Herbs

Entry prepared by Christopher Sullivan ’09 in College Seminar 235 - Food For Thought: The Science, Culture, & Politics of Food in Spring 2009.

Basil (*Ocimum basilicum)*

Scientific Classification	
Kingdom	Plantae
Phylum	Magnoliophyta
Class	Magnoliopsida
Order	Lamiales
Family	Lamiacaea
Genus	*Ocimum*
Species	*O. basilicum*

Scientific Classification and Etymology

Basil belongs to the genus *Ocimum,* derived from the Greek *ozo* which means to smell, in reference to the strong odors of the species within the genus.[1] In French, it is frequently given the name “Herbe Royale,” revealing the positive light in which it is viewed.[2] The etymology of basil is unclear, however several potential sources are plausible. It is sometimes referred to as “the king of herbs,” and may have been derived from the Greek *basileus*, or king.[3] Basil’s affiliation with the crown may be in part due to its use in regal medicine.[4]. Basil may come from the Latin *basilisk*, or dragon; this etymological connection may explain the symbolic connection between basil and scorpions (see Cultural Significance and History).

Origin and Distribution

Basil is native to areas in Asia and Africa and grows wild as a perennial on some pacific islands.[5] Basil was brought from India to Europe through the Middle East in the sixteenth century, and subsequently to America in the seventeenth century.[6]

Cultural Significance and History

Basil is one of the most important herbs to many cultures and cuisines, including Italian, Thai, Vietnamese, and Laotion. The basil variety tulsi (*Ocimum tenuiflorum*, previously *Ocimum sanctum*[7]*)* is a sacred herb in the Hindu religion[8]; indeed, while basil is used relatively sparsely in Indian cuisine, tulsi is considered holy.[9] In Hindu houses, basil is the protecting spirit of the family.[10] The British at one time used tulsi as a substitute for a Bible upon which the Indians would take an oath in a court of law.[11]

The scorpion is historically associated with basil, which is likely due to the potential derivation of the name from the Latin *basilisk.* It was advised to handle basil gently as to avoid the breeding of scorpions. Scorpions were believed to seek out basil pots to rest under, and superstition taught that a sprig of basil left on its own underneath a pot would eventually turn into a scorpion.[12] Similarly, a sixteenth century Flemish doctor wrote of his belief that crushed basil left between bricks would turn into scorpions.[13] Perhaps the most outlandish of the scorpion-related superstitions, as affirmed by the French doctor Hilarius, was that smelling basil would breed a scorpion in the brain.[14]

While considered of great significance throughout much of history and in many cultures, in the 1980s the British Ministry of Agriculture's bulletin on herbs stated basil to be 'of little or no importance'.[15] Hindus and most other modern consumers would likely disagree.

19th Century American Significance

Newspaper advertisements reveal that sweet basil has been sold and grown in New York State since the end of the 18th century.[16] It is likely that the cultivar of basil grown at this time was lettuce-leaf basil, as referenced in Vilmorin's *The Vegetable Garden* (1885).[17]

Botanical Description

The botanical differences between varieties of basil are plentiful; for this reason a universal description of the herb is inadequate.

Sweet basil (*Ocimum basilicum)* will grow to a size of 1-2 feet in height.[18] Basil will prolifically produce large green leaves, measuring around 2 inches in length, throughout the summer.[19] Basil flowers are white, and are commonly removed to increase yield of leaves.[20] Cultivars of sweet basil include Lemon Basil, Italian or Curly Basil, and Lettuce-leaf Basil; the names of these cultivars give way to their variances.

Bush basil (*Ocimum mimimum* L.), is smaller in size and more compact than sweet basil. Bush basil grows to a height of around 10 inches with leaves of a maximum length of ½ inch.[21] Its flavor is less vigorous than that of sweet basil and is grown primarily as a decorative plant.[22]

Basil has the ability to synthesize and convert phenylpropenes (important chemicals in determining the flavor of herbs which can also act as cultivator attractants or herbivore deterrents).[23] The flavor and smell of basil varieties is largely determined by their chemical components – basil varieties contain the following oils in varying quantities: cinnamate, citronellol, geraniol, linalool, methyl chavicol, myrcene, pinene, ocimene, terpineol.

