Botanical Medicine
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Who’s Using Herbs

• Estimates range from 1/3 to ¾ of the US population using some form of herbal medicine, at least intermittently
• Proportions higher in those with chronic illness
• National survey: 72% of people using herbal remedies were also taking prescription medicine, 84% were also taking OTC drugs

• Herbal sales up 6.8% in 2014, reaching an estimated total of more than $6.4 billion
• Top 5 herbs sold in “natural food stores”
  – turmeric (*Curcuma longa*) and extracts standardized to curcumin
  – wheatgrass and barley grass (*Triticum aestivum* and *Hordeum vulgare*, respectively)
  – flaxseed (*Linum usitatissimum*) and/or flax oil
  – aloe vera (*Aloe vera*)
  – spirulina/blue-green algae (*Arthrobyspira* spp.).

» American Botanical Council, Sept 2015
Top 5 herbs sold in mainstream markets

- horehound (Marrubium vulgare) -- in throat lozenges
- cranberry (Vaccinium macrocarpon) -- urinary tract health
- echinacea (Echinacea spp.) -- colds and flu
- black cohosh (Actaea racemosa) -- menopausal symptoms
- flax or flaxseed oil (Linum usitatissimum) -- omega-3 fatty acids, high cholesterol and heart disease.

American Botanical Council, Sept 2015
Evaluating Efficacy

• Difficulty with scientific studies
  – Animal studies don’t always use appropriate dose
  – Many studies don’t reflect current use (eg IV)
• Does it have a long term historical use?
• Do the current market products reflect that historical use?
Safety

• Not all herbs are safe!
• Modern concentrates may not reflect historical safe dosing (eg home made teas)
• Big issue with purity
  – Contamination with heavy metals, pharmaceuticals, other plants
• One fifth of US-manufactured and Indian-manufactured Ayurvedic medicine purchased via the internet were found to contain lead, mercury or arsenic levels that exceeded one or more standards for acceptable daily intake.

• Among metal-containing products, 95% were sold by US websites and 75% claimed GMP

» Saper, RB et al, JAMA 2008, 300(8):915-23
Determining Quality

• Need to be sure that appropriate measurements are used to determine active ingredients
  – DNA barcoding can’t evaluate liquid extracts adequately but good for bulk herb ingredients
Preparations

• Decoction
  – Root, bark boiled in water

• Liquid extract
  – Water/alcohol solution (herb:liquid = <1:4)

• Glycerite
  – Glycerin used to extract the herb rather than water/alcohol

• Infusion
  – Flowers, leaves, seeds steeped in water

• Tincture
  – Water/alcohol solution (herb: liquid = >1:5)

• Pill/capsule/tablet
  – May contain whole or part of the plant or its dried extract

• Essential oil
  – Volatile oils of plant extracted via distillation. Usually highly potent due to concentration
Dosing

• “Dried herb equivalent”

• Example: dried herb equivalent of 1 gm =
  1 ml of 1:1 extract (plant to liquid)
  2 ml of 1:2 extract (plant to liquid)

• For some brands, dosing on bottle might not be appropriate. Use herbal references for dose
Children’s dosing—based on weight, taking into account faster metabolism:
- \((1.5 \times \text{weight in kg} + 10)\) is percentage of adult dose

- For young infants, \((\text{age in months divided by 150}) \times \text{adult dose} = \text{child’s dose}\)
- Also consider dosing nursing mom to get herbs into infant
Chemical Constituents
Plant Chemistry

- Plants are stationary so had to develop chemical defenses against attack
- Chemical constituents of the plant can give a clue as to its actions
- Many, many constituents, so actions are varied. Same plant can be used for many things
### Chemical Components

<table>
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<tr>
<th>Left</th>
<th>Right</th>
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<td>Alkaloids</td>
<td>Flavinoids</td>
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<tr>
<td>Phenolics</td>
<td>Isoflavones</td>
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<td>Lignans</td>
<td>Polysaccharides</td>
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<td>Coumarins</td>
<td>Gums/mucilages</td>
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<td>Glycosides</td>
<td>Terpenoids</td>
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<td>Quinones</td>
<td>Resins</td>
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### Alkaloids

