantly between groups.

Zinc meta-analysis

- Latest (Science *et al.*, 2012)
- 17 trials, n=2,121
- Oral zinc formulations appear to significantly shorten the duration of symptoms (mean, 1.65 days, some trials greater); some show reduction in symptoms
- Adverse effects—bad taste, slight nausea

Human Biome/Probiotics

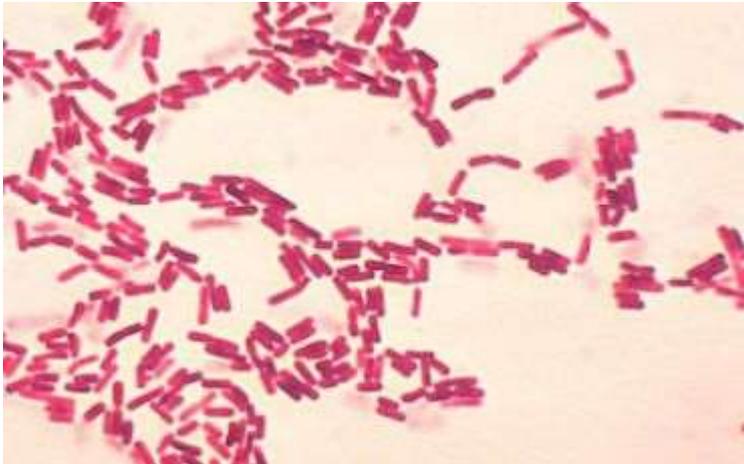


- Traditional fermented foods
 - Sauerkraut, yogurt, kefir, sourdough bread, many fermented breads (nan) in India, kim chee, miso, pickles, olives
 - “Intestinal gardening”
- Prebiotics
- Probiotics
- An estimated 100 trillion microorganisms representing more than 500 different species inhabit every normal, healthy bowel

Probiotics—URIs

- Meta-analysis (13 RCTs)
 - “Probiotics were better than placebo in reducing the number of participants experiencing episodes of
 - acute URTI
 - the mean duration of an episode of acute URTI
 - antibiotic use
 - cold-related school absence.
 - This indicates that probiotics may be more beneficial than placebo for preventing acute URTIs” (Hao *et al.*, 2015)
 - Studies are not high-quality
- “probiotics may have a beneficial effect on the severity and duration of symptoms of RTIs but do not appear to reduce the incidence of RTIs.” (Vouloumanou *et al.*, 2009)
 - *L. fermentum*; 6 mo infants; 6-month duration of the study; 27% reduction in the incidence of upper respiratory tract infections; 30% reduction in the total number of infections.
 - RDBC; n=281 children who attend day care centers; 3 month duration of study (Hojsak *et al.*, 2010)
 - RDBCT; N=479 healthy adults....reduced the duration and severity but not the incidence of common cold episodes (De Vrese *et al.*, 2006)

Common Species Used



Bacillus coagulans

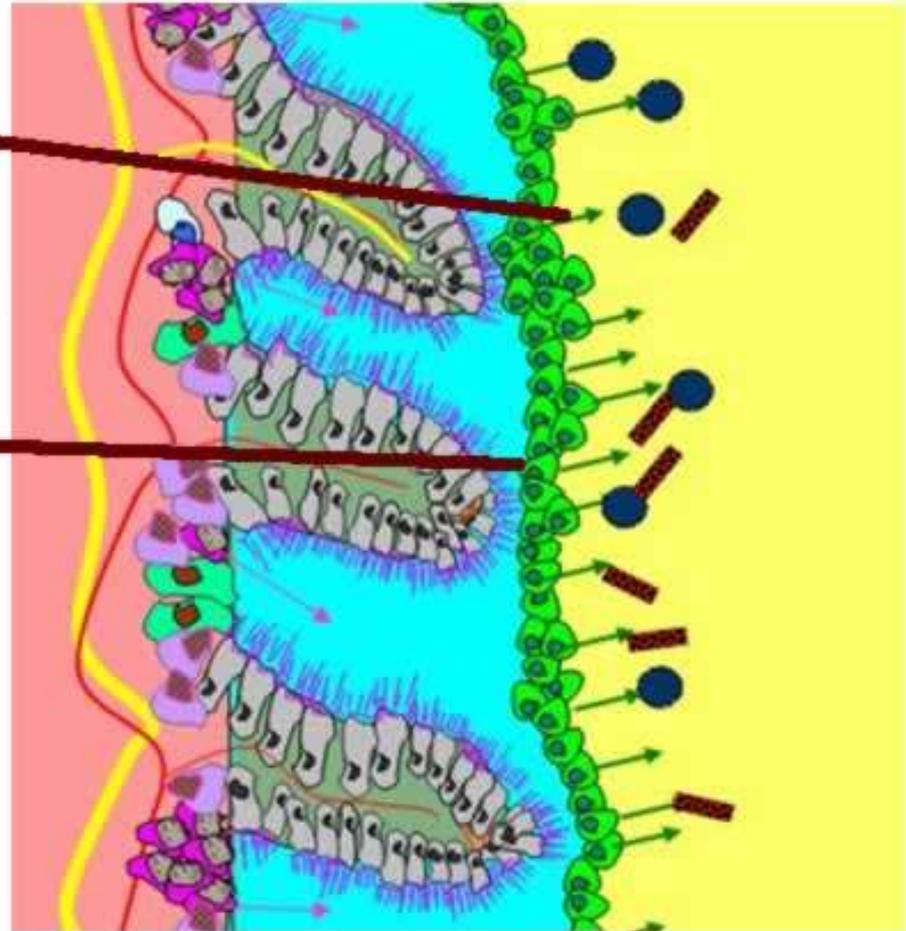
- *Bifidobacterium bifidum*
- *L. caseyi*
- *L. rhamnosus*
- Spore-forming species (heat stable; *Bacillus coagulans* (*S. sporogenes*))