Cultivation

Basil grows as a perennial in tropical climates, and is planted as an annual in temperate regions, where it may be sown directly from seed or transplanted.[24] While other members of the basil family (Lamacaea) grow well under competitive circumstances, basil prefers little competition for sun and water.[25] As basil is a highly frost sensitive plant, it must be protected against temperatures close to freezing. Basil prefers to be grown in full sun, however will grow (albeit with less vigor) in partial shade.[26] To avoid "damping off" disease, basil should not be overwatered.[27] The leaves of the basil plant are most commonly used and can be increased in yield by pinching off flowers as they appear throughout the growing season.[28]

Basil may be sown outside after there is no danger of frost, or started inside and transplanted outdoors for an earlier harvest.[29] Seeds germinate in four or five days and remain viable for years if stored in dry conditions.[30] Opinions vary on the optimal distance between plants and between rows of basil; 8 inches between plants and rows may be used for efficient production.[31] In colder climates and in winter, basil may be productively cultivated indoors in pots.[32]

Culinary Uses

Basic is a popular culinary herb used in many cuisines including Italian and Thai. It is used both fresh and dried, however the predominant flavors diminish with drying. The uses of basil are varied and plentiful; it is used with vegetables, meat, fish, sauces, stews, dressings, herbal teas, liqueurs, and mixed drinks.[33] It is a traditional herb used in the preparation of turtle soup by the English.[34] It is commonly used, both by the household and the industrial producer, in the preparation of pesto, a varying combination of basil, oil, garlic, cheese, and nuts.[35] Frequently, basil is used as a complimentary flavor to tomatoes. Fresh basil is preserved in oil or vinegar, or frozen.[36] Freezing basil preserves the flavor of the herb more effectively than does drying.[37] The storage length of dried basil far exceeds that of fresh basil, which can be successfully stored in the refrigerator for a short time.[38] Basil is best dried out of direct sunlight, which can brown the leaves in the drying process.[39]

Medicinal Uses

Basil has been used as a folk remedy for an enormous number of ailments, including boredom, cancer, convulsion, deafness, diarrhea, epilepsy, gout, hiccup, impotency, insanity, nausea, sore throat, toothaches, and whooping cough[40]. Basil has been reported in herbal publications as an insect repellent.[41]

Recent scientific research has investigated the health benefits associated with basil's essential oils. Studies reveal the anti-viral, anti-microbial, antioxidant, and anti-cancer properties of the oils; further research is underway.[42] [43]

Fennel *(Foeniculum vulgare)*

Scientific Classification	
Kingdom	Plantae
Phylum	Magnoliophyta
Class	Magnoliopsida
Order	Apiales
Family	Apiacaea
Genus	*Foeniculum*
Species	*F. vulgare*

Scientific Classification and Etymology

Fennel belongs to the genus *Foeniculum,* which means "little hay" in Latin, in reference to the hay-like appearance of the fennel leaves.[44] The Greeks referred to fennel as "marathron," from "maraino," which means "to grow thin."[45] [46] Fennel is sometimes referred to as "sweet anise," due to the similarity in taste to the spice anise.[47]

Origin and Distribution

Fennel is native to the Mediterranean region and to southwest Asia.[48] The origin of Florence fennel (*Foeniculum vulgare* Dulce) is attributed to the Azores Islands.[49] Its dispersion throughout Europe is in large part attributed to the Roman emperor Charlemagne, who promoted its use and demanded its presence in all imperial gardens.[50]

Florence is now cultivated worldwide and is commonly used; Florence fennel is the most popular vegetable in Italy.[51]

Cultural Significance and History

"Be sure that for the future you remember
The ever-glorious marathon for good,
When you do all from time to time add [fennel] to your pickled olives." - Athenxus[52]

