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FILE: ■ Bitters
■ Herbal Bitters

HC 020442-258

Date:

RE: Bitters: Their History, Conceptual Context, and Health Benefits

Walker JM. The Bitter Remedy. *The European Journal of Herbal Medicine* 6(2):28-33.

Bitter herbs have been used medicinally and as flavorings since ancient times. In this article, the author describes traditional uses, effects, indications and contraindications, and potential adverse effects and interactions. Bitter herbs mentioned include wormwood (*Artemisia absinthium*), centaury (*Centaureum erythraea*), gentian (*Gentiana lutea*), bitter almond (*Prunus dulcis*), calamus (*Acorus calamus*), angelica root (*Angelica archangelica*), blessed thistle (*Cnicus benedictus*), milk thistle (*Silybum marianum*), bitter orange (*Citrus x aurantium*), ginger (*Zingiber officinale*), lesser galangal (*Alpinia officinarum*), condurango (*Marsdenia condurango*), cinchona (*Cinchona* spp.), hops (*Humulus lupulus*), coffee (*Coffea* spp.), dandelion root (*Taraxacum officinale*), rhubarb (*Rheum* spp.), yarrow (*Achillea millefolium*), quassia (*Quassia excelsa*), burdock (*Arctium lappa*), devil's claw (*Harpagophytum procumbens*), horehound (*Marrubium vulgare*), and rue (*Ruta* spp.). With so many bitter herbs, most with a long history of medicinal use in multiple cultures, it is not surprising to read that "the urinary system seems to be the only system that does not derive direct benefit from the administration of bitters."

Tonic or simple bitters contain only a bitter principle. Aromatic bitters also contain aromatic oils, many with their own medicinal actions (see HC 110436.255). Pungent or acrid bitters are often used as spices. Astringent bitters contain tannins. Many plants contain bitters along with other active principles. While they may not be used primarily as bitters, the bitter principle may enhance their therapeutic action. The bitter tastes which define these herbs are due to varying combinations of iridoids, sesquiterpene lactones, sesquiterpene hydrocarbons, monoterpene iridoids, alkaloids, and volatile oils. Some bitters have proven antifungal, antiseptic, anti-protozoal, and anti-tumor actions.

Bitters' actions begin on the tongue; in fact, the ability to taste bitters belongs to one of only four distinct sets of taste buds. Taking bitters in capsule form, or otherwise bypassing the bitter taste, "render[s] it virtually useless," although combining bitters with sweeteners or alcohol does not adversely affect their action. Bitters are often used to flavor alcohol liqueurs, usually taken before rich meals to aid digestion. They are most often used as appetite and digestive stimulants.

According to the author, bitter taste "'turn[s] on' the digestive process, initially stimulating stomach and pancreatic enzyme secretion...For this reason they should be taken 20-30 minutes before eating." Bitter taste stimulation mediates a neural response, releasing a gastrointestinal hormone, gastrin, whose physiological actions include increasing appetite; increasing gut peristalsis; increasing secretion of saliva, gastric acid, pepsin, pancreatic digestive fluids, intestinal "juice," hepatic bile and bicarbonate, Brunner's gland fluids, intrinsic factor, insulin, glucagon, and calcitonin; increasing muscle tone of the cardiac sphincter, stomach, and small intestine; and increasing cell division and growth in the gastric and duodenal mucosa and in the pancreas. Increased secretions aid digestion, speed stomach emptying, and protect gut tissues. Walker notes that in conditions such as gastric achylia, bitters increase appetite even without increasing gastric acid secretion. Also, she says that individuals with blood types A and AB tend to produce less stomach acid and intrinsic factor with age, becoming more prone to digestive disorders, gastrointestinal infections, and pernicious anemia. Their absorption of nutrients, medicines, and products of digestion may be enhanced by bitters. (For more on bitters and digestion, and thus on depression, see HC 070514.213.)

By stimulating bile flow, bitters improve fat digestion and prevent waste accumulation in the liver. This may be especially useful, Walker writes, in cases of unhealthy diet, excessive alcohol intake, defective digestion, chronic gut conditions or general ill health, or where long-term use of allopathic or "recreational" drugs has led to toxin build-up. Release of bile, with bicarbonate, also helps slow gallstone formation. It is believed that bitters tend to normalize pancreatic secretions, raising glucagon levels when insulin is high, and vice-versa, thus helping to moderate swings in blood sugar levels. There is a tradition of using bitters for Type II (non-insulin dependent) diabetes, but clinical studies testing its effects have not been carried out.

Bitters have been used traditionally for "hot" conditions, when the patient feels heat too much, is thirsty for cold drinks, and has a red, dry tongue and flushed skin. Tension, headache, and fever are also mentioned as traditional indications. Bitters have been used to normalize thyroid function. They have a general tonic effect, exciting the sympathetic nervous system and improving cardiac function by decreasing heart rate and cardiac stroke volume. They stimulate muscles and improve circulation to abdominal organs. Some bitters have an anti-depressant effect. Some are emmenagogues. Quinine (an alkaloid of cinchona) was the standard anti-malarial for years, and new malaria research is being done on both gentian and wormwood. Walker lists other indications for bitters ranging from atonic gut conditions and chronic candidiasis to chronic inflammatory disease of the joints and allergic conditions such as asthma, urticaria, and eczema. Contraindications include pregnancy, serious erosive or ulcerative conditions of the gastrointestinal tract, chronic respiratory congestion, depressed circulation, and depressed metabolism.

Most bitter herbs, in correct dosages, produce few side effects, although some patients experience headache, muscle aches, and general malaise when beginning treatment, possibly as part of the detoxification process. High doses reduce gastric secretions and suppress appetite; overdoses induce nausea or vomiting. Excess gastric secretion may lead to gastric irritability and gastritis. In 18th century France, consumption of wormwood caused an outbreak of absinthism, a psychiatric disorder with epileptiform seizures, hallucinations, and delirium, eventually leading to paralysis and death, due to its high thujone content. Some other bitters also contain toxic compounds; for example, bitter almonds, used in baked treats for centuries, and recommended by Pliny the Elder for many of the same uses which Walker discusses for bitters in general, are always taken sparingly, as overdoses can result in death. Finally, some bitters, such as ginger (perhaps including the similar lesser galangal), may have unwanted interactions with other medications due to

compounds they contain which are unrelated to the bitter principle. In general, bitters increase absorption of other drugs, phytomedicines, and nutrients, and although this is often an advantage, it may be quite undesirable in certain conditions.

This article is generally interesting and an informative overview of bitters, although it suffers from several misspellings of common words as well as Latin binomials. A general bibliography is included, however specific sources are not cited.

— *Mariann Garner-Wizard*

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