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Herb examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Analgesic</td>
<td>• Hemlock</td>
</tr>
<tr>
<td>• Hypotensive/hypertensive</td>
<td>• Lobelia</td>
</tr>
<tr>
<td>• Bronchodilator</td>
<td>• Tobacco</td>
</tr>
<tr>
<td>• Antimicrobial</td>
<td>• Deadly nightshade</td>
</tr>
<tr>
<td>• Anti-inflammatory</td>
<td>• Coca</td>
</tr>
<tr>
<td>• Neurostimulant</td>
<td>• Arnica</td>
</tr>
<tr>
<td>• Antineoplastic</td>
<td>• Taxus species (taxol)</td>
</tr>
</tbody>
</table>
# Phenolics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Herb examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Examples: caffeic acid, cynarin, curcumin, arbutin, salicylates</td>
<td>• Bearberry</td>
</tr>
<tr>
<td>• Actions:</td>
<td>• Cayenne</td>
</tr>
<tr>
<td>– Bactericidal</td>
<td>• Meadowsweet</td>
</tr>
<tr>
<td>– Antihelminthic</td>
<td>• Willow</td>
</tr>
<tr>
<td>– Antiseptic</td>
<td>• Black Haw</td>
</tr>
<tr>
<td>– Analgesic</td>
<td></td>
</tr>
</tbody>
</table>
## Lignans

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Herb examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antioxidants</td>
<td>Milk thistle</td>
</tr>
<tr>
<td>Hepatoprotective / protective</td>
<td>May apple</td>
</tr>
<tr>
<td>Antiviral</td>
<td>Schisandra</td>
</tr>
<tr>
<td>Antineoplastic</td>
<td></td>
</tr>
</tbody>
</table>

Examples: Podophylotoxin, silymarin
# Coumarins

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Herb examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Antispasmodic</td>
<td>• Horse chestnut</td>
</tr>
<tr>
<td>• Anti-inflammatory</td>
<td>• Khella</td>
</tr>
<tr>
<td>• Vascular tonic</td>
<td>• Angelica</td>
</tr>
<tr>
<td>• Antifungal</td>
<td>• Sweet clover</td>
</tr>
</tbody>
</table>

Note: coumarin is not the same as coumadin!
# Tannins

<table>
<thead>
<tr>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sour tasting</td>
</tr>
<tr>
<td>• Astringent</td>
</tr>
<tr>
<td>• Antimicrobial</td>
</tr>
<tr>
<td>• Dries mucous membranes, slows uterine bleeding and bleeding from wounds, improves wound healing</td>
</tr>
<tr>
<td>• Use short term and not with meals, as can inhibit nutrient absorption</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Witch hazel</td>
</tr>
<tr>
<td>• Raspberry</td>
</tr>
<tr>
<td>• Bearberry</td>
</tr>
<tr>
<td>• Sweet chestnut</td>
</tr>
<tr>
<td>• Agrimony</td>
</tr>
</tbody>
</table>
Glycosides

- Increase membrane excitation, delay conductance
- Cardiac: increase force and speed of contraction, increase cardiac output, increase renal excretion, decrease heart rate
- Very narrow therapeutic window
  - Example: foxglove
# Quinones

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Herb examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Antiseptics</td>
<td>• Walnut</td>
</tr>
<tr>
<td>• Antioxidants</td>
<td>• Henna</td>
</tr>
<tr>
<td>• Antimicrobial</td>
<td>• Sundew</td>
</tr>
<tr>
<td>• Antifungal</td>
<td>• Aloe</td>
</tr>
<tr>
<td>• Pigments</td>
<td>• Buckthorn</td>
</tr>
<tr>
<td>• Laxatives</td>
<td>• Cascara</td>
</tr>
<tr>
<td></td>
<td>• Senna</td>
</tr>
</tbody>
</table>
# Flavonoids

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Herb examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Antioxidants</td>
<td>• Onion</td>
</tr>
<tr>
<td>• Tissue repair</td>
<td>• Marshmallow</td>
</tr>
<tr>
<td>• Anti-inflammatory</td>
<td>• Passionflower</td>
</tr>
<tr>
<td>• Improves endothelial function</td>
<td>• Evening primrose</td>
</tr>
<tr>
<td>• Examples: quercetin, rutin,</td>
<td>• Tea</td>
</tr>
<tr>
<td>anthocyanins, kaempferol</td>
<td>• Cranberry</td>
</tr>
<tr>
<td></td>
<td>• Garlic</td>
</tr>
<tr>
<td></td>
<td>• Yarrow</td>
</tr>
<tr>
<td></td>
<td>• Wormwood</td>
</tr>
</tbody>
</table>
## Isoflavones