Fennel was eaten and used as an aromatic by the Romans.[53] Charles McIntosh wrote in The Book of the Garden that fennel was used in nearly all meat dishes.[54] In ancient Greece, fennel represented success in battle, as shown in the phrase "and he who battled and subdued a wreath of fennel wore."[55] In European cuisine, fennel is commonly used in fish recipes. Historically in Europe, it is said that fennel was eaten alone by the poor, while the rich dined on fish and fennel together[56] Fennel root was used in the preparation of sack, a mead-based drink made in Shakespearean times.[57] The Puritans referred to fennel as the "meeting seed," and chewed it during long church services.[58]

Historically, fennel has been used in relief of upset stomachs as well as to strengthen poor eyesight.[59] Hippocrates and Dioscorides prescribed fennel to nursing mothers to increase lactation rates.[60] In medieval times, fennel was thought to be a dietary aid.[61] Culpepper, a seventeenth century British herbalist, prescribed the fennel plant "to make people lean that are too fat".[62] William Coles echoes this prescription in *Nature's Paradise* (1650), writing that 'the seeds, leaves and root of our Garden Fennel are much used in drinks and broths for those that are grown fat, to abate their unwieldiness and cause them to grow more gaunt and lank.'[63] Culpepper additionally believed in fennel's healing properties for kidney stones, hiccups, nausea, gout, lung and liver blockage, and mushroom poisoning; fennel was one of nine sacred healing herbs.[64] Fennel seeds were used in the preparation of gripe water, a tea which was used to relieve babies of stomach gas.[65] Fennel tea was used to freshen breath, expel worms, and as an eyewash.[66]

The following old English herbal rhyme reveals the historical trust in fennel as a medicinal herb.

''Whaune the heddere (adder) is hurt in eye
Ye red fenel is hys prey,
And yif he mowe it fynde
Wonderly he doth hys kynde.
He schall it chow wonderly,
And leyn it to hys eye kindlely,
Ye jows shall sang and hely ye eye
Yat beforn was sicke et feye.'[67]

Botanical Description

Fennel grows to a height of five feet and displays feathery and wispy green leaves along with small, compound umbel yellow flowers which resemble those of dill.[68] [69] The compound leaves are separated into filiform segments and are sheathed.[70] [71] The fennel fruit, located at the base of the plant, is ribbed and smooth.[72] The fruit of Florence fennel (*Foeniculum vulgare* Dulce) is larger than that of common fennel.[73] The anise-like flavor of Florence fennel is due to the large amounts (50 to 60 percent) of the essential oil anethole, which comprises up to 90 percent of the essential oils in anise.[74] Fennel leaves are rich in potassium and contain vitamins A, B, C, and E.[75]

F. vulgare 'Purpureum' is a non-edible, attractive cultivar of fennel which is commonly planted in gardens for its desirable appearance.[76]

Cultivation

Fennel is grown widely as a perennial in USDA Zones 5 or 6, with preferred conditions of full sun and well drained soil. [77] Seeds may be sown in fall or early spring and thinned to a distance of 12 inches apart.[78] Once established, fennel will self-seed and should be thinned every 3 or 4 years.[79] Seeds should be harvested when they have hardened and turned a grey-green color.[80] At this time, seed harvesting is performed by cutting the fennel flower head in its entirety and storing in a paper bag for further drying.[81]

Fennel should not be planted near bush beans, caraway, tomatoes, or kohlrabi as it will negatively affect their development. Likewise, fennel's growth and seed formation is stunted by proximity to both coriander and wormwood.[82]

