Materia Medica and Therapeutics
Supplementary Material
Notes, and Digestive Herbs

- Immunology of food allergy
- Digestion according to TCM
- TCM pathology
- Spleen system functions, pathology, remedies
- Teeth, gum problems
- Stomach pathology
- Digestive disorders
  - dyspepsia
  - Inflammatory disease
Herb and Remedy Choice

Remedy choice in my teachings is informed by tradition and science
- Study of ancient traditions: Hippocrates, Galen, Dioscorides; Egyptians, Persians
- Leechbooks of the Middle Ages
- Renaissance “Great Herbals”
- Work of other herbalists in my cohort (Tierra, Gladstar, Moore, Hoffmann, Winston, and many more over the years)
- Modern clinical practice—empirical work as a clinician and clinician conferences
- Constant study and review of the scientific literature as well as my own laboratory work to consolidate scattered and overly-broad uses of the past (Gerard had dozens of uses for some herbs such as yarrow)

Arnica—traditional use with scientific studies + empirical use that has lasted

Traditional Use of Herbs
The human use of many herbs for thousands of years is a priceless key to benefit scientific research and empirical use of herb for the ages. Traditional use also strongly supports the safety of herbs, the proper dose, preparation, harvest, and many other aspects of herbalism.
Immunology of Food Allergy
Role of Mast Cell-stabilizing herbs

- Immunoglobulin E (IgE) is an antibody only found in mammals, synthesized by plasma cells.
- Plasma cells, also called plasma B cells, are white blood cells that secrete large volumes of antibodies (IgE). They are transported by the blood plasma and the lymphatic system.
- Production of IgE (in addition to IgA) also can occur in the gastrointestinal tract, and patients with food allergy have higher concentrations of IgE in the gastrointestinal tract than healthy individuals.
- IgE can be produced locally by B cells in the gut- or airway-associated lymphoid tissue, as well as in the lymph nodes, of individuals with food allergy, seasonal or perennial allergic rhinitis or atopic or nonatopic asthma.

Source: Galli et al., 2013.
An Allergic Reaction — Overview

(1) Initial contact with allergen

(2) Plasma cell

(3) Mast cell

(4) Subsequent contact with allergen

(5) Histamine and other chemicals

Allergen

B cell

Allergic reaction

Released IgE antibodies

Granule

IgE receptor

Source: http://mmmmatter.blogspot.com/2012/04/what-is-allergy-by-vicky.html
Mast Cell-stabilizing herbs

- Emodin-containing herbs
  - Emodin-containing herbs (Dong et al. 2016)
    - Japanese knotweed, fo-ti (*Polygonum multiflorum*)
    - Rhubarb, aloe, buckthorn bark, cascara, senna
    - Yellow dock (highest amount in August—up to 1%. Demirezer, 1994)
  - Berberine (Kim *et al*., 2015)
    - Coptis, barberry, Oregon grape root, goldenseal; berberine sulfate

- *Aloe vera* gel—useful herb for food allergies
  - contains emodin, polysaccharides—anti-inflammatory, glycoproteins (i.e. alprogen) that are mast-cell stabilizing (Ro *et al*., 2000).
The Digestion According to TCM

• Stomach receives food
• Spleen system
  – Separates useful from unusable (sends to LI)
  – With help of Lungs, produces Qi (vital energy)
  – Produces blood
  – Pancreas and small intestine
  – Corresponds with deep immune function, bone marrow
• Lung System
  – Assists production of Qi
  – Regulates “surface” immunity
  – i.e. IgE, allergies
• Liver/GB system

Ginseng
TCM Digestive pathology
Lung System (surface immune)

• Lung functions
  – first, excess or deficient?
    – excess
      • lung heat or cold invasion
      • smoking, pollution
    – deficiency
      • lung Qi deficiency
      • lung yin deficiency

• Lung treatment
  – the lung aided by “pungent” foods, herbs
    • garlic, ginger, cinnamon
    • calamus, yerba mansa
  – main tonics
    • codonopsis
    • American ginseng
  – stimulant/tonics
    • Echinacea, andrographis, medicinal mushrooms
TCM Digestive pathology
Spleen System

- Spleen
  - Deficient SP Qi
  - Deficient SP Yang
  - Spleen dampness
  - Damp heat in SP
Deficient Qi: Signs
- Poor assimilation due to low digestive enzyme production, low vital energy, poor blood flow to pick up nutrients, with weak peristaltic activity
- Symptoms: anorexia, some digestive pain after eating, weight loss, or only fat production, difficulty in building muscle and strong blood; blood deficiency, deep or chronic Immune disorders

