9. *ACORUS CALAMUS* L. (ARACEAE) — Sweet Flag, Flagroot, Calamus

This long-used plant was an article of commerce in the Near East for 4,000 years. Sometimes roots are coated with sugar as candy and breath sweeteners. Leaves and roots yield oil of calamus, a yellow aromatic volatile oil, used in hair powders, perfumery, and for flavoring liqueurs, (e.g., Benedictine and Chartreuse), beer, gin, vinegars, snuff, and various other preparations. Stockton bitters, once popular in Britain, was made from a mixture of calamus root and gentian root. "Bach" of commerce, which has many medicinal uses, is prepared from the rootstock. Leaves and rootstocks make very effective insecticides for use against biting and sucking insects attacking field crops, stored grains, wool, and against household pests, like bedbugs, fleas, and flies. To make the insecticide, leaves or rootstock are finely powdered and used as a dust or in an aqueous solution as a spray. Beta-asarone, active ingredient of the root extract, sterilizes female insects by preventing ovary development. Also regarded as an insect repellent.[75] Fresh rootstock is used as a confection or as a substitute for ginger. Young leaves make a palatable salad. Menomini Indians used mature leaves in construction of wigwams. In France and other countries, calamus is a cultivated ornamental water-plant.[43] Calamus root adds a mellow, somewhat spicy odor to potpourri or sachets. Young tender inflorescences are eaten. Rhizomes used for chewing gum. Leaves sometimes used in fish sauces. Tyler concludes that "calamus has no therapeutic ability, which is not provided more effectively and more safely by other drugs. This is also true of its use as a flavoring agent, which can no longer be condoned".[37] G. R. Morgan gives an interesting account of The Ethnobotany of Sweet Flag among North American Indians.[76] Omaha gave sweet flag to their horses as a snuff, and baited their fishing nets with it, and they gave it to their watchdogs to make them fierce.[76]

The root, prepared in various manners, is a folk remedy for indurations of the liver, spleen and stomach, scirrhus of the spleen, hard swellings and tumors of the testicles, uterus, and vagina.[4] Acts as a carminative, removing the discomfort caused by flatulence and checking the growth of the bacteria which cause flatulence. Dried root chewed to relieve dyspepsia. Formerly used in ague and "low fever". Used as a mild stimulant febrifuge in typhoid. Said to be useful in all nervous complaints, colds, cough, dyspepsia, hysteria, insomnia, malaria, melancholy, neurasthenia, vertigo, headache, hypochondria, gout, rickets, rheumatism, and scrofula.[32] Orientals use the root for bronchitis and regard it as aphrodisiac.[41] Said by lowlanders to have a beneficial effect on the bladder when "a man loses control".[17] Turks carried candied calamus to prevent infection. Rhizome is emetic, stomachic in dyspepsia, colic, remittent fevers, nerve tonic, in bronchitis, dysentery of children, insectifuge and used for snakebite. Rhizomes externally applied for fever, lumbago, rheumatism.[16] Juice of the rhizome applied to buboes, carbuncles, deaf ears, and sore eyes.[16]

Valued for rheumatism in Iran.[75] Plants are anthelmintic (Brazil), aromatic, and mildly tonic, carminative and used to increase appetite and benefit digestion. Dried root is chewed, or a tea is made, to relieve dyspepsia and to clear the voice. The plant is described in Hagers Handbook as analgesic and sedative, with a hypotensive effect on anesthetized animals.[33] Said to have antiarrhythmic, anticonvulsant, antiveratrinic effects similar to quinidine.[16]

Formerly used as a strewing herb, the plant is aromatic because of essential oil containing the glucosidic bitter principle, acorin, and a phenolic ether, asarone. Roots have an agreeable aromatic odor and pungent, bitter taste which are retained after drying. Dry European roots yield 0.9 to 4.8% oil, Japanese material to 5%, powdered material down to 0.5% oil. Tetraploids may contain up to 7%. The following compounds have been identified in calamus: acolamone, acoragermacrone, acoric acid, acorine, acorone, acoroxide, asaraldehyde, asaronaldehyde, asarone, beta-asarone, azulene, calamene, calameone, calamenol, calamenone, calamol, camphene, camphor, choline, cineole, dextrin, dextrose, dimethylamine, eugenol, *n*-heptylic acid, isoacolamone, isoacorone, linalol, methylamine, methyleugenol, palmitic