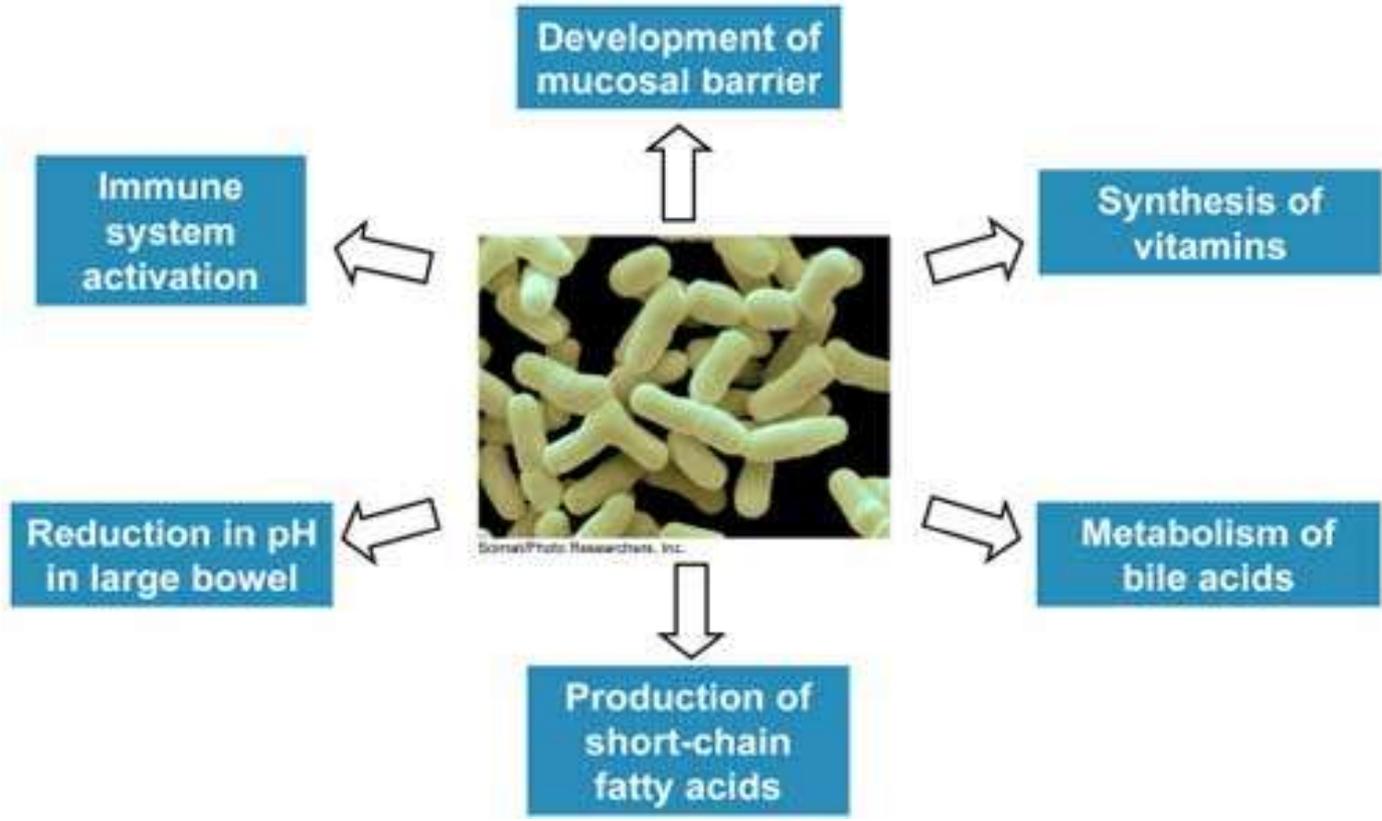
Probiotic Benefits

ACIDOPHILUS AND OTHER PROBIOTIC BACTERIA SECRETE: ANTIVIRAL ANTIBACTERIAL AND ANTIFUNGAL CHEMICALS.

PROBIOTICS FORM A PHYSICAL BARRIER TO HINDER INVASION OF BACTERIA AND YEASTS

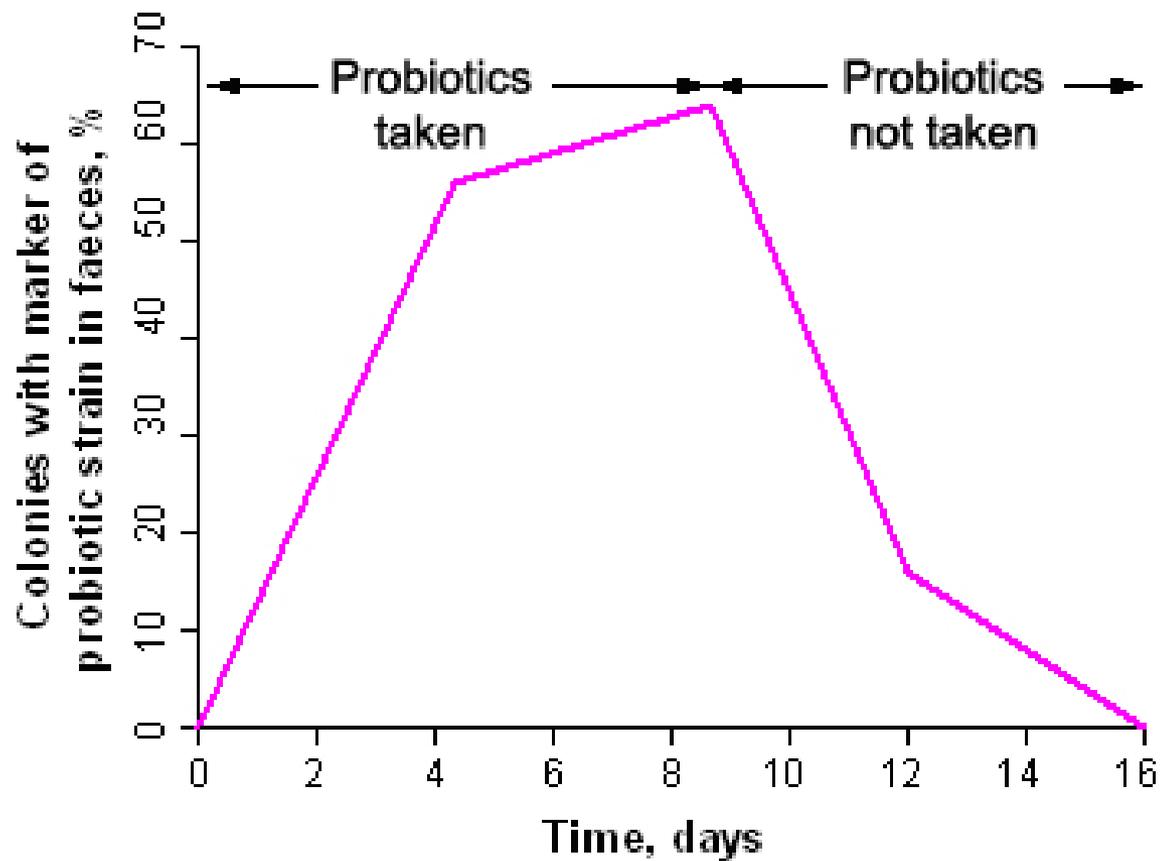
PROBIOTICS LIKE ACIDOPHILUS CREATE AN ACIDIC MICROENVIRONMENT WHICH PROMOTES IRON AND OTHER MINERAL ABSORPTION.