Deficient Qi
- Further symptoms: fatigue in morning, tired, heavy limbs, loose stools
- Tongue: pale, swoolen, lax, shakey
- Pulse: deficient at SP position
- Emotional issues: worry and excessive mental activity exacerbate SP Qi deficiency
TCM Digestive pathology
Spleen System 3

- **Tonic herbs are most effective as teas, dried teas (powdered extracts), or in soups and stews**

- **Herbal remedies**
  - Spleen Qi tonics
  - Use long-term (up to years)
  - Appropriate for chronic immune disorders like AIDS
  - Primary herbs: astragalus, codonopsis, Panax ginseng (red), red Chinese date (jujube), licorice, spring-harvested burdock root, Trientalis borealis, Osmorrhiza (2 spp.), Polygonatum biflorum, Smilacina (2 spp.), Campanula

Burdock
Spleen Yang Deficiency

• More severe than Spleen Qi deficiency
• Involves signs of coldness, such as watery stools, undigested food in the stool, thick white coating on the tongue
• Spleen helps regulate water balance in the body, so edema might occur
• Fatigue, anorexia, weight loss

• Herbs:
  – Warming herbs like red ginseng, ginger
  – *Aralia californica*
  – *Anemopsis californica*
  – *Acorus calamus* (not for long-term use; use in tea or dried tea form)
Spleen Dampness

- Spleen (small intestine + functions of colon, kidneys) is not doing its job of regulating water balance
- Interstitial fluid is diluted; also edema, with heat, phlegm
- Tongue is often swollen, scalloped, too moist; thick, greasy tongue coating (deficient condition of Spleen leads to excess dampness)
- “Mucus condition”
- Pulse is slippery
- Symptoms: nausea, watery stools, feeling of fullness

- Herbs (see materia medica below)
  - *Poria cocos*, *P. spp.* (fu ling, hoelen)
  - *Grifola umbellata* (zhu ling)
  - *Trametes versicolor*

- Herbal aquaretics
  - Uva ursi
  - Parsley root
  - Dandelion leaf
  - Green tea

Note: Excessive consumption of cold, raw foods or drinks can aggravate this condition
Dampness and Heat in Spleen

- Dampness can turn into heat, rather than cold
- Usually associated with attack by external pathogen like an intestinal flu virus
- Herbs: *Andrographis paniculata*
- Also consider berberine-containing herbs like *Coptis, Mahonia*
Digestive Imbalances According to Western Medicine

- **Mouth**
  - Teeth and gums
- **Stomach**
  - Gastritis
  - Gastric ulcers
- **Small intestine**
  - Chrone’s
  - Duodenal ulcer
- **Large intestine**
  - Irritable bowel syndrome
  - Constipation
- **Rectum**
  - Anal fissures
  - Hemorrhoids
Teeth and Gum Problems

• Categories:
  – Astringents to tighten gums; antibacterial
  – Antibacterial herbs to reduce *Streptococcus mutans* activity
  – Antiinflammatory herbs
  – Wound-healing herbs (allantoin)

• Astringent herbs
  – Krameria
  – Myrrh
  – Oak twigs (*Quercus* spp.)

• Antibacterial herbs
  – Bloodroot
  – Propolis
  – Tea tree oil (+ other essential oils)

• Vulneraries (wound-healing herbs)
  – Calendula
  – Plantain
  – Aloe
Biofilms—dental plaque

• Biofilm is the preferred form of life for the vast majority of microorganisms
• Microbe communities residing within biofilms may consist of:
  – one or more species that communicate and collaborate with one another
  – heterogeneous community
• Kombucha a popular example of a biofilm
• Heterogeneous Community of Microorganisms in Biofilms

1. Original infection or introduction of microorganisms
   2. Colonization, start of biofilm production
   3. Biofilm
   4. Development of heterogeneous community of microorganisms
   5. Release of individual organisms to spread colony
Biofilm
More on Biofilms

- Survival adaptation
- The presence of calcium, iron, and magnesium is essential for biofilm production and serves to cross-link the anionic regions of polymers
- confers significant survival advantages to bacteria and yeasts
- Biofilms strongly adhere to interfaces and resist dislodgement
Biofilms 3

- Sessile biofilm microorganisms are 100 to 1000 times more resistant to antibiotics compared to planktonic forms of the same strain
- Biofilm induces resistance factors, impenetrable to some drugs
- Increased protection from host immune effector cells
- Disruption or eradication of biofilms is a key to successful treatment of infections
- However, beneficial, some resident bacteria also form biofilms
Biofilm treatment strategies

