

Setting up a Pharmacy for the Herbal Clinic

- Are you a “UPS Herbalist” (Ed Smith)



Are you a Wildcrafting Herbalist?

- Freshness and purity
- Cultivated vs. wild-harvested
- Roads, factories, chemicals, radiation
- Pilgrimage to the mountains
- Growing your own—resources
 - Gardens of the Blue Ridge (www.gardensoftheblueridge.com)
 - Richter's (www.richters.com)
 - Horizon Herbs (www.horizonherbs.com)



Hand-Crafted Products

- Bulk teas
 - May be most potent form, but taste and convenience are issues
- Hydroalcoholic extracts (tinctures, etc.)
 - Stable, convenient, but taste and alcohol issues
- Syrups
 - Excellent for children, respiratory issues, for people who don't like pills
- Oils
 - Mostly external applications, local treatment
- Salves
 - Mostly for wounds, abrasions, burns
- Plasters
 - Local treatment, perhaps underused

Herb Product Sources

Material	Presentation	Quality
Powdered herbs	Capsules, tablets	Not well absorbed Susceptible to moisture, oxygen
Tinctures or liquid extracts	1 or 2 ounce amber dropper bottles	More concentrated and bioavailable than powders; more stable; usually unstandardized
Powdered extracts	Capsules, tablets	Not consistent Standards vary Most popular for mass market

Quality Issues

- Standardization is essential
- Modern methods include controlling for growing conditions, genetic selection, cloning, cell cultures
- Chemical analysis with HPLC, GC-MS
- Screening several constituent groups for biological activity
- European standard is whole herb

Standardization

- Simply insuring that a product has the labeled ingredients, is consistent in its ingredients and effect from time to time
- Consistency in potency, some knowledge about stability of active compounds; packaging should help preserve activity
- Two types:
 - Industrial standardization: necessary for mass produced products shipped internationally
 - Traditional standardization: the interconnection between a traditional herbal practitioner and a patient

Industrial Standardization

- Needed for mass-produced products to insure consistency of identified active ingredients
- Standardization of herbal remedies is difficult and should take into account
 - Proper identification of plant material
 - Chemotype, growing conditions
 - Careful homogeneous drying
 - Particle size for extraction, solvents
 - Consistent extraction methods
 - Processing into capsules, Packaging, storage condition

Standardization in Europe

- Standardization implies more than botanical and chemical identification
- Standardization signifies the body of information and controls that are necessary to guarantee constancy of composition, and preferably activity—hence the standardized quality—of a phytopharmaceutical drug (European view)

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Methods of Standardization

- GC/MS
- LC/MS (HPLC)
- Microscopic analysis
- Botanical analysis—taxonomic ID
- DNA analysis, for instance of an herb mixture to see if a particular herb is present, check for purity
- Screening for pesticides, herbicides, heavy metals, other contaminants

Botanical Substitutions

- Same genus, different species?
 - Valeriana, Arnica, Gentiana, Achillea, etc.
- Different genus, same action, energy
 - Chinese herbal medicine
- Same species grown in different places
 - Astragalus, Codonopsis
- Wild vs. cultivated
 - Arnica, Valeriana, Ligusticum (osha)

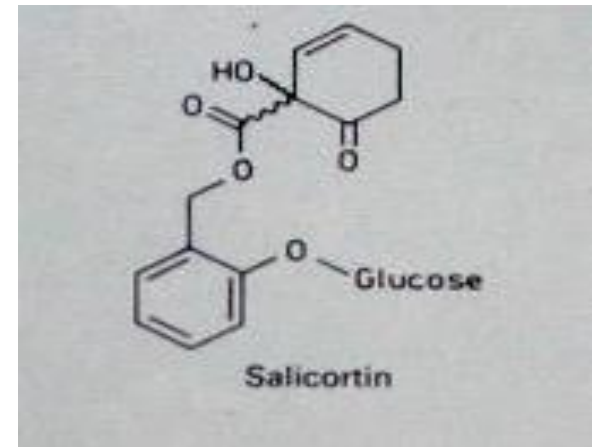


Purity

- Micro screening
- Screening for pesticides, herbicides
- Heavy metals
- Sulfides to preserve color
- Fumigation (methyl bromide)
- Irradiation
- Freezing
- Spiking (caffeine, salicylates)

Commercial Herb Products

- Some adulteration and substitution still takes place
- Spiking common in some herbs (willow bark)
- Fillers--maltodextrin
- Questions about standardized herbs
- Dried teas as an alternative
- Tinctures



Standardized Extracts

- Whole plant vs. purified compounds, “pumped up”
- Solvents
- Enlightened chemists—the whole plant is the standard
- Fingerprinting
- Bio-screening with in vitro assays



Whole Plant vs. “White Drug”