Fate of Ingested Probiotics

The appearance of ingested probiotics bacteria in faeces



Probiotic Research Summary

- 1,475 clinical trials (Pubmed)
- 151 meta-analyses
- 6,047 studies published in the last 5 years
- 3,027 review articles

Current Areas of Research

- Digestive health (poor absorption of nutrients, reduction of gas, bloating, loose stools, constipation)
- Irritable bowel syndromes
- Urogenital health (vaginal infections, UTIs)
- Allergies
- Immune support
- Antibiotic-associated diarrhea (positive results from systematic review and meta-analysis) (Hempel *et al.*, 2012)
- Many more

Chinese Patents for Colds, Flu

- Lonicera and Forsythia Formula (*Yin Qiao San*)
- Morus and Chrysanthemum Formula (*Sang Ju Yin*)
- Ilex and Evodia formula (*Gan Mao Ling*)-antiviral
- Jade Screen Powder, *Yu ping feng San*-astragalus, atractylodes, Ledebouriella



Yin Qiao San

Early stage of a wind-heat common cold, marked by sore throat, slight fever, and slight stuffy nose

developed by Wu
Jutang in 1798



- **Cold & Flu Formula
(Yin Qiao San)**

- Forsythia (Lian Qiao)
- Honeysuckle (Jin Yin Hua)
- Platycodon (Jie Geng)
- Mint (Bo He)
- Bamboo Leaf (Dan Zhu Ye)
- Licorice (Gan Cao)
- Schizonepeta (Jing Jie)
- Soy Bean (Dan Dou Gu)
- Arctium (Niu Bang Zi)

Gan Mao Ling—Common Cold

Strong formula for wind-heat cough with fever and chills

"Common Cold
Efficacious-Remedy".



Stronger antiviral

- *Ilex asprella*
- *Evodia lepta*
- *Vitex negundo*
- *Chrysanthemum indicus*
- *Isatis* spp.
- *Lonicera japonica*

Sang ju yin

Morus and Chrysanthemum

Common cold, influenza, pneumonia, whooping cough, measles, and acute tracheitis



- Morus Folium (Sang Ye)
- Armeniaca Semen (Xing Ren)
- Platycodon Radix (Jie Geng)
- Phragmites Rhizoma (Lu Gen)
- Forsythia Fructus (Lian Qiao)
- Chrysanthemum Flos (Ju Hua)
- Mentha Folium (Bo He)
- Glycyrrhiza Radix (Gan Cao)

Jade Screen Formula

Deficiency of protective Qi,
sweating, shortness of breath,
frequent URI, immune deficiency

- Astragalus
- Atractylodes
- Siler (fang feng)



Sinusitis

- **Herbal and general treatment measures**
 - All patients with respiratory tract infections should drink plenty of fluids.
 - Nasal douches with isotonic saline solution (+ berberine sulfate) are helpful, especially in the first two stages of acute rhinitis.
 - The sooner herbal remedies are administered, the better the chance of successful treatment.
 - Different herbal remedies have different effects. Some stimulate the immune system, whereas others counteract inflammation. Combinations of remedies can therefore be very useful.
- **Clinical value of herbal medicine:** Herbal remedies for acute rhinitis (head colds) are cheap and safe. They do not damage the mucous membranes of the nose, even when used for long periods of time, if administered at low doses.
- In the case of sinusitis, a qualified physician should determine whether antibiotic treatment is necessary. Herbal treatments are always useful adjunctive measures.

Source: Kraft & Hobbs

Sinusitis 2

- **Chamomile flower (Matricariae flos tea rinse, tea).**
- *Indications: Acute rhinitis.*
- - *Contraindications: Known allergy to plants from the Asteraceae (aster Ir daisy family).*
- - *Action: The essential oil in chamomile is not irritating to the mucous membranes.*
- Two of its constituents, ~ -bisabolol and chamazulene, counteract inflammation.
- - *Dosage and administration: Inhalation: Add 2 to 3 tablespoons dried chamomile flower, 1 teaspoon chamomile extract, or 5 drops of the essential oil to boiling water and inhale, several times daily (seep. 18). If this is not possible, administer chamomile nose drops or chamomile cream to each nostril, 3 to 4 times a day.*
- - *Side effects: None known.*

Sinusitis 3

- Cold Receptor Stimulators (as tea or rinse with ear syringe)
- Peppermint oil (from the leaves of *Mentha piperita L.*); menthol; camphor tree
- *Action: These preparations stimulate cold receptors in the nose, making it easier to breathe. They also have secretolytic, antimicrobial, and antiviral effects, but do not reduce swelling of the mucous membranes. The remedies are generally safe, except in the specified contraindications.*
- *Indications: Acute rhinitis*
- *Contraindications: Exanthematous skin and childhood diseases, bronchial asthma. Infants and small children should not inhale peppermint oil or use nasal ointments containing menthol. Camphor should not be used during pregnancy or lactation. Individuals with hypertension or heart failure should use it with caution.*

Sinusitis 4



- Nasal washes
 - Saline + berberine
 - Prefer ear syringe over neti pot
- Use 1 pt to 1 qt canning jar
 - Blend 1 tsp/pint salt
 - 1 table/qt berberine sulfate (huang lian su)

Influenza Dx

- Fever
- Myalgia
- Appetite affected
- Weakness, reduced feeling of well-being
- Yellow mucus
- Tongue is affected
- “excess, deeper”

- “Wind-Heat” is excess condition
- Tongue
 - Body is red
 - Coating is thick, yellow
- Pulse
 - Fast
 - forceful

Treatment Plan-flu

- Fever-managing herbs (diaphoretics, anti-pyretic, drain heat; i.e. salicin-containing herbs—meadowsweet, poplar, willow)
- Antivirals (based on patient energetics, dx)
- Antibacterials (garlic, berberine, thyme herb tea, oregano oil)
- Symptomatic relief (more later)

Suggested Herbal Protocol

Flu (standard practice)

- Antiviral herbs
 - Andrographis, elder berry, Thuja
- Diaphoretics
 - Elder flower, yarrow tops, linden, ginger, cayenne, peppermint, ma huang (best as hot teas)
- Antipyretics
 - Salicin-containing herbs (willow bark extract, meadowsweet)
- Anodynes
 - Corydalis, Calif. Poppy

- Expectorants
 - Yerba santa, licorice, thyme tea
- Antitussives
 - Loquat leaf, ivy tips
- Digestive aids
 - Gentian root, artichoke leaf
- Prevention, immunomodulators
 - Medicinal mushrooms

Further Flu Herbs

Cooling antivirals

- Blue vervain or wild vervain (*V. lasiostachys*)
- Isatis
- Baptisia
- Sophora



Treatment plan, bronchitis, pneumonia

- Cold, bitter heat-clearing herbs (berberine)
- Antiviral + antibiotic herbs (elder, thyme, berberine)
- Host immunity (tonics, fungi, astragalus)
- Excess conditions—tonify?
 - Is deficiency present? How much?