• Antibiofilm activity is assessed by minimum biofilm eradication concentration (MBEC\textsuperscript{TM})
• Developed by the Biofilm Research Group at the University of Calgary
• InterFase\textregistered{} (contains naturally-occurring enzymes to break down biofilm, InterFase Plus\textregistered{} adds EDTA to help bind metals that strengthen biofilms)
• note: author has no association with Klaire Labs
Biofilm: Frequently Recommended Agents

- Monolaurin or Lauricidin [AKA Glyceryl laurate or glycerol monolaurate]
- Nattokinase (a potent oral fibrinolytic enzyme supplement)
- InterFase Plus™ (broad-spectrum enzyme formula w/EDTA)
- NAC (N-Acetyl-Cysteine)
- Xylitol (sugar alcohol)
- Extra-Virgin Coconut Oil (42-52% Medium Chain Fatty Acids [MCFA], lauric acid, by volume)
- Turmeric, Neem oil, Reishi Mushroom
- BFB-1™ & BFB-2™
- Carbonized Bamboo
Lauric acid—Coconut oil

- After sensing external signals, *Proteus mirabilis* undergoes a multicellular behavior called swarming which is coordinated with the expression of virulence factors.
- Lauric acid (LA) was effective for inhibiting swarming (Liaw *et al.*, 2004).
- Coconut oil contains about 50% LA!
- Potential uses for disrupting bacterial biofilms in the gut, and in dental plaque.
Monolaurin

- Lauric acid is converted into monolaurin in the body
- Monoglyceride which exhibits antiviral, antimicrobial, antiprotozoal and antifungal properties
- Breast milk is the only other natural source (besides coconut oil; Marina et al., 2009)
  - high concentration of lauric acid, which could explain the decrease of infections of all types in breast-fed babies (Gibson & Kneehone,__)
Lauricidin

- Dissolves biofilms associated with chronic allergic rhinitis; sinusitis
  - Taken orally
Stomach Pathology

- **Gastritis** (Excess heat in stomach)
  - Categories: 
    - antiinflammatories (clear heat), demulcents,
    - antiheliobacter herbs

- **Gastric ulcer**
  - Categories (same as for gastritis, except add vulneraries)

- **Heartburn**
  - (same as for gastritis, except add antispasmodics)

- **Nausea, vomiting**
  - Antiemetics, demulcents

- **Antihelicobacter herbs:** 
  - garlic, berberine

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Garlic
Digestive Disorders
(breakdown of food and assimilation and elimination of nutrients)

- **Dyspepsia** with “food stagnation,” poor assimilation of nutrients
- Accompanied by excessive gas, cramping, pain, borborygmus, feeling of fullness or distension; constipation or loose stools; fatigue, anemia, muscular weakness; foul breath, thick tongue coating (usually gray, greasy, or white)

- **Therapeutic categories:**
  - Bitter tonics (bitters)
  - Spicy warm digestive “fire” enhancers
  - Aromatic carminatives that regulate the Qi
  - Enzymes that assist the body in the breakdown of proteins, fats, starches
  - Probiotics
Dyspepsia, Incomplete Digestion

- Bitter herbs used throughout ages to stimulate digestive processes
  - Gentian
  - Centaury
  - Bogbean
  - Mountain gentian
  - Cinchona
  - Mugwort

- Bitters are used 10-20 minutes before meal times
- Caution: gastritis, gastric ulcer

Mountain gentian
(Frasera speciosa)
Inflammatory Disease

• Chrohn’s disease
  – Chronic ulceration in various parts of the GI tract, and occurs commonly in the duodenum and ileum; autoimmune condition
  – Can also occur in the bowel as part of inflammatory bowel disease (IBD)
  – Difficult to differentiate between irritable bowel syndrome, ulcerative colitis
  – Diagnosis is made after endoscopic exam, barium enema, histological exam, and other factors

• Most common symptoms:
  – Abdominal pain
  – Diarrhea
  – Blood in stool
  – Weight loss
  – Fever

• Other information:
  – Flare-ups can occur regularly, or not for years

• Crohn’s disease treatment
  – See Colon issues, treatment is similar
Large Intestine Imbalances

- Inflammatory bowel disease (IBD)
- Irritable bowel syndrome
- Diarrhea
- Constipation

Aloe ferox
Inflammatory Bowel Disease (IBD)

- A medical term used to refer to both ulcerative colitis and Crohn’s disease; Crohn’s is deeper
- Crohn’s can occur in either the SI or LI, but it often affects deeper layers of bowel wall
- Changes in immune system intra-communications and function are responsible
- 30% runs in families
- Most frequently in younger people
- Diagnosis made with aid of blood tests, colonoscopy, biopsy, barium enema
- Medical treatment includes drugs, surgery
- Complications include blockage

