

Bitters: the Revival of a Forgotten Flavor



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Of all the flavors to grace our palate, there is perhaps none as fascinating as that of bitterness. It is a flavor that is universally despised—used linguistically to characterize pain, harshness and things that are extremely difficult to bear.¹ Yet, it is also a flavor used in cultures the world over to strengthen digestion, cleanse the body and build vitality—in short, considered an ingredient essential to good health.^{2,3} In fact, so many of the plants humans have traditionally used to tonify and heal the body are bitter tasting that we still today often rate the strength and usefulness of our medicine by how terribly bitter it tastes.

It is unfortunate, then, that our modern diet seems to be completely lacking in the wild bitter tasting plants our ancestors considered so fundamental to their health.⁴ Many of the diseases riddling our modern culture—from indigestion and gastric reflux to metabolic disorders ranging from elevated cholesterol to type 2 diabetes—seem to all point back to the deficiency of bitterness in our diets, and the lack of the protection and tone it imparts to our digestion and metabolic functions.⁵

NOT A MEDICINE BUT A NECESSITY

According to many, bitter herbs and foods play a helpful role in alleviating many of these conditions not so much because they act as specific remedies but because they provide components necessary to overall good health.^{4,5} It is very possible that the current national health crisis could be radically turned around simply by rebalancing our palate with the medicinal virtues of bitterness.

Why do so many cultures around the world revere bitter foods and herbs, not just as supplements, but as a necessary component of health? To answer this question, let's first consider the class of plant compounds collectively known as "bitters." These compounds—including iridoids, sesquiterpene, lactones and alkaloids—occur widely throughout the plant kingdom. They are considered secondary plant metabolites— meaning that they serve no nutritional purpose to the plant, or for that matter, to us. Rather, these compounds are used by the plant to protect itself against microbes and oxidative damage, and to deter feeding by predators (such as us).^{3,6}

AN EVOLVED TASTE

Researchers speculate that our bodies evolved to identify the bitter taste as an indication of toxicity, based on the natural aversion most mammals demonstrate towards bitter-tasting substances and the highly poisonous nature of some of these bitter compounds.⁷ However, this evolutionary aversion would be disadvantageous when humans were faced with bitter-tasting nutritional plant foods in times of famine, during which time periods, according to researchers, humans developed a selective tolerance for these bitter compounds.^{8,9}

When eaten in small amounts, especially in combination with carbohydrates, the body is able to tolerate their presence; interestingly, many herbivores consume bitter-tasting plants selectively, deliberately choosing plants that are only mildly bitter, thus building up an immunity that helps protect the animal from the toxicity of highly bitter plants.¹⁰ This adaptation allowed us to profit from some of the beneficial roles these compounds perform in the plant,

such as inhibiting the growth of microbes, protecting against oxidation, and reducing inflammation. 3,6 But most important, the protective mechanism designed to expel these potentially poisonous compounds from the body became muted and changed into a highly beneficial reflex that stimulates and tonifies our entire digestive tract.² Humans eventually recognized the digestion-stimulating effects of bitters, and began to apply them in the diet for this purpose, as well as to promote appetite.

THE BITTER REFLEX AND ITS IMPLICATIONS

When a bitter substance is recognized by bitter receptors on the tongue, a chain of neural and endocrine events begins, labeled as the “bitter reflex.”² Mediated by the release of the gastric hormone gastrin, this reflex results in an overall stimulation of digestive function, which over time strengthens the structure and function of all digestive organs (liver, stomach, gallbladder, pancreas, etc.).⁶ Let’s take a more in-depth look at this reflex.

Imagine you’ve tasted a bitter-tasting substance. Within fifteen to thirty minutes, your appetite is noticeably increased, your digestive juices are flowing, and your intestines begin to contract in anticipation of food.^{2,3,11}

Starting in your mouth, you’ll notice that your salivary glands have increased their output of enzyme-rich saliva, helping to break down complex starches into smaller and more easily digested oligosaccharides. ^{2,3,11}

In the stomach, the hormone gastrin has stimulated the secretion of hydrochloric acid.^{2,3,11} The acidity helps break down protein, enhances the bioavailability of many minerals (especially calcium) and destroys any harmful microbes present in your food.¹² It’s interesting to note that more people have levels of gastric acid that are too low rather than the opposite, due to stress¹³ or simply aging.¹¹ Low levels of gastric acid contribute to poor nutrition and increased susceptibility to gastrointestinal infections.¹¹

Considered cooling by nature, bitters can reduce hot inflammatory conditions.¹¹

Interestingly, low stomach acidity is associated with a variety of allergic and immune-mediated disorders, including asthma; skin disorders such as eczema, psoriasis and rosacea; gallbladder disease and arthritis.^{2,14}

Gastrin also stimulates secretion of pepsin—an enzyme necessary for breaking large protein molecules into smaller parts—and intrinsic factor, necessary for the absorption of vitamin B₁₂.