### Characteristics

- Induce apoptosis
- Inhibit platelet aggregation
- Cause differentiation of cancer cells
- Reduce bioavailability of sex hormones

- Examples: genistein, daidzein

### Herb examples

- Soy
- Kudzu
- Red clover
- Licorice
- Alfalfa
- Chickweed
Polysaccharides

• Some are immunostimulating
  – Betaglucans in Maitake and other mushrooms
• Cholesterol lowering
• Glucose stabilizing
• Diuretic
# Gums/Mucilages

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Herb examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hydrophilic, cooling, protective</td>
<td>• Guar gum</td>
</tr>
<tr>
<td>• Gums: from sap where bark is damaged</td>
<td>• Sea weeds</td>
</tr>
<tr>
<td>• Mucilages: slimy, semisolid</td>
<td>• Marshmallow</td>
</tr>
<tr>
<td>– Inulin, pectin</td>
<td>• Psyllium seed</td>
</tr>
<tr>
<td></td>
<td>• Comfrey</td>
</tr>
<tr>
<td></td>
<td>• Slippery elm</td>
</tr>
</tbody>
</table>
# Saponins

## Characteristics
- A type of glycoside that lowers surface tension, soap-like.
- Bitter taste
- Adaptogenic
- Antifungal
- Capillary strengthening
- Diuretic
- Expectorant
- Hormone modulating
- Immunomodulating

## Herb examples
- Yarrow
- Burdock
- Astragalus
- Foxglove
- Gentian
- Licorice
- Ginsengs
- Yellow dock
- Sage
- Comfrey
- Dandelion
## Resins

### Characteristics
- Solid, brittle secretion after injury to plant
- Antiseptic
- Antifungal
- Expectorant
- Smooth muscle relaxer
- Anesthetic

### Herb examples
- Balsam
- May apple
- Kava
- Myrrh
- Cayenne
- Ginger
Herbs by action
Adaptogens

- Produce an increase in bodily resistance and vitality
- Helps body to adapt to and defend against effects of the environment
- Must:
  - Show a nonspecific activity
  - Have a normalizing influence
  - Be nontoxic
Moderate stress response

- Enable more rapid but less exaggerated response
- Allow a more sustained peak
- Foster a more gradual decline
## Adaptogens: examples

<table>
<thead>
<tr>
<th>American ginseng</th>
<th>He Shou Wu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amla</td>
<td>Holy Basil</td>
</tr>
<tr>
<td>Ashwagandha</td>
<td>Jiaogulan</td>
</tr>
<tr>
<td>Asian ginseng</td>
<td>Licorice</td>
</tr>
<tr>
<td>Astragalus</td>
<td>Lycium</td>
</tr>
<tr>
<td>Cordyceps</td>
<td>Reishi</td>
</tr>
<tr>
<td>Eleuthero</td>
<td>Rhodiola</td>
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<tr>
<td>Guduchi</td>
<td>Schisandra</td>
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<td></td>
<td>Shatavari</td>
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</tbody>
</table>
Alternatives

- Gradually restore proper function to the body
- Improve elimination via kidneys, liver, lungs, skin
- Stimulate digestive function
- Immunomodulators
- Supportive therapy
- Helpful for chronic inflammation, degenerative diseases
### Alteratives: examples

- Garlic
- Burdock
- Wild indigo
- Black cohosh
- Cleavers
- Blue flag (iris)
- Oregon grape

- Pulsatilla
- Yellow dock
- Blood root
- Figwort
- Sarsaparilla
- Red clover
- Nettle
Anticatarrhal

- Removes excess mucus
- Some make secretions less thick, easier to get rid of
- Important components include tannins, volatile oils and flavones/flavonoids
Anticatrarrhal: examples

<table>
<thead>
<tr>
<th>Left Column</th>
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</thead>
<tbody>
<tr>
<td>Yarrow</td>
<td>Goldenseal</td>
</tr>
<tr>
<td>Garlic</td>
<td>Hyssop</td>
</tr>
<tr>
<td>Marshmallow</td>
<td>Elecampagne</td>
</tr>
<tr>
<td>Bearberry</td>
<td>Peppermint</td>
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<tr>
<td>Wild indigo</td>
<td>Sage</td>
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<tr>
<td>Cayenne</td>
<td>Elder</td>
</tr>
<tr>
<td>Irish moss</td>
<td>Thyme</td>
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<tr>
<td>Boneset</td>
<td>Mullein</td>
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</tbody>
</table>
Anti-Inflammatory