Culinary Uses

The flavor of Florence fennel or Finocchio (*Foeniculum vulgare* dulce) is sweeter than wild or Roman fennel and is used most commonly in cooking for this reason. The taste of fresh Florence fennel is similar to that of anise, and the leaves are used commonly in Europe with fresh and cured fish.[83] Indeed fennel is termed the 'fish herb' due to its complementary flavor in many fish dishes.[84] The stem is used fresh or dried, while the seeds are dried and used to season dishes such as breads, crackers, sauces, meat, curries, and apple pie.[85] Fennel seeds are used in the preparation of an alcohol due to the desirable anise-like flavor.[86] Dried fennel leaves are uncommon, as the flavor is retained in the seeds and the herb is thus preserved commonly in this manner.[87] In Florence, salami by the name of finocchiona is prepared with fennel seeds. Indian cuisine uses fennel in some curries; the seeds are commonly chewed after meals as a breath freshener.[88]

Medicinal Uses

Medicinally, fennel is used to aide digestion as it is a carminative.[89] Fennel may be used in an infusion to relieve enflamed or tired eyes.[90] Tea made from fennel is a mild laxative and diuretic.[91] Ruberto et. al, 2000 found antioxidant and antimicrobial properties of fennel essential oils.[92]

Industrial and Other Uses

Fennel oil is used industrially in production of soaps and other cosmetic products for its aromatic qualities.[93] Fennel leaves and flowers may be used to produce yellow and brown wool dyes.[94]

Comfrey *(Symphytum officinale)*

Scientific Classification	
Kingdom	Plantae
Phylum	Magnoliophyta
Class	Magnoliopsida
Order	Lamiales
Family	Boraginaceae
Genus	*Symphytum*
Species	*S. officinale*

Scientific Classification and Etymology

Comfrey, or comphrey, is derived from the Latin conferta, meaning "grow together."[95] The genus name, *Symphytum*, means "coming together" in Greek and refers to the use of comfrey in healing salves.[96] Comfrey is synonymous with "consound," which means "against swooning" and refers to the use of comfrey as a medicinal herb.[97] Comfrey is in the Boraginaceae family, along with borage and forget-me-not.

Origin and Distribution

Comfrey is native to Europe and to temperate regions of Asia and is now cultivated worldwide.[98] [99]

Cultural Significance and History

In the early nineteenth century, Henry Doubleday of Essex county in England began extensive research into the possibility of developing a cultivar of comfrey to grow as a food crop. Many of the varieties grown today were developed by Mr. Doubleday.[100] In the 1950s, Lawrence D. Hills performed additional extensive research into the development of comfrey cultivars. Of great importance in his research was the development of Bocking 14, a Russian Comfrey cultivar which is sterile and thus much easier to control (see Cultivation for more information).[101]

Historically, comfrey has been used widely as a medicinal herb. Comfrey has been employed as a medicinal herb since around 400 B.C.[102] It was used by the Greeks externally to stop bleeding, heal wounds, and mend broken bones.[103] Internally, it was consumed for relief of stomach ailments, diarrhea, and bleeding.[104] The physician Culpepper wrote that comfrey 'restrains spitting of blood.'[105]

19th Century American Significance

Newspaper advertisements reveal that comfrey has been sold for medicinal use in New York State since the nineteenth century.[106] Additionally, comfrey was investigated as an ingredient in a dysentery cure through an infusion of male elm, comfrey, and mallows in milk.[107]

Botanical Description

Comfrey is a vigorous and hearty perennial which will grow to a height of 2-3 feet, and throughout the summer it blooms blue and white bell flowers.[108] The green leaves are large, broad, and course – they may be as long as ten inches and covered in rough hairs.[109] [110] The root structure is large, branched, and fibrous – the black roots may be as long as one foot and as thick as an inch in diameter.[111]

Comfrey is commonly consumed by the moth *Panaxia Dominula* L., however the presence of comfrey in the diet is not essential for the insect's survival.[112]

Cultivation

Comfrey will grow best if planted in moist soil and in direct sun or a semi-shaded area.[113] From seed, comfrey should be sown in early spring and thinned to a distance of 12 – 18 inches between each plant.[114] Comfrey is commonly propagated by root division and will spread quickly through root and seed propagation; it is described in some garden books as an invasive for this reason.[115] Due to its propensity to self-propagate en masse, some books suggest growing it within containers, while other sources warn against container growing due to the large root system which comfrey develops.[116]