Symptoms include:
- malaise, bloody stools, diarrhea alternating with constipation, cramping, pain, especially after eating, gas, cracks at corner of mouth (Crohn’s)
- Check high WBC count, indicating infection
- Surgery may be required to repair severe adhesions or blockage
Inflammatory Bowel Disease 2

- Herbs
  - Peppermint oil (enteric-coated)
  - Chamomile tea (*ad lib*)
  - Yarrow tea
  - Wild yam tea or tincture
  - Combination of *Viburnum opulus* or *V. prunifolium*, *Valeriana* spp. and *Piper methysticum*
- With signs of cold: ginger tea
- With signs of heat: nettles tea, calcium/magnesium supplement, berberine-containing herbs (especially *Coptis chinensis* or *Mahonia* spp.)
- Experiment with immune-modulators like shiitake, reishi

- Herbs (continued)
  - Demulcents: fenugreek, plantain leaf tea (*ad lib*) or juice powder or dried tea
  - Antiinflammatories: yarrow tea or tincture, chamomile tea or tincture, salicin-containing herbs, especially meadowsweet tea or tincture
  - Antispasmodics: *V. opulus* and *V. prunifolium*, *Capsella bursa-pastoris* (tincture), lobelia! (tincture), belladonna (1:10 tincture, add 2-10 drops to 1 oz tincture formula)
- Check food allergies (important): elimination diet for at least 2 weeks for gluten, all dairy, eggs, etc.
Irritable Bowel Syndrome

• Try many of the treatments recommended under IBD
• Additionally, focus on antispasmodics (Valeriana, Dioscorea, Achillea, Viburnum spp.)
• Also, focus on emotional component: worry and excessive thinking is most often associated
• Calmatives: Eschscholzia, Piper meth., Valeriana, etc.
Diarrhea

- Could be due to damp heat condition in the intestines
- Also ingestion of pathogenic organisms in food and water (traveler’s diarrhea), irritable bowel, food stagnation (Spleen Qi or Yang deficiency)
- Herbs: blackberry root (tea), pectin (apple peel tea), *Potentilla glandulosa* root, Tormentil root, see treatments for specific ailments
Constipation can be due to lack of soluble and insoluble fiber in the diet, IBD, IBS (alternating with diarrhea usually), stress (with high sympathetic tone) coupled with genetic susceptibility.

Herbs: First yellow dock, then either cascara, butternut bark or other, stronger, anthraquinone-containing herbs.

Triphala: *Emblica officinalis* (amalaki), *Terminalia chebula* (haritaki), *Terminalia belerica* (bibhitaki)
• Hemorrhoids, anal fissures
  – Contributing factors: constipation, hard stools, slow transit time, irritating food intake, heat and dryness pathogens in lower abdominal area

• Herbs
  – Bowel softeners, hydrators: psyllium, flax, yellow dock, cascara
  – Antiinflammatories: chamomile, yarrow
  – Venous tonics: Stoneroot, horse chestnut

\textit{Rumex crispus} (Yellow dock)

Formula: fenugreek, flax, marshmallow rt., yellow dock rt., licorice; equal parts except only \( \frac{1}{4} \) part licorice; 2-3 cups/day
For Spleen Qi Deficiency

- Extremely common pattern
- Tongue: puffy, swollen, scallops, thick white, gray, yellow coating
- Dampness
- Quivering
Common Spleen Qi Tonics

- Astragalus
- Codonopsis
- Jujube
- Licorice
- Gobo

- Warmer tonics:
  - Astragalus
  - Ginseng (Asian, red)
  - Calamus
  - Anemopsis

- Medicinal Fungi to remove dampness, tonify Qi for chronic conditions
  - Hoelen (Tuckahoe)
  - Zhu ling (*Grifola umbellata*)
  - Trametes (*Trametes versicolor*)
Astragalus membranaceus

- Huang Qi of TCM
- Commercial drug is 3-year-old sliced roots
- Should be yellow and sweet; wider slices considered higher grade
- Dose: 9-30 grams
- Preparations: decoction, in food, dried teas
- Caution: don’t use during acute phase of infections
- Has rising energy
Codonopsis pilosula

- Dang shen of TCM
- Commercial drug is about 3 years old, sweet and moist
- Contains saponins, thought to have the same action as ginseng, though milder (and certainly cheaper! Often used as substitute)
- Dose: 9-30 grams
- Preparations: decoction, in food, dried teas, tincture ok
- Caution: none
**Panax ginseng**