• Remember that inflammation is an inherent part of the healing process; not always best to suppress it
• Salicylate containing—musculoskeletal issues
• Steroid precursors—autoimmune inflammation
• Essential oil rich plants—gi issues, respiratory issues, skin issues
### Anti-inflammatory: examples

<table>
<thead>
<tr>
<th>Examples</th>
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<tbody>
<tr>
<td>Yarrow</td>
<td>Black cohosh</td>
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<tr>
<td>Horse chestnut</td>
<td>Hawthorne</td>
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<tr>
<td>Lady’s mantle</td>
<td>Meadosweet</td>
</tr>
<tr>
<td>Marshmallow</td>
<td>Cleavers</td>
</tr>
<tr>
<td>Celery seed</td>
<td>Licorice</td>
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<tr>
<td>Pleurisy root</td>
<td>Witch hazel</td>
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<tr>
<td>Birch</td>
<td>St john wort</td>
</tr>
<tr>
<td>Borage</td>
<td>Hyssop</td>
</tr>
<tr>
<td>calendula</td>
<td>Plantain</td>
</tr>
<tr>
<td></td>
<td>willow</td>
</tr>
</tbody>
</table>
Antimicrobial

• May be direct interaction with pathogen, may be interaction with immune system

• Examples:
  – Tea tree interferes with pathogen’s metabolism
  – Echinacea stimulates immune system
  – Cranberry blocks adhesion of pathogenic bacteria to bladder wall
Antimicrobials: examples

- Rosemary
- Oregano
- Goldenseal
- St John Wort
- Calendula
- Gentian
- Ruta
- Salvia

- Garlic
- Baptisia
- Eucalyptus
- Juniper
- Thyme
- Ligusticum
Antirheumatic

- Description of outcome, not specific action
- Possible mechanisms
  - Anti-inflammatory
  - Alternative
  - Diuretic
Antirheumatic: examples

- Yarrow
- Angelica
- Celery seed
- Burdock
- Bearberry
- Horseradish
- Arnica
- Mugwort
- Birch

- Cayenne
- Blue cohosh
- Black cohosh
- Wild yam
- Boneset
- Meadowsweet
- Wintergreen
- Devil’s claw
- Parsley
Antispasmodics

- Reduce muscular tension in the body
- Some are also nervines, easing psychological tension as well
- Relax autonomic nervous system without affecting CNS, so not sedating
Antispasmodics: examples

<table>
<thead>
<tr>
<th>Left Column</th>
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<tbody>
<tr>
<td>Angelica</td>
<td>Motherwort</td>
</tr>
<tr>
<td>Mugwort</td>
<td>Lavender</td>
</tr>
<tr>
<td>Black cohosh</td>
<td>Lemon balm</td>
</tr>
<tr>
<td>Wild yam</td>
<td>Kava</td>
</tr>
<tr>
<td>California poppy</td>
<td>Passionflower</td>
</tr>
<tr>
<td>Sundew</td>
<td>Rosemary</td>
</tr>
<tr>
<td>Licorice</td>
<td>Feverfew</td>
</tr>
<tr>
<td>St john wort</td>
<td></td>
</tr>
</tbody>
</table>
Astringents

- Tightens tissues by denaturing proteins
- Drying effect
- Reduces inflammation, helps with wound repair, stops bleeding
- Work via tannins
Astringent examples

- Yarrow
- Horse chesnut
- Agrimony
- Tea (*Camillia sinensis*)
- Shepard’s purse
- Witch hazel
- Elecampane
- Bugleweed
- Plantain
- Wild cherry bark
- Rhubarb
- Rosemary
- Raspberry
- Sage
- Comfrey
- Mullein
Bitters

- Have a bitter taste (from monoterpenes, sesquiterpenes, alkaloids)
- Stimulate appetite
- Improves digestion by stimulating pancreatic, liver and duodenal activity
- Improves flow of bile
- Improves detoxification pathways phase I and II
- Improves regulation of blood glucose, insulin, glucagon
Bitters: examples