Culinary Uses

While not a common cooking herb, young comfrey leaves may be cooked in a similar manner to spinach leaves[117]. Comfrey root is used as a flavoring in many country wines[118]. A drink similar to coffee may be prepared from comfrey roots along with chicory and dandelion roots.[119]

Medicinal Uses

Historically, comfrey has been used as a medicinal herb to help with a multiplicity of ailments (see Cultural Significance and History). Many of the internal uses are now contested, as comfrey is a known carcinogen.[120] Additionally, comfrey contains hepatotoxic pyrrolizidine alkaloids which if consumed can lead to liver failure or death.[121] [122] The United States Food and Drug Administration has issued a warning against the consumption of comfrey for this reason.[123] As a wound herb, its leaves may be cut and used fresh against cuts, bruises, and open wounds[124]. An infusion may assist in the easement of coughs, and an ointment made from the roots and leaves has been suggested for use in pain relief.[125]

Other Uses

Comfrey is described as a "first-class" composting aid, as its presence in composting materials assists in the rapid breakdown of other plants[126].

Historically, comfrey has been used in the tanning process for leather as well as in the preparation of a glue in Angora.[127]

---

[1] McIntosh, Charles. The Book of the Garden. Edinburgh and London: W. Blackwood, 1853. 237.

[2] Muenscher, Walter Conrad and Myron Arthur Rice. Garden Spice and Wild Pot-Herbs. Ithaca, NY: Cornell University Press, 1978.

[3] Grieve, M. A Modern Herbal; The Medicinal, Culinary, Cosmetic and Economic Properties, Cultivation and Folk-Lore of Herbs, Grasses, Fungi, Shrubs, & Trees with All Their Modern Scientific Uses. New York: Dover Publications, 1971. 87.

[4] Grieve. 87.

[5] Muenscher.

[6] Stobart, Tim. Herbs, Spices, and Flavorings. Woodstock, NY: The Overlook Press, 1982. 51-55.

[7] Van Wyk, Ben-Erik. Food Plants of the World. Portland, Oregon: Timber Press, Inc., 2005. 256.

[8] Muenscher.

[9] Stobart. 51-55.

[10] Grieve. 87,

[11] Stobart. 51-55.

[12] Grieve. 87.

[13] Stobart. 51-55.

[14] Grieve. 87.

[15] Stobart. 51-55.

[16] Sperry, Jacob. "Garden Seeds." New-York Daily Gazette 01 May 1794. Newsbank Infoweb - America's Historical Newspapers. <http://infoweb.newsbank.com/>.

[17] "Lettuce Leaf Basil." Seed Savers Exchange. Seed Savers Exchange. 02 Apr 2008 <http://seedsavers.org/prodinfo.asp?number=273>.

[18] Boxer, Arabella and Philippa Back. The Herb Book. London: Octopus Books, Limited, 1980.

[19] Muenscher,.

[20] Duke, James A. Culinary Herbs: A Potpourri. Buffalo, NY: Bonch Magazine, Limited, 1985.

[21] Muenscher.

[22] Stobart. 51-55.

[23] Gang, David R. et al. “Characterization of Phenylpropene O-Methyltransferases from Sweet Basil: Facile Change of Substrate Specificity and Convergent Evolution within a Plant O-Methyltransferase Family.” The Plant Cell. 2002 Feb 11;(14):505-519.

[24] Boxer.

[25] Stobart. 51-55.

[26] Duke.

[27] Boxer.

[28] Duke.

[29] "Basil, Genovese (OG)." Johnny's Selected Seeds. Johnny's Selected Seeds. 19 Apr 2008 <http://www.johnnyseeds.com/catalog/product.aspx?scommand=search&search=basil&item=911G>.

[30] Muenscher.

[31] “Basil, Genovese (OG).”

[32] Muenscher.

[33] Duke.

[34] Stobart. 51-55.

[35] Stobart. 51-55.

[36] Ortiz, Elisabeth Lambert. "Basil."The Encyclopedia of Herbs, Spices, and Flavorings. 1996.