The smooth muscle of the stomach is also stimulated by the bitter reflex, which increases the rate of gastric emptying, and contracts the esophageal sphincter to prevent the movement of acidic stomach contents upwards into the esophagus. ^{2,3,11} Self-repair mechanisms in the intestinal wall are stimulated, enhancing cell division and growth.^{3,11} While many people with GERD are hesitant to partake of bitters due to the potential increase in stomach acidity, the combined effect of these actions actually can help this condition by ensuring that the stomach contents are moved downward rather than allowed to reflux back up and out of the stomach. Bitters also act to heal any damage done to the gastric mucosa.¹¹

Down in the small intestine, the stimulation caused by the bitter taste prompts your liver to increase its production of bile, and your gallbladder to increase bile excretion.^{2,3,11} Bile is necessary for fat digestion and the absorption of fat-

soluble nutrients such as vitamins A, D and E.¹² Healthy bile flow helps rid the liver of waste products such as oxidized cholesterol and hormonal metabolites, prevents gall stone formation, and provides lubrication of the intestines, easing the passage of stool.^{4,12} It should not be surprising that by enhancing movement of waste products out of the liver, bitter herbs have been found to exert a protective effect in liver conditions such as hepatitis and cirrhosis.²

SIDEBAR

COMMON BITTER HERBS

As noted above, some bitter herbs may surprise you. Yet, their classification is based on taste and as with the other primary tastes — salty, sour, and sweet — there are degrees of bitterness. As an introduction, here are 10 to ponder:

Angelica : *Angelica archangelica*. Dating back centuries, it's been used to remedy colds and ailments such as rheumatism. Its properties make it a stimulant, stomachic, and tonic. For liquors, it's been used to flavor gin.

Chamomile : *Matricaria chamomilla*. A mild bitter herb used as a sedative and antispasmodic. Its curative properties include relief of both fever and restlessness.

Dandelion : *Taraxacum*. A mild bitter herb used as a blood cleanser and diuretic. Also said to lower cholesterol and blood pressure. Still used in traditional cooking in the Mediterranean and parts of Asia.

Goldenseal : *Hydrastis canadensis*. A strong bitter herb used to stimulate appetite and eliminate infections. In Collections for an Essay Toward a Materia Medica of the United States (1804), Professor Benjamin Smith Barton declared goldenseal a tonic, observing, "The root of the plant is a very powerful bitter."

Horehound : *Marrubium vulgare*. Dating back to Ancient Egypt, horehound is believed to be one of the original bitter herbs of the Bible. It has been used for colds and respiratory ailments (such as in cough syrup and throat lozenges).

Milk Thistle : *Silybum marianum*. Also known as "sow-thistle," this herb was likely one of the original bitter herbs. In healing, it's known as a powerful liver detoxifier, as well as an antidote for Amanita-mushroom poisoning.

Peppermint : *Mentha piperita*. Roman naturalist Pliny the Elder wrote of peppermint, "The very smell of it alone recovers and refreshes the spirit." The ancient herb is used as a flavor, a fragrance, and medicine. Peppermint oil is used to allay nausea and stomach aches.

Rue : *Ruta*. A strong bitter herb used as an antispasmodic, a sedative, and a mild stomachic. Mentioned in the Bible as "peganon" and in William Shakespeare's Richard III — "Here is this place/I'll set a bank of rue, sour herb of grace."

Wormwood : *Artemisia absinthium*. A perennial plant used as an antiseptic, tonic, diuretic, and stomachic. The herb's strong bitter taste is still used in wines and spirits, such as vermouth.

Yarrow : *Achilles millefolium*. A flowering plant that produces a mild bitter herb used as an astringent and cold remedy. The entire herb can be used.

Source: http://herbs.lovetoknow.com/List_of_Bitter_Herbs

The effect of bitters also extends to the pancreas. With bitters, digestive enzyme secretions are increased, helping to promote the complete breakdown of nutrients into their absorbable units, preventing gas formation when large

molecules are acted upon by bacteria further down the small intestine.^{2,11} The complete breakdown of proteins is particularly important, as the cross reactivity of immune cells between undigested protein molecules and intestinal cells plays an important role in the etiology of conditions such as celiac disease.¹⁵ Insulin and glucagon secretions are stimulated, helping to stabilize blood sugar levels.^{3,11} Many bitters formulations have been traditionally used in the treatment of type 2 diabetes, and it is interesting to point out that many naturally sweet substances are often paired with some bitterness in nature.^{4,11} Herbalist Jim McDonald hypothesizes that our cravings for sweetness may mask cravings for bitterness for this reason.⁴

Thus, the taste of bitter can be used to strengthen the most fundamental aspect of our health—the ability to extract the nutrients from our foods and nourish our bodies. Taken over time, they will lessen symptoms of poor digestive function such as gas and bloating, constipation, loose stools and food allergies;^{2,11} enhance vitamin and mineral absorption;⁴ promote balanced blood sugar levels;^{3,4} protect the liver and strengthen eliminatory function;^{3,11} heal inflammatory damage to the gut wall;^{3,11} and reduce the incidence of allergic disorders.^{2,14} In short, the daily use of bitters can address some of the most rampant and heavily medicated health conditions of our time.⁴