- Wormwood
- Mugwort
- Gentian
- Horehound
- Rue
- Dandelion

- Yarrow
- Artemisia
- Bearberry
- Goldenseal
- Chamomile
- Tansy
Cardiac Herbs

• Cardiotonic
  – Do not contain cardiac glycosides
• Cardioactive
  – Contain cardiac glycosides
• Diuretics
  – Improve blood flow through kidneys
• Circulatory stimulants
  – Increase peripheral blood flow
• Varicosity remedies
Cardiac herb examples

- **Cardiotonics**
  - Hawthorn, linden, garlic, motherwort
- **Cardioactives**
  - Lilly of the valley, foxglove
- **Diuretics**
  - Broom, yarrow
- **Circulatory stimulants**
  - Ginger, cayenne
- **Varicosity remedies**
  - Hawthorn, horse chestnut, linden
Carminatives

- Ease flatulence
- Not all have the same mode of action
- Activity appears related to volatile oils
- Local anti-inflammatory and antispasmodic activity on mucosal lining
Carminatives: examples

- Garlic
- Dill
- Celery seed
- Wormwood
- Caraway
- Cinnamon
- Cardamom
- Fennel

- Wintergreen
- Hops
- Chamomile
- Lemon balm
- Peppermint
- Aniseed
- Parsley
- Sage
- Ginger
Cholagogue

• Stimulate the flow of bile from the liver
• Indications
  – Long term maintenance of dyskinesia of bile duct
  – Jaundice, mild hepatitis
  – Symptoms of indigestion
• Contraindications
  – Large gallstones
  – Acute cholecystitis
  – Acute viral hepatitis
Cholagogue examples

- Wild indigo
- Celandine
- Artichoke
- Wild yam
- Gentian
- Goldenseal
- Butternut

- Oregon grape
- Lemon balm
- Rosemary
- Yellow dock
- Sage
- Dandelion
- Black root
Demulcent

• Rich in mucilages
• Soothe and protect irritated, inflamed tissue
• Action not always explained by pharmacology (mucilages break down in stomach, so how do they have activity in the lung?)
• Actions include reducing irritation in gi tract, prevents diarrhea, ease coughing, decrease painful bladder spasms
## Demulcent examples

- Marshmallow
- Oat
- Irish moss
- Couch grass
- Licorice
- Flax

- Comfrey
- Coltsfoot
- Slippery elm
- Mullein
- Cornsilk
- Mallow
Diuretic

- Increase kidney’s rate of urine production
- Remove excess fluid
- Increase kidney blood flow
  - Scotch broom, some cardiac herbs
- Reduce water reabsorption in nephrons
Diuretic examples

- Yarrow
- Agrimony
- Celery seed
- Burdock
- Kola
- Lily of the valley
- Hawthorne
- Scotch broom

- Wild carrot
- Horsetail
- Gravel root
- Cleavers
- Pellitory of the wall
- Parsley
- Dandelion
- Corn silk
• Strictly speaking, those herbs that stimulate menstrual flow
• Other herbs have uterine activity or tonic action that doesn’t fit into classic definition
• Tonics
  – Blue and black cohosh, Raspberry leaf
• Hormone normalizing herbs
  – chasteberry
• Uterine astringents
  – Yarrow, lady’s mantle, shepard’s purse, periwinkle
• Uterine demulcents
  – Blue cohosh
True emmenogogue examples

- Yarrow
- Mugwort
- Partridgeberry
Expectorants

• Facilitate removal of bronchial secretions
• Stimulating
  – Irritate bronchioles
  – Liquefy sputum
• Relaxing
  – Soothe bronchiole spasm
  – Loosen mucus secretions
### Expectorant examples

<table>
<thead>
<tr>
<th>Stimulating</th>
<th>Relaxing</th>
</tr>
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<tbody>
<tr>
<td>• Cowslip</td>
<td>• Marshmallow</td>
</tr>
<tr>
<td>• Ipecac</td>
<td>• Pleurisy root</td>
</tr>
<tr>
<td>• Elecampane</td>
<td>• Irish moss</td>
</tr>
<tr>
<td>• Blood root</td>
<td>• Licorice</td>
</tr>
<tr>
<td>• Squill</td>
<td>• Hyssop</td>
</tr>
<tr>
<td>• Sweet violet</td>
<td>• lobelia</td>
</tr>
</tbody>
</table>
Hypnotics

- Nervines that induce deep sleep
- Examples:
  - Mugwort
  - California poppy
  - Hops
  - Motherwort
  - Chamomile
  - Passionflower
  - Jamaica dogwood
  - Valerian
  - Vervain
Hypotensives