[37] Boxer.

[38] Ortiz, “Basil.”

[39] Duke.

[40] Duke.

[41] Duke.

[42] Bozin B et al. “Characterization of the volatile composition of essential oils of some lamiaceae spices and the antimicrobial and antioxidant activities of the entire oils.” J Agric Food Chem. 2006 Mar 8;54(5):1822-8. <http://www.ncbi.nlm.nih.gov/pubmed/16506839?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum>.

[43] Chiang LC et al. “Antiviral activities of extracts and selected pure constituents of Ocimum basilicum.” Clin Exp Pharmacol Physiol. 2005 Oct;32(10):811-6. <http://www.ncbi.nlm.nih.gov/pubmed/16173941?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum>.

[44] Van Wyk. 196.

[45] Van Wyk. 196.

[46] “Fennel.” Rodale’s Illustrated Encyclopedia of Herbs. Ed. Claire Kowalchik & William H. Hylton. Emmaus, PA: Rodale Press, 1987. 188-190.

[47] Yoon, Howard. "Don't Forget the Fennel." NPR. 03 Jan 2007. National Public Radio. 30 Mar 2008 <http://www.npr.org/templates/story/story.php?storyId=6710330>.

[48] Stobart. 106-108.

[49] Muenscher.

[50] Sturtevant, E.L.. "The History of Garden Vegetables (continued)." The American Naturalist Sept 1891. JSTOR. <http://www.jstor.org/>.

[51] Van Wyk. 196.

[52] American Spice Trade Association. 1966. A glossary of Spices. American Spice Trade Association. 76 Beaver Street, New York, NY 10005

[53] Sturtevant.

[54] McIntosh. 5.

[55] Boxer.

[56] Stobart. 106-108.

[57] Stobart. 106-108.

[58] "Fennel." Encyclopedia of Spices. 2003. The Epicentre. 28 Mar 2008 <http://www.theepicentre.com/Spices/fennel.html>.

[59] Boxer.

[60] Rodale’s Illustrated Encyclopedia of Herbs. 188-190.

[61] Stobart. 106-108.

[62] Rodale’s Illustrated Encyclopedia of Herbs. 188-190.

[63] Grieve. 294.

[64] Rodale’s Illustrated Encyclopedia of Herbs. 188-190.

[65] Rodale’s Illustrated Encyclopedia of Herbs. 188-190.

[66] Rodale’s Illustrated Encyclopedia of Herbs. 188-190.

[67] Grieve. 294.

[68] Muenscher.

[69] Boxer.

[70] Muenscher.

[71] Van Wyk. 196.

[72] Muenscher.

[73] Muenscher.

[74] Stobart. 106-108.

[75] Van Wyk. 196.

[76] "Foeniculum."American Horticultural Society Encyclopedia of Plants and Flowers. 2002.

[77] Boxer.

[78] Boxer.

[79] Boxer.

[80] Boxer.

[81] Rodale's Illustrated Encyclopedia of Herbs. 188-190.

[82] Rodale's Illustrated Encyclopedia of Herbs. 188-190.

[83] Ortiz, "Fennel."

[84] Boxer.

[85] Ortiz, "Fennel."

[86] Muenscher.

[87] Muenscher.

[88] Stobart. 106-108.

[89] Van Wyk. 196.

[90] Boxer.

[91] Boxer.

[92] Ruberto G. et al. "Antioxidant and antimicrobial activity of Foeniculum vulgare and Crithmum maritimum essential oils." Planta Med. 2000 Dec;66(8):687-93.

[93] Rodale's Illustrated Encyclopedia of Herbs. 188-190.

[94] Rodale's Illustrated Encyclopedia of Herbs. 188-190.

[95] "Comfrey." Rodale's Illustrated Encyclopedia of Herbs. 103-105.

[96] Rodale's Illustrated Encyclopedia of Herbs. 103-105.

[97] Boxer.

[98] Rodale's Illustrated Encyclopedia of Herbs. 103-105.

