

Peppermint (*Mentha piperita*)

Common Name: Peppermint.

Location: First cultivated near London In 1750. It grows almost everywhere. The finest-quality peppermint is grown in the northwestern United States.

Description: Peppermint is a hybrid of watermint and spearmint. It is a square stemmed annual that yields the popular flavoring agent. It grows from 32 to 36 inches high and has aromatic serrated leaves. The two main cultivated forms are in the black mint, which has violet-colored leaves and stems and a relatively high essential oil content, and the white mint, which has pure green leaves and a milder taste. Peppermint teas are used around the world to calm queasy stomachs and quell indigestion. Peppermint leaves contain a volatile (essential) oil that is 50 to 75 percent menthol. This oil is the basis of most medicinal preparations of peppermint.

Uses: Peppermint is a general stimulant. Peppermint tea circulates quickly and is more powerful than any liquor stimulant. The herb has a long history as a digestive aid and as a treatment for the symptoms of coughs, colds, and fever. It kills microorganisms that can cause food poisoning, relieves the pain of sprains and strains, and helps freshen lingering bad breath. It also is good for nausea and vomiting. Benefits of peppermint for specific health conditions include treatment of colic, food allergies, indigestion, and motion sickness; Crohn's disease and hepatitis; food poisoning; headache and stress; irritable bowel syndrome.

Doses: Peppermint is available in menthol lozenges, peppermint oil, and enteric-coated peppermint-oil capsules, and teas. Peppermint oil can be used in aromatherapy.

Warnings: You should never ingest pure menthol or peppermint leaves, which contain substances that can be toxic. Pure peppermint may cause cardiac arrhythmias, and even small doses of pure menthol can be life threatening. When using peppermint oil, it is important not to exceed the recommended dosage. If you drink peppermint tea on a regular basis, take a few days' break after a week or two. Pregnant women with morning sickness should use diluted peppermint tea rather than more potent forms of this herb.

Peppermint Herb Profile

Also known as

Mentha piperita, White Peppermint, American Peppermint, Northern Mint, Lamb Mint, Brandy Mint, and Black Peppermint.

Introduction

The world's most familiar "mint scent" is the aroma of peppermint. In Greek mythology, Menthe was turned into a plant (peppermint) when Proserpine, in a jealous rage, found out that Pluto was in love with her. Even earlier, Assyrians used it as an offering to their fire god. Peppermint contains an essential oil that is unique to other mints for its quality and flavor, and artificial mint compounds do not effectively duplicate its aroma or medicinal effects. Peppermint is one of the most popular herbs in teas, candies, and chewing gums. Cultivation and oil production started in the US in the 1790's, and was a

major export business by the mid 1800's. The U.S. is still the world's leading producer of peppermint oil, making an average of 4,117 tons annually. Although the traditional use is a tea to improve digestion, most clinical trials have studied the oil in enteric-coated capsules used internally to treat irritable bowel syndrome and externally to treat tension headache. Some companies in Japan are said to pipe peppermint oil into their AC system to invigorate their workers, and thereby increase productivity.

Constituents

The essential oil of peppermint (up to 2.5% in the dried leaf) is mostly made up from menthol (ca. 50%), menthone (10 to 30%), menthyl esters (up to 10%) and several monoterpene derivatives (pulegone, piperitone, menthofurane). Traces of jasmone (0.1%) give the oil its characteristically "minty" scent. The aromatic chemicals in the mint are concentrated when the plant is grown in areas with long, warm, bright summer days.

Parts Used

Dried or fresh leaf, and essential oil.

Typical Preparations

Tea is the most common and best employed use of this ingredient. The oil is used as flavoring in toothpaste, dental creams, mouthwash, cough candies, chewing gm, and baked goods.

Summary

According to the American Botanical Council Peppermint is helpful in assisting people with general indigestion and non-ulcer dyspepsia and makes for a soothing and warming after dinner tea The essential oil of peppermint can be applied to the skin or mouth to relieve pain. The essential oil in peppermint teas relieves the pain associated with colitis and colic. Both the peppermint leaf and peppermint oil have German E commission monographs, both for use as a carminative, and as an antibacterial. In many cultures to this day, carrying a bit of peppermint on your person is said to allow safe journey to travelers.