• Mild
  – Onion, Blue cohosh, black cohosh, nettles, Vervain

• Moderate
  – Yarrow, motherwort, passionflower, parsley, skullcap, valerian, black haw

• Strong
  – Garlic, hawthorne, linden, fenugreek, cramp bark, mistletoe
Nervine

- Tonic
  - Milky oats, St John Wort, skullcap
- Relaxant
  - Kava, skullcap, valerian, vervain
- Stimulant
  - Coffee, tea, kola
- Hypnotic
  - Hops, passionflower, valerian
- Antidepressant
  - Mugwort, St John wort
- Adaptogenic
  - Ginsengs
- Analgesic
  - Jamaica dogwood, Gelsemium
Plants and cases
Chamomile
(Matricaria recutita)

- Nervine relaxant, antispasmodic, anti-inflammatory, antiseptic
- Used for colic, IBS, dyspepsia, mild sleep issues, anxiety
- Topical: inflammation of skin
Chamomile for sleep

• Chamomile extract (6:1) in 34 participants with chronic primary insomnia
• Mean decreased sleep latency of >15 min, 1/3 less nighttime awakening
• Modest changes in sleep latency and nighttime awakenings comparable with benzodiazepines, non-benzodiazepines and antidepressants

  » Zick et al, BMC Complement Alt Med 2011; 11:78
  » Buscemi et al, Gen Intern Med 2007; 22(9):1335-1350
Lemon Balm  
(*Melissa officinalis*)

- Eases anxiety, boosts mood
- German Commission E: “insomnia of nervous origin”
- Sedative, anxiolytic
- Carminitive, antiviral
  - Kennedy, et al.  
St John Wort

(*Hypericum Perforatum*)

- Superior to placebo in those with major depression
- Effect similar to standard antidepressants
- Fewer side effects than standard antidepressants
- Issue with interactions (CyP3A4)
Skullcap

(*Scutellaria lateriflora*)

- For excitability, exhaustion, anxiety, agitation, insomnia, muscle twitching
- Antiinflammatory, antispasmodic

— *Phytother Res.*, 2013 Jul 22
Hops

(*Humulus lupis*)

- Anxiety, restlessness, insomnia
- Antibacterial
- Helpful for hot flashes
Ashwagandha

(Withania somnifera)

- Calming
- Can stimulate thyroid function
- Especially good for immune conditions of joints, like RA and other autoimmune conditions
- Can reduce cortisol levels
- Antitumor activity and prevents leukopenia
  
  - Prog Neuropsychopharmacol Biol Psychiatry. 2008 Jul 1;32(5):1093-105
  - J Ayurveda Integr Med, 2012 Jul-Sep; 3(3):111-4
Triphala

*(Termianlia chebula, T.belerica, amla)*

- Traditional combination of fruits from 3 trees
- Constipation (esp. laxative-dependant)
- Diarrhea and inflammation of bowel
- IBS
- Diabetes, types I and II
- Inhibits oxidation of cholesterol
- Prevents cataracts
- Enhances immune function
  - J Alt Comp Med, 2010;16(12):1301-8
  - Indian J Pharm Sci, 2014 Nov-Dec;76(6):467-75
Berberines

- Found in golden seal, oregon grape
- Broad-spectrum antibiotic
- Anti-candidal
- Anti-viral
- Restores intestinal barrier function from proinflammatory cytokines

Turmeric

(*Curcuma longa*)

- Inhibits activation of transcription factors
- Downregulates COX 2 by downregulating NfKb
- Benefits shown for Crohn’s, ulcerative colitis, IBS
- Hepatoprotective
- Inhibits Th2 T lymphocyte hyperactivity (seasonal allergies, autoimmune issues)
  - Mol Nutr Food Res, 2013, 57, 1529-42
Oregano
(Oreganum vulgare)

- Antiseptic
- Antioxidant
- Antimicrobial
  - Activity vs Listeria
  - Activity vs MRSA
    - Daily Mail, Nov 4 2008
Hawthorne
(*Crataegus*)

- Cardiotonic,
- Hypotensive
- Peripheral vasodilator
- Antiarrhythmic
  - *Phytochemistry*. 2012 Jul;79:5-26
Foxglove
*(Digitalis purpurea)*