[99] Grieve. 215.

[100] Harrison, John. "Comfrey the Wonder Plant." 2005. Allotment Growing. 10 Apr 2008 <http://www.allotment.org.uk/vegetable/comfrey/comfrey.PDF>.

[101] Harrison.

[102] Rodale's Illustrated Encyclopedia of Herbs. 103-105.

[103] Rodale's Illustrated Encyclopedia of Herbs. 103-105.

[104] Rodale's Illustrated Encyclopedia of Herbs. 103-105.

[105] Grieve. 218.

[106] "Medicinal Herbs, Flower Plants, Seeds, etc." Morning Chronicle 29 Mar 1805. Newsbank Infoweb - America's Historical Newspapers. <http://infoweb.newsbank.com/>.

[107] "Medicinal Herbs, Flower Plants, Seeds, etc."

[108] Boxer.

[109] Boxer.

[110] Grieve. 215.

[111] Grieve. 215.

[112] Cook, L.M. "Food-Plant Specialization in the Moth Panaxia dominula L." Evolution. 1961 Dec;15(4):478-85.

[113] "Symphytum."American Horticultural Society Encyclopedia of Plants and Flowers. 2002.

[114] Boxer.

[115] Pears, Pauline. Rodale's Illustrated Encyclopedia of Organic Gardening. London: DK Pub, 2002. 206.

[116] Boxer.

[117] Boxer.

[118] Callery, Emma. The Complete Book of Herbs. Philadelphia, PA: Courage Books, 1994.

[119] Grieve. 217.

[120] Rodale's Illustrated Encyclopedia of Herbs. 103-105.

[121] Yeong M.L., et al. "Hepatic veno-occlusive disease associated with comfrey ingestion." Journal of Gastroenterology and Hepatology, 1990 5(2): 211-4.

[122] Oberlies, NH et al. “Analysis of herbal teas made from the leaves of comfrey (Symphytum officinale): reduction of N-oxides results in order of magnitude increases in the measurable concentration of pyrrolizidine alkaloids.” Public Health Nutrition, 2004 Oct;7(7):919-24.

[123] "FDA Advises Dietary Supplement Manufacturers to Remove Comfrey Products From the Market." FDA / CFSAN. 06 July 2001. U. S. Food and Drug Administration Center for Food Safety and Applied Nutrition. 14 Apr 2008 <http://vm.cfsan.fda.gov/~dms/dspltr06.html>.

[124] Boxer.

[125] Grieve. 217.

[126] Boxer.

[127] Grieve. 218.

Works Cited

American Spice Trade Association. 1966. A glossary of Spices. American Spice Trade Association. 76 Beaver Street, New York, NY 10005

"Basil, Genovese (OG)." Johnny's Selected Seeds. Johnny's Selected Seeds. 19 Apr 2008 <http://www.johnnyseeds.com/catalog/product.aspx?scommand=search&search=basil&item=911G>.

Boxer, Arabella and Philippa Back. The Herb Book. London: Octopus Books, Limited, 1980.

Bozin B et al. "Characterization of the volatile composition of essential oils of some lamiaceae spices and the antimicrobial and antioxidant activities of the entire oils." J Agric Food Chem. 2006 Mar 8;54(5):1822-8. <http://www.ncbi.nlm.nih.gov/pubmed/16506839?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum>.

Callery, Emma. The Complete Book of Herbs. Philadelphia, PA: Courage Books, 1994.

Chiang LC et al. "Antiviral activities of extracts and selected pure constituents of Ocimum basilicum." Clin Exp Pharmacol Physiol. 2005 Oct;32(10):811-6. <http://www.ncbi.nlm.nih.gov/pubmed/16173941?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum>.

Cook, L.M. "Food-Plant Specialization in the Moth Panaxia dominula L." Evolution. 1961 Dec;15(4):478-85.

Duke, James A. Culinary Herbs: A Potpourri. Buffalo, NY: Bonch Magazine, Limited, 1985.