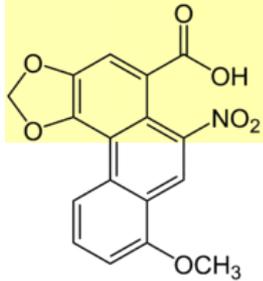
Sidebar—*Asarum*, *Aristolochia*

- Chinese herb, *Asarum* (xi xin)
- Wild ginger, “Snakeroot”
- Grows around the world, used in several cultures
- Ancient—enhances resistance to toxins, pathogens
- Aristolochic acid, potent immune stimulant
- Chinese medicine—brief use only, small dose for acute phase of an infection only (releases exterior, disperses cold; stops pain; warms the lungs)
 - 4-6 grams/day as an infusion with other herbs



Asarum canadense





Aristolochic Acid



- Aristolochic acid (AA) is toxic in larger amounts (nephrotoxic and mutagenic); low dose as a tea, and for <5 days; AA is not very water soluble, so low amounts in tea
- Much smaller amounts in *Asarum* than *Aristolochia* (snake root)
- AA is nephrotoxic in larger amounts, resulting in some clusters of morbidity in about 2001
- One of the most potent immune stimulants

Salicylates

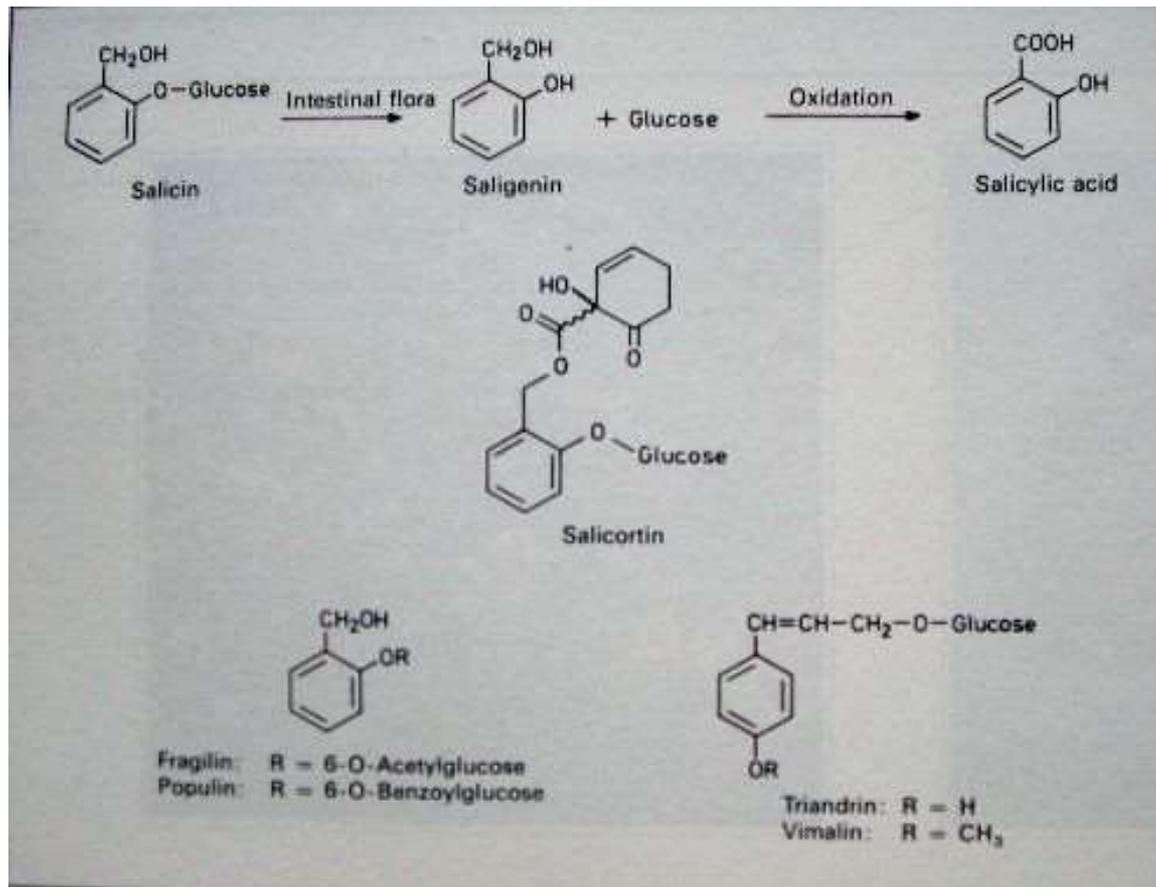
- Use described by Dioscorides, 56 A.D.
 - Salicin is a glycoside that does not cross the blood-brain barrier as well as acetylsalicylic acid
 - Side effects probably nil
- Found in *Betula* spp. (leaves, bark, buds)
 - *Filipendula ulmaria*
 - *Gaultheria procumbens*
 - *Populus* spp.
 - *Salix* spp.
 - *Actaea racemosa*

Willow Bark



- Effective dose of salicin in trials typically 60 to 120 mg
- Standardized extract (15 to 60%, spiked)
- Plasma half-life, 2.5 hours
- Slowly absorbed, doesn't cause gut erosion
- More for chronic pain, myalgia and inflammation, not fast-acting
- Lowers fevers, slow-acting

Salicin metabolism in humans



Willow bark extract for pain



- 39 volunteers with osteoarthritis took extract with 240 mg salicin, 39 a placebo for 2 weeks
- The willow bark showed moderate superiority over placebo for pain (2% increase in WOMAC pain score vs. 14% reduction in Salix group)
- Several trials showing efficacy for low back pain

Chrubasik *et al.*, 2001

Respiratory Wellness



玉竹

Solomon's seal

- Deep belly “Qi” breathing
- Clean air to breathe
- Singing for breath support and building lung Qi
- Flush sinuses (syringe)
- Respiratory tonic herbs
 - Codonopsis
 - American ginseng
 - Mullein
 - Solomon's seal root

Immune Tonics

First, “Restoring the normal”

Host immunity

- Tonify
 - Medicinal mushrooms (esp. reishi)
 - Qi tonics (astragalus, etc.)
 - Echinacea, etc.?
- Stimulate?
 - Echinacea, wild ginger (aristolochic acid)
 - Others, cedar, elecampane, marshmallow rt., garlic, elder, etc. (See Wagner, 1995)

Spleen Qi Tonics

“Restoring the Normal”

- Huang qi (*Astragalus membranaceus*)
- Da zao (*Ziziphus jujube*)
- Dang shen (*Codonopsis pilosula*) –promotes functions of the spleen and lung systems
- Ren shen (*Panax ginseng*; untreated) –promotes energy, tonifies the primal qi of the 5 internal organs (B & G)