- Ren Shen of TCM
- Drug is at least 3-year-old roots, the older the better
- Red ginseng is steamed and baked, considered warmer and more stimulating than unsteamed (white) ginseng
- Considered the most tonifying herb to the root Qi
- Dose: 1-9 grams
- Preparations: decoction, extracts, in cooking, tinctures, elixirs, candies
- Caution: Don’t use red with hot conditions, or for young people; interacts with stimulants; possibly estrogenic in humans

• Note: American ginseng, *P. quinquefolius* is tonifying to the yin for adrenals
Ziziphus jujube

- Da Zao ("big date") of TCM
- Fresh, sweet dates with a red color are preferred
- Contains fructose, glucose
- Calms the spirit, good for shortness of breath, emotional lability due to digestive disorders
- Dose: 3-12 dates
- Preparations: decoctions, in cooking (cereals, etc.), powdered extract
- Contraindicated with food stagnation, dampness, intestinal parasites
Glycyrrhiza uralensis

- Gan Cao ("sweet herb") of TCM (licorice)
- Roots are harvested after the 3rd year, not sweet before; dried or honey-baked
- Contains plant steroids; antiinflammatory (clears heat and toxins), expectorant, stops spasms
- Dose: 2-12 grams
- Preparations: Decoction, in foods, dried teas, tinctures
- Cautions: Can increase sodium retention, potassium loss and increase water retention; caution hypertension
Arctium lappa

- Called burdock because of the burr-like flowering heads
- Biennial; harvest in spring of second year; develops sugars from inulase activity in winter (root contains up to 50% inulin)
- Contains antitumor lignans
- Stimulates bile production, flow
- Dose: 3-16 grams
- Preparations: Decoction, dried tea, in cooking (gobo), tincture
- Cautions: Contraindicated with Spleen dampness
Polygonatum biflorum

- True Solomon’s seal
- Grows throughout the eastern U.S.
- *P. sibiricum* is the Chinese drug huang jing, which is recommended for fatigue and anorexia, to quiet the mind and for coughs; also tonifies the Kidneys
- Dose: 6-18 grams
- Preparations: Decoctions, elixirs, in cooking
- Cautions: Dampness
Anemopsis california

- Yerba mansa (the manso were the Indians that worked in the missions)
- Favorite remedy of the sw U.S., northern Mexico
- Grows in wet areas, spreads by runners
- Warm, spicy, goes towards Spleen, Lung system
- Eclectic physicians used for diarrhea; stimulant tonic, carminative, anti-emetic
- Dose: 3-6 grams
- Preparations: Teas, tincture
Acorus calamus

- Calamus, sweet flag
- Used in traditional medicine in India, China, Europe, North America; mentioned in the Bible
- Grows in wetlands throughout e. U.S.; scattered in w. U.S.
- North America material has less toxic thujone
- Widely used for diarrhea, flatulent colic, especially in children; “atonic dyspepsia,” “feebleness” of digestive organs
- Dose: 2-4 grams
- Preparations: Cordials, teas, tinctures, powder
- Cautions: Not for long-term use, avoid during pregnancy
Other Materia Medica

- Remove dampness (fungi, aquaretics)
- Bitter tonics
  - regulate digestion
  - regulate immunity
  - activate secretions
  - in some cases they are yin tonics (gentian)
Trametes versicolor

- Turkey tails
- A polypore mushrooms, this species is an important recycler of wood in the forest ecology
- Many studies show immune activation, antitumor, antiviral, blood sugar-regulating effects
- Dose: 6-9 grams
- Preparations: Decoction, in food (soup stock), dried teas (powdered extracts)
- Cautions: None known
Gentian

- Gentiana lutea, or other species
- Grows in mountains
- All parts intensely bitter; contain iridoid glycosides
- Pure bitter (no tannin); promotes gastric secretion of HCl, pepsin, increases bile flow, production of other digestive enzymes
- Immune stimulation
- Indications: Food stagnation, dyspepsia, debility, convalescence, chronic immune disorders
- Dose: 1-3 ml or 1-2 grams before meals (in caps is 40% as effective)

Caution: caution with gastritis or gastric ulcer
Aromatic bitter, stomachic and tonic. It acts on the liver and kidneys, purifies the blood, and is an excellent tonic (Grieve)
Bogbean

- Bitter tonic, similar to gentian in effect
- 6-9 grams infusion
- 1 ml, 2-3 x daily before meals
- Larger doses can purge
- Has an effect on the liver
Other Bitter Herbs
Traditionally used in bitter tonics

- Bitter orange peel
- Green citrus peel
- Unripe apples
- Oregon grape root
- Goldenseal
- Chicory greens, root
- Dandelion greens, root
- Angostura