- German studies show that some constituents are significantly better absorbed from the gut when in the presence of other compounds, like anthocyanidins
- Synergistic effects of compounds in a plant
- Reduction of toxicity with the whole herb
- Better efficacy
- Reduced drug resistance developed in pathogens exposed to whole herb complex

Traditional Standardization

- Community herbalism
- Traditional knowledge, passed on generation to generation
- Knowledge about
 - Selecting the most potent plants, the right species or acceptable substitutes
 - When to harvest, correct parts of plants
 - Processing the herbs, preservation
 - Extraction
 - Interaction with patients in community
 - Traditional diagnosis
 - Matching the herb preparation to the patient

Chinese Herb Quality

- From China—50% still wildcrafted
- Of the other 50%, about 50% are grown with synthetic fertilizers, chemicals
- Organic just starting, but some are available in North America
- China's land—an environmental disaster
- Products are “knocked-off”
- Irregular manufacturing practices
- Potency, extraction ratio not given
- Binders, fillers, added drugs, dyes not disclosed
- Heavy metals, pharmaceuticals



Menstruum Choice

- Resinous herbs—tinctures
- Glycosides, saponins, carbohydrates, proteins
- Melanin, allantoin (not water or alcohol-soluble)
- Cost, environmental issues, organic
- Preserving delicate constituents—beta glucans, etc.



Tinctures

- Best for acute conditions, resinous herbs?
- Maceration vs. percolation
- Organic alcohol
- Extraction ratio
- Concentration, dose issues
 - 1 ounce (30 mL) of a 1:5 echinacea tincture represents 6 grams of fresh (or dry) root
 - Daily dose of a single Chinese herb: 6-9 gms
- Effectiveness of extraction method
- Stability, shelf-life
- Pharmacology, toxicology of ethyl alcohol
- Absorption from gut

Dried Teas

- Better for tonics?
- Capsules and tablets—the taste factor
- Most concentrated for home or small business extraction
- Traditional use in China
- Stability good
- Commercial sources—buy in bulk

Dried Teas, Bulk Sources

- Mayway (Plum Flower Brand) 800 262 9929
- Brucia/Naturex (530-676-2774)
www.naturex.com
- Mushroom extracts—JHS Products,
Eugene; Mushroom Harvest;
www.nammex.com

Dried Teas—Instructions

- Simmer herbs (1/3 pot $\frac{3}{4}$ filled with water) for 1-2 hours to a strong, dark tea
- Remove herbs, press if possible
- Simmer for 1-3 more hours in uncovered pot until only an inch is left in the bottom (liquid tea concentrate)
- Stir in carrier (gum arabic, nettle leaf powder, eleuthero root powder, maltose, lactose, or cellulose powder) until smoothie consistency
- Pour into fruit leather trays of a dehydrator and dry under 100 deg. F. (may take overnight)
- Powder the wafer, or break it up and eat the herb chips

Tinctures, Dried Teas

Feature	Tinctures	Dried Teas
Concentration	Weak to moderate	Moderate to highly concentrated
Stability	2-3 years (watch out for droppers) Avoid light, heat	2-3 years or longer (avoid heat, moisture)
Preservation of actives	Fair to good Better for capturing lipophilic constituents	Fair to good—better for minerals, polysaccharides
Palatability	Poor to fair	Capsules: not an issue Instant tea: poor to fair
Convenience	Good	Fair to good
Compliance	Moderate	Moderate
Ease of manufacture	Good	Fair to good

Preparation Choice

- Taste—good, but not too good
- Tinctures for acute conditions (short-term use)
- Teas for digestion, respiratory issues, up to 2-4 weeks of use
- Powdered herbs in capsules for selected herbs—cayenne, goldenseal, ginger, ginseng
- Dried teas in capsules for chronic conditions requiring moderately concentrated herbs

Formulation

- Has to taste pretty good
- Dose form matched for patient preference and best for condition
- Cost is usually a factor
- Lead herb is one with “presence,” strong traditions, scientific investigation
- Less well-known herbs, such as local herbs can be supportive
- Whole herbs, local herbs, organic herbs
- Keep it simple, 2-5 herbs for a formula
- Change it with as patient’s condition changes, usually every other week or so if possible

Relative Costs

- Tinctures (at a therapeutic dose, 5 mL, qid)
 - Commercial source—about \$5-10/day
 - Made by practitioner—could be \$5/day up to \$15 if formulation cost is included
- Bulk herbs to make teas—most cost effective dose form/amount of constituents (about \$2-\$5/day)
- Dried teas in bulk to make instant tea—about \$4-\$10/day without or with formulation cost
- Patent formulas--\$2 to \$10/day

The End

- See handout, “Clinical extracts, revision 8”
- Main herbal pharmacy I use
- One I set up at a holistic pharmacist in Davis