- Importance of host immunity
- The Spleen system is a functional (not anatomical) system
 - Includes digestion, assimilation
 - Converts nutrition to “raw” Qi
 - Also the “deep” aspects of the immune respons (bone marrow, immune stem cells, etc.)
 - Spleen tonics used for many centuries to restore strength and vitality, including immunity

Astragalus, ligustrum

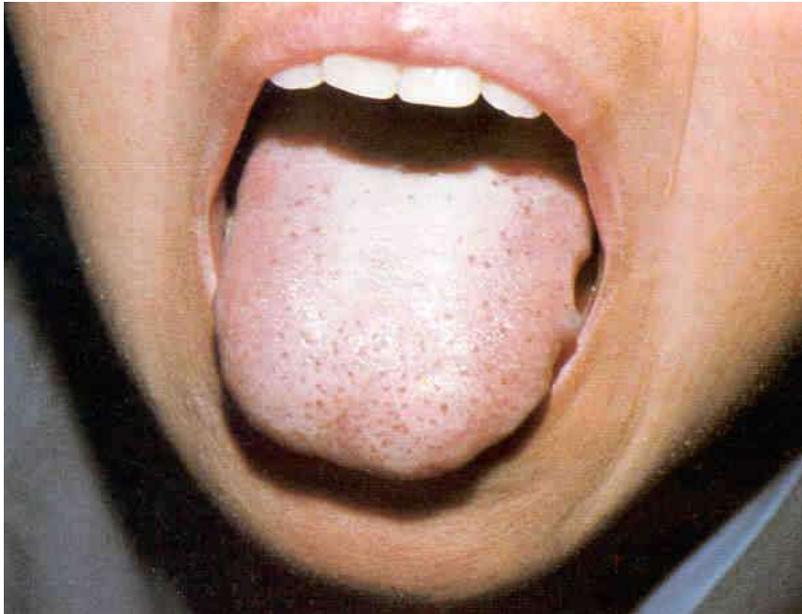
Astragalus membranaceus, Ligustrum lucidum



- Included in Wei Qi tonics in China
- Studied at the Texas medical center in Huston for over 10 years
- “Significantly enhances human immune function”
- Longer survival rate in China when used with chemo and radiation



Spleen Qi Deficiency

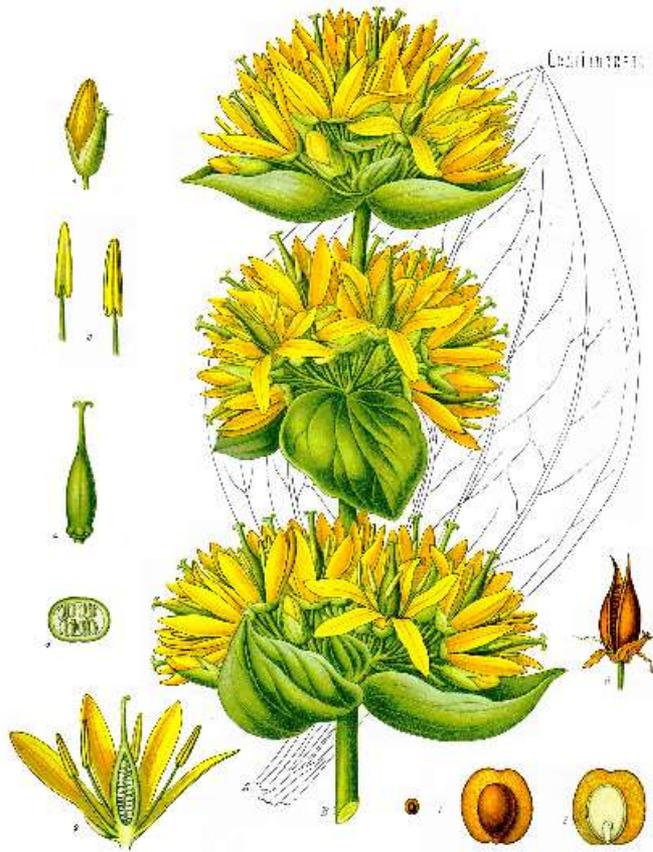


• Normal tongue

- Reduced production of digestive enzymes and poor motility
- Tongue: puffy, scallops, shaky
- Western herbs:
 - Gentian root
 - *Angelica archangelica*
 - Artichoke leaf
 - Ginger, ginseng combo



Immune Tonics



Gentiana lutea

- Tonics are taken long-term (up to several years)
- Not typically during acute phase of infections, except sparingly when necessary
- Water extracts are best because polysaccharides and proteins are denatured by alcohol
- Dose is 6-12 grams of the herb for tea, or 2-5 grams of powdered extract

Health Benefits of Mushrooms

- Very little fat, no cholesterol
- Valuable mineral content; high trace minerals
- High in vitamins, especially B vitamins
- Pleurotus provides a better supply of B vitamins than any common food, except meat
- Great slimming food
- Cholesterol regulation! Shiitake, Pleurotus
- Very high in fiber—cellulose, lignan, chitin

Most Clinically-Relevant Medicinal Mushrooms

- *Lentinus edodes* Shiitake
- *Trametes versicolor* Turkey tails
- *Ganoderma lucidum* Reishi
- *Grifola frondosa* Maitake
- *Wolfiporia cocos* Hoelen, Fuling
- *Pleurotus* spp. Oyster mushroom
- *Cordyceps sinensis* dong chong xia cao

- **Other interesting species:** *Agaricus blazei*, *Tremella fuciformis*, *Inonotus obliquus*, *Heiricium*

Beta-glucans

- Large molecular weight heteropolysaccharides, a component of the cell walls
- Specific receptors exist in the gut
- Activates immune response
- RDBPC study (n=162; 16 weeks; 25 % reduction in symptoms in glucan group (Auinger *et al.*, 2013))

Mushrooms as medicine

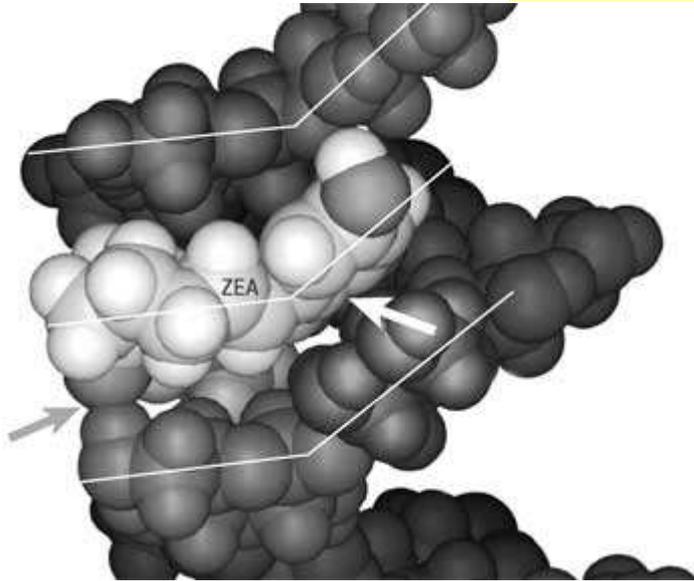
- Medicine—
approved drugs in
Japan, China for
cancer treatment
adjuvants (with
chemo)
- Health
supplements to
support immunity