"FDA Advises Dietary Supplement Manufacturers to Remove Comfrey Products From the Market." FDA / CFSAN. 06 July 2001. U. S. Food and Drug Administration Center for Food Safety and Applied Nutrition. 14 Apr 2008 <http://vm.cfsan.fda.gov/~dms/dspltr06.html>.

"Fennel." Encyclopedia of Spices. 2003. The Epicentre. 28 Mar 2008 <http://www.theepicentre.com/Spices/fennel.html>.

"Fennel." Rodale's Illustrated Encyclopedia of Herbs. Ed. Claire Kowalchik & William H. Hylton. Emmaus, PA: Rodale Press, 1987. 188-190.

"Foeniculum."American Horticultural Society Encyclopedia of Plants and Flowers. 2002.

Gang, David R. et al. "Characterization of Phenylpropene O-Methyltransferases from Sweet Basil: Facile Change of Substrate Specificity and Convergent Evolution within a Plant O-Methyltransferase Family." The Plant Cell. 2002 Feb 11;(14):505-519.

Grieve, M. A Modern Herbal; The Medicinal, Culinary, Cosmetic and Economic Properties, Cultivation and Folk-Lore of Herbs, Grasses, Fungi, Shrubs, & Trees with All Their Modern Scientific Uses. New York: Dover Publications, 1971.

Harrison, John. "Comfrey the Wonder Plant." 2005. Allotment Growing. 10 Apr 2008 <http://www.allotment.org.uk/vegetable/comfrey/comfrey.PDF>.

"Lettuce Leaf Basil." Seed Savers Exchange. Seed Savers Exchange. 02 Apr 2008 <http://seedsavers.org/prodinfo.asp?number=273>.

McIntosh, Charles. The Book of the Garden. Edinburgh and London: W. Blackwood, 1853.

"Medicinal Herbs, Flower Plants, Seeds, etc." Morning Chronicle 29 Mar 1805. Newsbank Infoweb - America's Historical Newspapers. <http://infoweb.newsbank.com/>.

Muenscher, Walter Conrad and Myron Arthur Rice. Garden Spice and Wild Pot-Herbs. Ithaca, NY: Cornell University Press, 1978.

Oberlies, NH et al. "Analysis of herbal teas made from the leaves of comfrey (Symphytum officinale): reduction of N-oxides results in order of magnitude increases in the measurable concentration of pyrrolizidine alkaloids." Public Health Nutrition, 2004 Oct;7(7):919-24.

Ortiz, Elisabeth Lambert. "Basil."The Encyclopedia of Herbs, Spices, and Flavorings. 1996.

Pears, Pauline. Rodale's Illustrated Encyclopedia of Organic Gardening. London: DK Pub, 2002. 206.

Ruberto G. et al. "Antioxidant and antimicrobial activity of Foeniculum vulgare and Crithmum maritimum essential oils." Planta Med. 2000 Dec;66(8):687-93.

Sperry, Jacob. "Garden Seeds." New-York Daily Gazette 01 May 1794. Newsbank Infoweb - America's Historical Newspapers. <http://infoweb.newsbank.com/>.

Stobart, Tim. Herbs, Spices, and Flavorings. Woodstock, NY: The Overlook Press, 1982

Sturtevant, E.L.. "The History of Garden Vegetables (continued)." The American Naturalist Sept 1891. JSTOR. <http://www.jstor.org/>.

"Symphytum."American Horticultural Society Encyclopedia of Plants and Flowers. 2002.

Van Wyk, Ben-Erik. Food Plants of the World. Portland, Oregon: Timber Press, Inc., 2005.

Yeong M.L., et al. "Hepatic veno-occlusive disease associated with comfrey ingestion." Journal of Gastroenterology and Hepatology, 1990 5(2): 211-4.

Yoon, Howard. "Don't Forget the Fennel." NPR. 03 Jan 2007. National Public Radio. 30 Mar 2008 <http://www.npr.org/templates/story/story.php?storyId=6710330>.