ADDING BITTERS TO YOUR DIET

Historically, the use of bitters has been more of a culinary tradition than a medicinal one. Perhaps our ancestors understood better than we do today the concept of prevention, of keeping well through strengthening our system rather than fighting an already established disease process. Most bitters were taken in the form of bitter wild greens eaten before a meal, or alcoholic beverages, known as apéritifs, brewed with bitter and aromatic herbs.^{2,4} These traditions still exist today—serving a salad or cocktail before a meal—but unfortunately the bitter taste is now often lacking.⁴

The best way to bring bitterness into your life is to incorporate the bitter taste of nutrient dense greens into your salads. Chicory, dandelion, arugula, radicchio or endive are all wonderfully complex-tasting greens that can be found in your garden or local farmers' market. Slowly increase their proportion to the sweeter tasting lettuces to build up your tolerance. Bitter tasting roots, such as dandelion or burdock, can also be included in stir-fries or soups.

You might also try partaking of a bitter apéritif or cocktail before meals. There are many traditional apéritifs available on most bar menus, including such traditional blends as Angostura bitters, Campari, Cynar, or Peychaud's bitters. Not surprisingly, many of these liqueurs were initially marketed as health tonics.¹⁶ Urban Moonshine, an herbalist-owned botanical company located in Vermont, has reinfused this old world tradition with a healthful and contemporary twist by blending all organic and locally sourced herbs into a delicious bitters tonic full of gentle, tonifying bitter herbs and spices. Their line of original, maple or orange bitters make for particularly delicious apéritifs. Visit urbanmoonshine.com for recipes.

In the busy-ness of everyday life, the most convenient method of using bitters may be to take a small amount of bitters tincture (alcoholic extract) in a little water before you eat—as you might lose your day job if you fix yourself a bitter cocktail at work! Swedish bitters is a formula easily found on healthfood store shelves, and is based on a traditional blend of herbs created by the physician Paracelsus in the sixteenth century. Do exercise caution with this product if you are prone to constipation, as several of the ingredients have a strongly stimulating action on the colon

wall, creating a potential for dependency. 2,3,6 Most herb companies offer various “bitters formulas” created from somewhat gentler herbs, and they are becoming increasingly available in natural foods stores. Herb Pharm, Wise Woman Herbals, Avena Botanicals and Urban Moonshine all offer organically certified bitters blends in convenient, transportable sizes. Most local herbalists and small scale herbal companies will also offer a bitters blend. Please visit the websites listed below for specific product information.

SIDEBAR

BITTERS PRODUCTS AVAILABLE COMMERCIALY

Avena Botanicals (www.avenabotanicals.com) Ingredients: Gentian root (*Gentiana lutea*), Burdock root (*Arctium lappa*), Blessed thistle leaves (*Cnicus benedictus*), Licorice root (*Glycyrrhiza glabra*), Ginger root (*Zingiber officinale*)

Herb Pharm (www.herb-pharm.com) Ingredients: Angelica root (*Angelica archangelica*), Hyssop leaf and flower (*Hyssopus officinalis*), Juniper berry (*Juniperus communis*), Cardamom (*Elettaria cardamomum*), Ginger (*Zingiber officinale*), Gentian (*Gentiana lutea*), Anise seed (*Pimpinella anisum*), Cinnamon (*Cinnamomum aromaticum*), Myrrh (*Commiphora molmol*), Peppermint essential oil (*Mentha piperita*)

MARIA TREBEN’S AUTHENTIC SWEDISH BITTERS (www.swedishbitters.com) Ingredients: Aloe, Myrrh, Saffron, Senna Leaves, Camphor, Rhubarb Roots, Zedoary Roots, Manna, Theriac Venezian, Carline Thistle Roots and Angelica Roots in a base of purified water

Swedish Bitters (www.florahealth.com) Ingredients: Aloe (*Aloe vera*), Angelica root (*Angelica archangelica*), Manna (*Fraxinus ornus*), Rhubarb root (*Rheum palmatum*), Senna leaf (*Senna alexandrina*), Zedoary root (*Curcuma zedoaria*), Theriac venezian (*Pimpinella saxifraga*), Carline thistle root (*Carlina acaulis*), Myrrh (*Commiphora molmol*), Camphor (*Cinnamomum camphora*), Saffron (*Crocus sativus*)

Urban Moonshine (www.urbanmoonshine.com) Ingredients: Dandelion Root and Leaf (*Taraxacum officinale*), Angelica Root (*Angelica archangelica*), Burdock Root (*Arctium lappa*), Yellow Dock Root (*Rumex crispus*), Gentian Root (*Gentiana lutea*), Orange Peel (*Citrus aurantium*), Fennel Seed (*Foeniculum vulgare*), Ginger Root (*Zingiber officinale*), Gum Arabic and Organic Essential Oils

Wise Woman Herbals (www.wisewomanherbals.com) Ingredients: Dandelion root (*Taraxacum officinale*), Gentian (*Gentiana lutea*), Elecampane (*Inula helenium*), Fennel (*Foeniculum vulgare*), Ginger (*Zingiber officinale*), Turmeric (*Curcuma longa*), Slippery elm (*Ulmus rubra*), Fennel essential oil (*Foeniculum vulgare*)

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