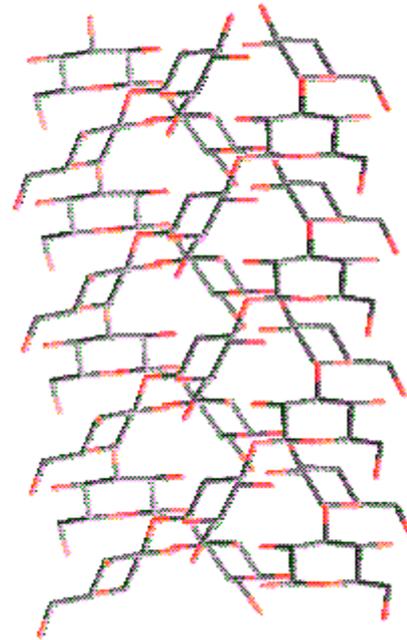
Biological Activity of Fungi

- All fungi and yeasts have triple helix polysaccharides (beta-glucans) in cell walls
- Heat breaks down chitin, exposes active molecules
- Binding of large molecular weight fungal compounds to gut receptors (60% of total)
 - complex immune activation
 - Dectin, toll-like receptors, other receptors

Triple Helix of beta (1->3) glucan

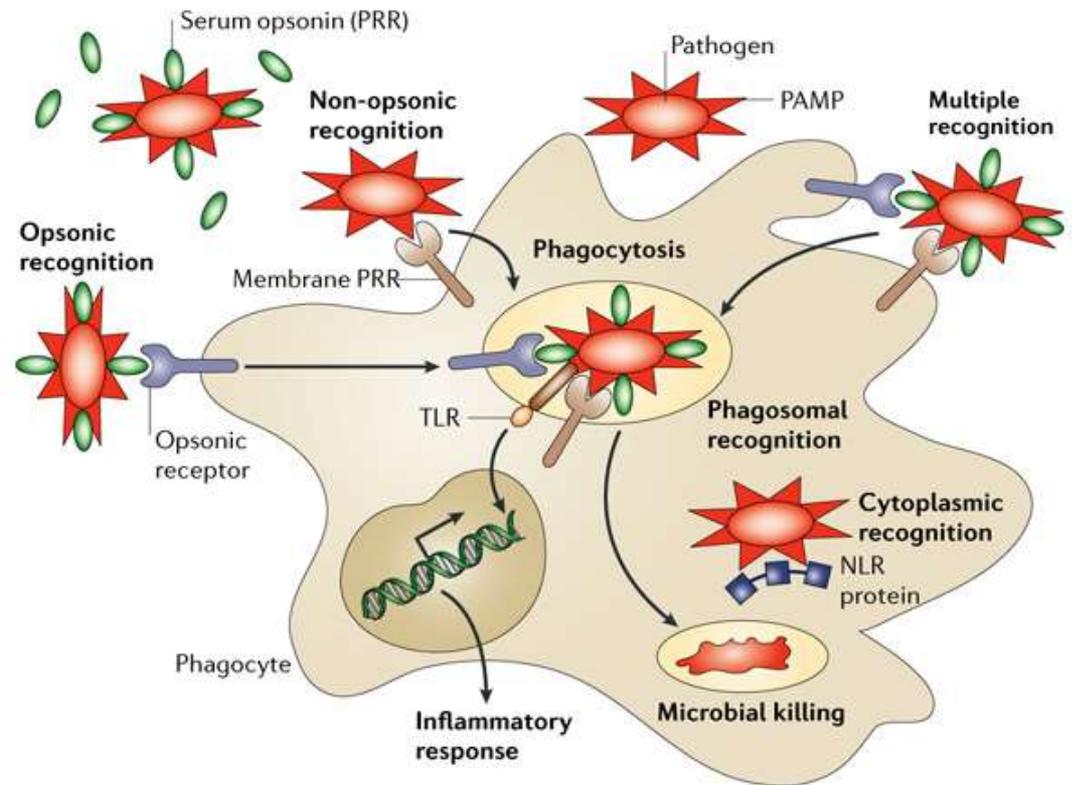
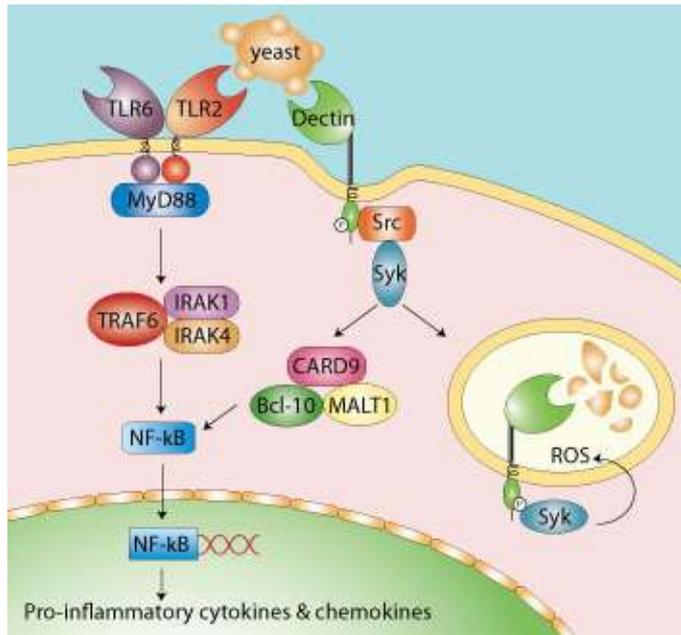


β -(13)-D-glucan geometry



- Triple helix conformation might give flexibility to cell wall
- Intact tertiary structure can confer increased immunomodulation
 - Alcohol, excessive heating could disrupt tertiary structures

Beta-glucans → Dectin Receptor



Some Possible Indications

- Shiitake for immune weakness, infections
- Shiitake, Turkey Tails for Cancer
- Viral Syndromes: Hepatitis C, herpes, HIV
- Cordyceps for fatigue, performance, “adaptogen,” antiaging supplement
- Reishi for insomnia, anxiety, nervous system disorders related to stress
- Reishi for respiratory problems