- Inhibits sodium-potassium ATPase
- Source of cardiac glycosides
- Narrow therapeutic window
Globe Artichoke
(Cynara cardunculus)

- Inhibits HMG CoA-reductase
- Strong antioxidant
- Also helpful for dyspepsia and IBS
- Liver protective
Marshmallow
(Althaea officinalis)

- Soothes irritated lungs, gi tract
- Forms gel when mixed with water
- No contraindications to use
  - J Ethnopharmacol. 2010 Jan 8;127(1):62-9
Hyssop
*(Hyssopus officinalis)*

- Expectorant
- Diaphoretic
- Externally used for wound healing
Garlic
*(Allium sativum)*

- Bacterial lung infections
- Bronchitis, influenza
- Mild hypertension
- Decreases total and LDL cholesterol
- Modestly inhibits platelet aggregation
- Antiamoebic, antiprotozoal
- Otitis media
  - *Diabetes Metab Syndr Obes*, 2013;6:49-56
Thyme
(*Thymus vulgaris*)

- Antiviral/antibacterial expectorant
- Mild bronchial dilator
- Influenza, fifth disease
- Antifungal (sinusitis, vaginitis)
- Carminative, IBS
- Topical analgesic (EO)
- Urinary antiseptic

- *Toxicon*, 2011 Jun;57(7-80:984-91
Andrographis

*(Andrographis paniculata)*

- Viral and bacterial infections
- Amoebic dysentery
- Hepatitis A
- Ulcerative colitis
- Bronchitis
- Pyelonephritis, uti
- Anthelmintic
- Bitter tonic
- Vitiligo

- *Planta Med*, 2004Apr;70(4)293-8
American Ginseng
(Panax quinquefolius)

- Nourishing, mildly stimulating adaptogen
- Insomnia
- Chronic fatigue
- Less stimulating than Asian ginseng
- In TCM, lung tonic used for allergies, asthma, COPD

- Phytomedicine;2012;19:494-505
Black Cohosh
(Actaea racemosa)

- NOT “the menopause herb”
- Fibromyalgia and bursitis
- Uterine pain
- “Doom and gloom” hormonal depression
- Insomnia associated with menopause
  - Maturitas, 2003, Mar 14; 44 Suppl 1: 559-65
  - Climacteric, 2015 Aug; 18(4) 559-67
Astragalus

*(Astragalus membranaceus)*

- Immune amphoteric (for excess and deficient states)
- Colds/flu
- Cardiovascular tonic
- Nephroprotective vs cisplatin and others
  - Evid-Based Com Alt Med, 2013;654643, 9 pp
Reishi
(Ganoderma lucidum)

• Calming adaptogen
• Autoimmune issues
• Stabilizes mast cells, reduces histamine response
• Increases TNF, IL1, IL6
• Nervine
• Altitude sickness
  • Phytother Res, 2008 May;22(5):614-9
  • Int Arch Allergy Immunol, 2007;143(1):21-30
Horny Goat Weed
*(Epimedium grandiflorum)*

- Impotence
- Low sperm count, poor motility
- Pain in low back and knees
- Increases peripheral blood flow
- Raynaud’s
  - J Ethnopharmacol, 2011;134:519-41
Case #1

48 yr old female with slightly irregular menses (skips months occasionally), some increased PMS/moodiness and anxiety of new onset which is much worse around her period. Sleep disruption only the week prior to menses. Recent pap showed positive HPV for the first time (no new partners)
Case #2

35 yr female, 2 months postpartum, c/o joint pain, fatigue, sleeplessness. “Thinks” she felt some night sweats but not sure. States that she’s not sure what to think of the sleeplessness since her child is young, but her first was “easier”. No problems with constipation; appropriate amount of hair loss for postpartum. Also mentioned new onset “allergies” with eye discomfort and runny nose most mornings.
Case #3

- 40 yr old male c/o flu-like symptoms (cough, myalgia, elevated temps). Also concerned about mildly elevated bp and occasional episodes of erectile dysfunction. He works on the floor of the stock exchange and his wife is a physician; they have a 5 yr old and a 3 yr old.
35 yr old male with GERD for the past 6 months; on omeprazole bid. Also concerned about new onset hypertension and poor sleep (falls asleep easily and wakes at 2 am). Newly married; issues with inlaws. New job, and recently moved into new home.
• **Suggested Reading List for Botanical Medicine**


HARD TIMES REQUIRE FURIOUS DANCING