

American Medicinal Plants

North and South America

- The last major land masses to be colonized by humans (~15-20,000BP)
- Colonists arrived in at least 3 major waves from Northern Asia (Siberia/China)
- Medicinal Traditions are most like those of Asia but are highly variable
- Excessively stereotyped as “Shamanistic”
- Only North American plants discussed

MIGRATIONS IN THE AMERICAS



Major Families of Medicinal Plants

- Same as in other parts of the earth
- Major families of plants in flora:
 - Include many endemic families
 - Include many paired genera with Asia
- Much studied by Dan Moerman (U.Mich.)
 - Phenomenon observed:

Cactaceae

- *Carnegiea gigantea* (Sahuaro)
- *Echinocactus polycephalus* (Cottontop Cactus)
- *Echinocactus williamsii* (Mescal)
- *Echinocereus coccineus* (Hedgehog Crimson Cereus)
- *Echinocereus engelmannii* (Hedgehog Cactus)
- *Echinocereus fendleri* (Desert Strawberry)
- *Echinocereus polyacanthus* (Salmon-flowered Hedgehog)
- *Echinocereus rigidissimus* (Rainbow Cactus)
- *Echinocereus triglochidiatus* (Isleta Cactus)
- *Escobaria vivipara* (Cushion Cactus)
- *Ferocactus coulteri* (Barrel Cactus)
- *Ferocactus wislizeni* (Barrel Cactus)
- *Machaerocereus eruca*
- *Machaerocereus gummosus* (Pitahaya Agria)
- *Mammillaria dioica* (Fishhook Cactus)

Cactaceae

- *Mammillaria grahamii* (Sunset Cactus)
- *Mammillaria mainiae* (Horned Toad Cactus)
- *Mammillaria wrightii*
- *Myrtillocactus cochal* (Cochal)
- *Opuntia X kelvinensis* (Cholla)
- *Opuntia X occidentalis* (Prickly Pear)
- *Opuntia acanthocarpa* (Buckhorn Cholla)
- *Opuntia arbuscula* (Pencil Cholla)
- *Opuntia basilaris* (Beavertail)
- *Opuntia bigelovii* (Jumping Cholla)
- *Opuntia caseyi*
- *Opuntia chlorotica*
- *Opuntia clavata*
- *Opuntia echinocarpa* (Cholla)
- *Opuntia echinocarpa*
- *Opuntia engelmannii* (Common Prickly Pear)

Cactaceae

- *Opuntia erinacea* (Prickly Pear)
- *Opuntia ficus-indica* (Tuna)
- *Opuntia fragilis* (Brittle Prickly Pear Cactus)
- *Opuntia fulgida* (Jumping Cholla)
- *Opuntia humifusa* (Prickly Pear)
- *Opuntia imbricata* (Cane Cactus)
- *Opuntia leptocaulis* (Turkey Cactus)
- *Opuntia macrorhiza* (Prickly Pear)
- *Opuntia parryi*
- *Opuntia phaeacantha* (Prickly Pear)
- *Opuntia polyacantha* (Prickly Pear)
- *Opuntia ramosissima* (Pencil Cactus)
- *Opuntia spinosior*
- *Opuntia tunicata* (Pa-ni-ni)
- *Opuntia versicolor* (Many Colored Tree Cholla)
- *Opuntia whipplei* (Cane Cactus)

Cactaceae

- 545+ records in database [www.umd.umich.edu/cgi-bin/herb]
- Primarily used as FOOD
- Some used as external poultices, laxatives, galactagogues
- Exception: (24 references)
- *Lophophora williamsii* (Peyote)
 - Ceremonial sacrament/narcotic
 - Charm
 - Purgative/laxative, intestinal disorders
 - Tuberculosis, venereal disease, colds, influenza, scarlet fever, pneumonia, fevers
 - Poultice for rheumatic pains, cuts and bruises

Araliaceae

- *Aralia californica* (California Spikenard)
- *Aralia hispida* (Bristly Sarsaparilla)
- *Aralia nudicaulis* (Wild Sarsaparilla)
- *Aralia racemosa* (Spikenard)
- *Aralia spinosa* (Devil's Walking Stick)
- *Oplopanax horridus* (Devil's Club)
- *Panax quinquefolius* (American Ginseng)
- *Panax trifolius* (Dwarf Ginseng)
- 455 records in database [www.umd.umich.edu/cgi-bin/herb]
- Mostly roots are used.
- Tonic, stimulation of blood flow, increase in physical activity, treatment of diabetes, treatment of external infections, increase fertility, love charms, etc.

Oplopanax

- *O. elatus* (China & Korea)
 - Leaf: tonic
 - Root: anti-tussive, febrifuge
- *O. japonicus* (China & Japan)
 - Root: anti-tussive, febrifuge
- *O. horridus* (Western North America)
 - Root: tonic, diabetes

Oplopanax

- Biological Activity Reported:
 - Analgesia in mice: essential oil
 - Anticonvulsant in mice: essential oil
 - Antipyretic in mice: essential oil
- 77 compounds isolated all from Japanese & Chinese species

Native American Plants in Modern Herbal Medicine

<u>Plant</u>	<u>Part</u>
American Ginseng	Root
Black Cohosh	Root
Blue Cohosh	Root
Cranberry	Fruit
Echinacea	Whole Plant
Goldenseal	Root
Saw Palmetto	Fruit

American Ginseng

- *Panax quinquefolium* Araliaceae
- [*Panax trifolius* (Dwarf Ginseng)]
- Root used
- Used as an adaptogen, pain relief, and signature plant in many Native American traditions
- Also is an important ceremonial plant



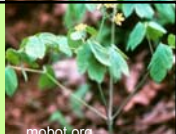
Black Cohosh

- *Cimicifuga racemosa* Ranunculaceae
- Rhizome/root used
- Treatment of menopausal symptoms, PMS, and dysmenorrhea
- NON-Estrogenic effect possibly due to:
 - Actein (a triterpene glycoside)
 - Isoferulic acid (a phenylpropane)



Blue Cohosh

- *Caulophyllum thalictroides* Berberidaceae
- Root used
- Used to treat menstrual cramps and to stimulate contractions OR slow contractions.
- Oxytocic and weak estrogenic effects
- Possibly due to:
 - Anagyrine (alkaloid)
 - Caulosapogenin (triterpene saponin)



Cranberry

- *Vaccinium macrocarpon* Ericaceae
- Fruits used
- Used to treat urinary tract infections
- Minimal tradition of usage for disease
- Effects clear but active constituents not clear



Saw Palmetto

- *Serenoa repens* Arecaceae
- Fruits used
- Used to treat enlarged prostate and irritable bladder
- Activity probably due to fatty acids or sterols
- NO tradition of use in American medicine.....
- Began in Germany!