Conclusion

- More controlled human clinical trials needed
- Counteract immune suppression
- Preliminary published research, as well as clinical reports show effectiveness for hepatitis C and other viral syndromes
- More high-quality studies are needed to confirm species, dose and dosage, scope of activity, and safety
- Shiitake useful for preventing bacterial, viral infections
- Products—Many products are made from dried mycelium and cooked rice (or other grain residues)-up to 60% starch
- From fruiting bodies only—about 30-55% fungal glucans, 5-10% starch

Boils

- *Coptis chinensis* (antibacterial, antiinflammatory)
- “clear blood heat toxins”
 - Elder flower, gardenia, forsythia fruit, cleavers, dandelion
- Liver “cleansing” [Natural Therapy for Your Liver]
 - Burdock root, dandelion root, yellow dock root
- Juicing
 - Green juices (kale, cabbage); apple, carrot
- Cleansing diet
 - Liver flush (lemon, grapefruit, ginger, garlic) in the morning,
 - Cleansing tea (burdock, flax, fennel seed, fenugreek, licorice)
- Probiotic regime (100 to 200 billion organisms/day)

Infected Wounds

- Study: keep wound moist, faster healing
- Externally
 - Calendula cream or salve
 - Propolis
 - Diluted thyme, oregano oils (also in creams, salve)
 - Allantoin (comfrey, aloe, large-leaved plantain)
 - Comfrey leaf cream or salve
- Internally
 - Immune support (medicinal mushrooms)
 - Astragalus
 - Shiitake

UTI, Cystitis

- More common in women than men because of length and situation of opening of urethra; 50% of women will experience sometime in life
- 4 out of 5 women will have recurrence within 12-18 months
- Second most-common infections in U.S. besides upper respiratory tract infections
- 5-8 million physician visits/year in the U.S.

Symptoms of Cystitis

- An intense urge to urinate
- An increased frequency of urination, even if only a few drops of urine are passed
- Burning or stinging during urination
- Cloudy or malodorous urine, or urine tinged with blood
- Pain in the pubic area
- Nitrite dipstick tests are available from pharmacies

See your care provider if symptoms are severe or persist; silent kidney infection can be dangerous

Urinary Tract Infections

- Main herbs
 - Uva ursi (diuretic, antimicrobial, arbutin)
 - Pipsissewa (diuretic, demulcent)
 - Cleavers (antimicrobial, antiinflammatory)
 - Dandelion leaf (“aquaretic”)
 - Cranberry extract (antiattachment, deodorizing; unsweetened cranberry concentrate)
 - D-mannose
 - Vitamin C
 - Goldenrod tops
 - Juniper berry, corn silk, horsetail herb

Dysuria



- All conditions associated with painful or difficult urination

- Pipsissewa (*Chimaphila umbellata*)
- Cleavers (*Galium aparine*)
- Parsley leaf, root (*Petroselinum crispum*)
- Juniper berry (*Juniperus* spp.)
- Mallow leaf (*Malva* spp.)
- Marshmallow root (*Althea officinalis*)
- Plantain leaf (*Plantago major*, *P. lanceolata*)

Irritable bladder

- Frequent urination
 - Nocturia
- More common in women

- Do differential diagnosis; usually KI xu, sometimes liver hyperactivity syndr.
- Chinese dogwood fruit

- Plantain leaf
- Chinese dogwood fruit
 - Marshmallow rt.
 - Wild yam
 - KI tonics:
 - Rehmannia
 - American ginseng
 - Burdock root
 - Nettle leaf and seed

Cystitis (Bladder Infection)

- More common in women
- *E. coli* most associated
- Hygiene important
- Predisposing factors:
 - Damp heat lower jiao (internal heat and damp pathogens)
 - Sugar, stress
 - Weak immune status
 - Poor hygiene
 - Disordered bowel flora
 - Processed foods, caffeine

Treatment Strategy

- Soothing, demulcents
 - Plantain leaf, marshmallow root, slippery elm bark
- Aquaretics
 - Uva-ursi, dandelion leaf, juniper berry, green tea, asparagus root
- Antiseptics
 - Pipsissewa, uva-ursi, cranberry, garlic tincture, usnea, berberine-containing herbs
- Bladder tonics
 - Saw palmetto, nettle root

Common Symptoms of Liver Imbalance

- Frequent headaches not related to tension and stress in the neck and shoulders (from poor posture when sitting and studying, or from eyestrain)
- Jaundice
- Ongoing menstrual problems
- Weak tendons, ligaments, and muscles
- Acne, psoriasis, and other skin problems
- Tenderness or pain in the liver area
- Emotional excess, especially anger and depression; moodiness; irritability for no apparent reason

Hepatitis



Eclipta prostrata

- Antioxidants
 - Milk thistle, vitamins E, C, carotenoids, grape seed extract
- Hepatoprotectives
 - Milk thistle, schisandra, artichoke, ginger, turmeric, eclipta
- Antiinflammatories
 - Berberine-containing herbs, turmeric
- Antivirals
 - Shiitake, andrographis
- Immune-modulators
 - Shiitake, turkey tails, astragalus

Hepatitis—most credible herbs

- Milk Thistle
- Phyllanthus (13 clinical trials for hepatitis, but the most recent are Narendranathan *et al.*, 1999; Chan *et al.*, 2003; no significant benefits for chronic hepatitis B)
- Other herbs
 - Artichoke leaf
 - Ginger
 - Turmeric
 - Schisandra
 - Shiitake, turkey tails



Materia Medica

Selected Liver Herbs: MILK THISTLE



- *Silybum marianum*
- The seed shells only contain a flavanolignan complex that promotes liver cell regeneration and protects cell wall
- Antitoxin, antioxidant effects
- Use 240 to 1000 mg/day for hepatitis, to protect the liver from damage from pharmaceutical drugs, alcohol, environmental toxins



Silybum marianum

- complex of MT is a constituent from the seeds of the plant and is composed of three isomer flavanolignans (silybin, silydianin, and silychristin) collectively known as silymarin
- The ancient herbalist Dioscorides wrote about milk thistle for liver complaints about 2,000 years ago (Dioscorides et al., 1959)
- Reduced the death rate to lethal *Amanita phalloides* mushroom poisoning to zero
- Flavanolignans shown to stabilize and protect hepatocyte membranes, and stimulate RNA synthesis

Milk Thistle Clinical Trials

- Milk Thistle (>1 gm/day standardized extract)
 - Many older studies (to 1970s are of poor quality)
 - Newer studies are equivocal
 - Dose is often not high enough in trials because of very poor absorption of silymarin
 - Some evidence and continued use, coupled with high safety and antioxidant, antiinflammatory and anticancer effects
 - (Mandegary et al., 2013) found that silymarin (140 mg, t.i.d. for 1 month) reduced liver enzymes in patients exposed occupationally to hydrogen sulfide gas leading to oxidative liver stress significantly

