Herbal Bitters

Biochemical:
The bitter taste is usually due to ‘bitter principles’ such as volatile oils, monoterpenes iridoids, sequiterpenes, and alkaloids (especially in the yellow colored plants; berberine alkaloids).

About alkaloids:
Alkaloids are not widespread in the plant realm. They are easily isolated compounds; these were the earliest major drugs obtained from plants. One of the first was morphine from opium poppy in 1806. This method of extraction was then used for numerous other plants, such as strychnine from nux vomica, caffeine from coffee, quinine from chinchona, atropine from belladonna, cocaine from coca, and ephedrine from ephedra. These discoveries led to the development of the modern pharmaceutical companies (Merck). This work gave rise to the modern view of plant medicines. Because alkaloids are so potent, researchers developed the view that the isolated active principle is just as useful as the whole herb (or better, because it can be quantified more accurately). Secondly, these plants were not used as foods (except for coffee and coca), and their toxicity made them distinct from foods. Therefore, a separation arose between foods and drugs. This distinction was generally lacking in tradition cultures.

Alkaloids generally have a very fast action on the body, being quickly absorbed by the digestive system, and quickly eliminated. They generally affect the body through the central nervous system. Most have a biphasic action: at low doses they stimulate the heart and respiratory system, and improve their functioning. At higher doses, they become sedatives, with a calming effect, which continues as the dose increases, until toxic doses are reached. Side effects of alkaloids are commonly nausea and vomiting (which is sometimes used, as in ipecac or lobelia). Some alkaloids are relatively nontoxic, and others are highly toxic.

Effects of alkaloids:
Chologogue: stimulate bile secretion
Antibacterial: strong antibacterial effects. Alkaloids have a wide range of antibacterial effectiveness; however, resistance can develop to isolated alkaloids, as with antibiotics, so it is best to use the whole plant.

Fluid detoxifying: promote elimination of uric acid (responsible for some pain conditions in the body, and can create gout if it accumulates).

Anti-inflammatory, analgesic: especially for joint swelling; arthritis

Immune stimulating: promote activity of white blood cells.

Anti-cancer: inhibit tumor cells. Western medicine recognizes the antitumor properties of alkaloids; several of the original chemotherapeutic agents were derived from plants.

Vasodilating: hypotensive

Antitussive

Examples of high alkaloid plants: golden seal, coptis, scutellaria

Ayurvedic & Chinese:
The bitter flavor is composed of air and space elements. Of all the flavors, is coldest in nature, lightest, and moderately dry. Strongly increases vata, strongly decreases pitta, moderately decreases kapha. It is needed in small quantities for each humor, more for pitta, moderate for kapha, and less for vata. In Ayurveda bitters could be said to promote the downward moving wind, or “Apana Vata”.

Bitter herbs are necessary for detoxification, but are also depleting. Bitter is the least nutritive flavor, but the most commonly used medicinally.

Chinese medicine considers bitter to be yin, cooling, clearing. The Nei Ching says that bitter substances drain and dry. In TCM they regulate the flow of “Liver Qi” in order to influence the Large Intestine.

Primary bitter herbs
Gentian, aloe, dandelion leaf, artichoke leaf, yarrow, boneset, Oregon grape root, chaparral, wormwood, barberry, goldenseal, chicory, hops, mugwort, blessed thistle.

Bitters range from mild (yarrow, dandelion leaf) to intense (gentian, wormwood).

Medicinal effects of bitter herbs:
Bitter herbs produce a wide range of physiological effects.

Digestive stimulant:
Bitters are of major importance to the digestive system and illnesses rooted in poor digestion. Many digestive conditions of sluggish elimination and poor absorption of nutrients are due to weak secretions from the digestive organs. Bitter herbs are used traditionally to activate digestive secretions and improve glandular function.

Bitters work in the digestive system by stimulating sensory responses in the mouth. The sensation of bitterness is conveyed to the central nervous system, which then activates the digestive hormone gastrin. Gastrin in turn leads to a variety of reactions, including:

- **Stimulation of flow of digestive juices from pancreas, duodenum, and liver** (pancreatic enzymes, bile). By stimulating the flow of digestive juices, bitters assist in breaking down foods, and increase the flow of peristalsis. This is beneficial for a wide range of conditions arising from weakness or allergic conditions rooted in maldigestion and malabsorption.
- **Stimulation of appetite** (beneficial for a wide range of conditions). Restores digestive agni, awakens sense of taste.
- **Regulatory action on pancreatic secretions** (which regulate blood sugar, insulin, glucagon). May upset blood sugar balance in diabetics.
- **Assist liver in detoxification** (by promoting flow of bile)
- **Assist gut wall repair damage** through stimulating self-repair.

**Cholagogue**
Most bitters are cholagogues, which increase the production and release of bile. Because these herbs stimulate bile secretion they also stimulate peristalsis and are therefore somewhat laxative in nature. They help to improve hepatic function and can increase a person’s ability to digest fats. Chologogue herbs include dandelion root, artichoke leaf, Oregon grape root, celandine, gentian and yellow dock.

**Tonic:**
In small amounts the bitter taste is a digestive tonic (but can damage the digestive power in large amounts). “Tonic” in Western herbology generally refers to bitters, but in TCM and Ayurveda it refers to nutritive demulcent and adaptogenic herbs. There are many overlapping areas of therapeutics between bitters and tonics.

Some bitters have a marked antidepressant effect as a result of tonic effect on consciousness, such as gentian and mugwort.
Antibiotic, antiviral, antiparasitic

Immune enhancing:
Bitters stimulate the release of antibodies (activates immunity). Recent studies show bitter herbs stimulate immune function.

Circulatory cleanser:
Systemically, bitters support healthy activity of the heart and circulation in general. Bitter herbs clear the veins and arteries of cholesterol, easing the heart and benefiting circulation. Most of the powerful heart medicines are bitter, such as digitalis and lily of the valley.

Respiratory stimulant:
Bitter herbs dispel obstruction and increases the flow of air in the lungs.

Alterative (blood purifying), detoxifying:
Bitters are cleansing and detoxifying. They relieve itching, inflammatory skin conditions, and thirst. Bitter herbs promote digestion of toxins, remove pus, and treat skin diseases. They scrape away fat, remove toxic accumulations in the fat, marrow, lymph, sweat, urine, feces, pitta, and kapha.

Antipyretic, febrifuge:
Bitters clear fevers and infections, relieve burning sensations.

Excess bitter:
When used in excess, because of its dry and rough qualities, bitter causes a wasting away of all the tissue elements of the body. It produces roughness in the vessels, takes away strength, causes emaciation, fatigue, dizziness, dryness of the mouth and other vata diseases.

Contraindications:
It is contraindicated in nervous (vata) diseases.

Combining:
Pungent and bitter combine well (as in golden seal and cayenne) for a drying and cleansing action.