Milk Thistle, meta-analysis

- Recent meta-analysis (Yang et al., 2014) of 5 RCTs that included 389 patients was equivocal, reporting moderate reductions in HCV RNA levels vs. placebo, but not statistically significant. *Of the 5 studies, the two that included over 1,000 mg/day had the best results, and heterogeneity was seen on some measures among all studies*
- Silymarin-loaded nanoparticles appear to be one method to achieve increased blood levels and hepatoprotective effects (Yang et al., 2013)

Materia Medica

Selected Liver Herbs: ARTICHOKE



- *Cynara scolymus*
- Contains phenolic acids (caffeic acid derivatives) that stimulate bile flow
- Liver protective effect noted, study not controlled (Sannia, 2010)
- Reduces blood cholesterol
- Dose: extract standardized to 13% to 18% caffeoylquinic acids calculated as chlorogenic acid, 160mg to 320 mg three times daily with meals



Materia Medica

Selected Liver Herbs: GENTIAN



- *Gentiana lutea* often used, but others species as well
- The root contains bitter substances called iridoid glycosides (gentiopicroside)
- Traditionally used to stimulate appetite, promote strong digestion, speed convalescence from chronic illness, allay nausea
- Chinese species, *G. scabra* is used for hepatitis

Materia Medica

Selected Liver Herbs: DANDELION



- Used in western herbal medicine and TCM
- Root used for “cooling and cleansing” the liver
- Root added to formulas for hepatitis, cleansing formulas; in TCM, specific for breast, liver cancer
- Leaves hepatoprotective *in vivo* (Hfaiedh, 2014)
- Dose: 4-8 ml/day tincture; 6-12 grams in decoction

Materia Medica

Selected Liver Herbs: BURDOCK



- *Arctium lappa*
- Root contains caffeic acid derivatives, lignans that are bile-stimulating, antitumor
- Hepatoprotective *in vitro* (Predes *et al.*, 2014)
- Uses: menstrual irregularities, mood swings, red, itchy eyes, skin problems like acne related to liver excess
- Dose: 6-9 grams dried root in decoctions; 6-12 ml tincture/day

Materia Medica

Selected Liver Herbs: OREGON GRAPE



- *Mahonia aquifolium, M. repens*
- Native to western U.S.
- Roots contain berberine
- Hepatoprotective *in vivo* (Chao *et al.*, 2013)
- Uses: specific for psoriasis, acne, other skin ailments related to liver and intestinal heat
- Dose: 2-3 ml, 2-3 x daily; 4-6 grams/day decoction

Materia Medica

Selected Liver Herbs: SCHISANDRA



- *Schisandra chinensis* fruit from China
- Vine related to magnolias
- Calms the spirit; useful for insomnia, nervousness related to liver excess conditions
- Relaxes liver function, hepatoprotective; allergic skin disorders; hepatitis, lowers liver enzymes
- Dose: 6-9 grams, decoction

Lyme—herbs, supplements

- Allicin
- Dragon's blood
- Cat's claw
- Devil's claw
- Echinacea
- Citriodiol
- Astragalus
- Nettle
- Ginkgo biloba
- Curcumin
- Oregano tea
- Artemisinin

- Boswellia
- Parsley extract
- Red chili pepper (capsaicin)
- Quercetin
- Quassia bark

- Omega-3 Fatty Acids
- Coenzyme-Q10
- SAM
- α -Lipoic acid
- Hydrolytic enzymes
- Mushroom extracts and Beta-glucan

Vogdani *et al.*, 2009. *Evid Based Complement Alternat Med.* 2009 Sep; 6(3): 283–295.

Lyme formula-Example

Brian Weissbuch's KW formula

- *Gentiana lutea radix* Gentian Root
Long Dan Cao CHDW
- *Anemone pulsatilla planta*
Pulsatilla Bai Tou Weng CHCT
- *Gardenia jasminoides fructus*
Gardenia Zhi Zi CHPF
- *Smilax Glabra radix* Sarsaparilla
Tu Fu Ling CHCT
- *Aristolochia serpentaria radix*
Birthwort Ma Dou Gen RCA,
CHCB
- *Usnea barbata thallus* Old Mans
Beard PWPW, CHCT

- *Althaea Officinalis radix* Marsh
Mallow TYin
- *Glycyrrhiza glabra radix* Licorice
Root Gan Cao TQ
- *Bupleurum falcatum radix* Hares
Ear Chai Hu SCRS
- *Paeonia alba* Paeony Root Chi Shao
Yao TB
- Symptoms frequently disappear rapidly during first week of treatment with Lyme Formula. Nonetheless, it is essential to continue with this formula for a minimum of 8 weeks to avoid recurrence of the symptoms of infection.

Herpes



- Lemon balm herb
- Lysine
- Vitamin C
- Zinc
- Vitamin E
- Adenosine monophosphate,

Lemon Balm Cream

- Penetration of herpes viruses into cells was inhibited by Melissa extract at 80% and 96% for drug-sensitive and drug-resistant viruses, respectively. Melissa extract exhibits low toxicity and affects attachment and penetration of acyclovir-sensitive and acyclovir-resistant HSVs in vitro (Astani *et al.*, 2014. [Phytother Res.](#) 2014 Oct;28(10):1547-52)
- 10 other *in vitro*, *in vivo* studies show inhibition of replication,

Herbs related to *Melissa*

- Related herbs in the Lamiaceae with rosmarinic acid and associated phenolics with Herpes simplex type 1 and type 2 inhibitory effects in vitro (Nolkemper et al., 2006. *Planta Medica* 72:1378)
- Peppermint (*Mentha x piperita*)
- Prunella (*Prunella vulgaris*)
- Rosemary (*Rosmarinus officinalis*)
- Sage (*Salvia officinalis*)
- Thyme (*Thymus vulgaris*)

General References Consulted

Regarding Indications, Safety, Dosage

- Journal literature (see accompanying reference lists)
- Botanical Safety Handbook (Gardner and McGuffin 2013)
- The Essential Guide to Herbal Safety (Mills and Bone 2005)
- Clinical Guide (ABC) (Blumenthal 2003)
- German Commission E monographs (Blumenthal, Gruenwald et al. 1998)
- Herbal Medicine (Weiss, Fintelmann et al. 2000)
- Herbal Drugs and Phytopharmaceuticals (Wichtl 2004)
- Chinese Herbal Medicine: Materia Medica (Bensky, Clavey et al. 2004)
- Hager's Handbook for Pharmaceutical Practice (Hager 1999)
- Lehrbuch der Biologischen Heilmittel (Madaus 1979)
- King's American Dispensatory (Felter and Lloyd 1898)
- Merck's Index (Merck and Co 1907)

Thanks for watching!