Precautions

For best results, avoid boiling a peppermint tea, and instead add simmering water to a cup of the material instead of boiling directly.

Botanical: *Mentha piperita* (SM.)

Family: N.O. Labiatae

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---**Synonym**---Brandy Mint.

---**Part Used**---Herb.

---**Habitat**---The plant is found throughout Europe, in moist situations, along stream banks and in waste lands, and is not unfrequent In damp places in England, but is not a common native plant, and probably is often an escape from cultivation. In America it is probably even more common as an escape than Spearmint, having long been known and grown in gardens.

Of the members of the mint family under cultivation the most important are the several varieties of the Peppermint (*Mentha piperita*), extensively cultivated for years as the source of the well-known volatile oil of Peppermint, used as a flavouring and therapeutic agent.

---**Description**---The leaves of this kind of mint are shortly but distinctly stalked, 2 inches or more in length, and 3/4 to 1 1/2 inches broad, their margins finely toothed, their surfaces smooth, both above and beneath, or only very slightly, hardly visibly, hairy on the principal veins and mid-rib on the underside. The stems, 2 to 4 feet high, are quadrangular, often purplish. The whorled clusters of little reddish-violet flowers are in the axils of the upper leaves, forming loose, interrupted spikes, and rarely bear seeds. The entire plant has a very characteristic odour, due to the volatile oil present in all its parts, which when applied to the tongue has a hot, aromatic taste at first, and afterwards produces a sensation of cold in the mouth caused by the menthol it contains.

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---**History**---Pliny tells us that the Greeks and Romans crowned themselves with Peppermint at their feasts and adorned their tables with its sprays, and that their cooks flavoured both their sauces and their wines with its essence. Two species of mint were used by the ancient Greek physicians, but some writers doubt whether either was the modern Peppermint, though there is evidence that *M. piperita* was cultivated by the Egyptians. It is mentioned in the Icelandic Pharmacopoeias of the thirteenth century, but only came into general use in the medicine of Western Europe about the middle of the eighteenth century, and then was first used in England.

It was only recognized here as a distinct species late in the seventeenth century, when the great botanist, Ray, published it in the second edition of his *Synopsis stirpium britannicorum*, 1696. Its medicinal properties were speedily recognized, and it was admitted into the London Pharmacopoeia in 1721, under *M. piperitis sapore*. The oldest existing Peppermint district is in the neighbourhood of Mitcham, in Surrey, where its cultivation from a commercial point of view dates from about 1750, at which period only a few acres of ground there were devoted to medicinal plants. At the end of the eighteenth century, above 100 acres were cropped with Peppermint, but so late as 1805 there were no stills at Mitcham, and the herb had to be carried to London for the extraction of the oil. By 1850 there were already about 500 acres under cultivation at Mitcham, and at the present day the English Peppermint plantations are still chiefly located in this district, though it is grown in several other parts of England - in Herts at Hitchin, and in Cambs at Wisbech, in Lincolnshire at Market Deeping and also at Holbeach (where the cultivation and distillation of English Peppermint oil, now carried on with the most up-to-date

improvements was commenced over seventy years ago).

There is room for a further extension of its cultivation, owing to the great superiority of the English product in pungency and flavour.

Most of London's supplies are grown in a triangle with its base on a line Kingston to Croydon, and its apex at Chipstead in Surrey. This triangle includes Mitcham, still the centre of the Peppermint-growing and distilling industry, the district proving to be specially suited to the crop. There are large Peppermint farms at Banstead and Cheam.

On the Continent Peppermint was first grown in 1771 at Utrecht, but it is now grown in considerable amounts in several countries. In France it is cultivated in the Departments of the Yonne and du Nord, French Peppermint Oil being distilled at Grasse and Cannes, as well as in the Basses-Alpes, Haute-Garonne and other parts, though the French varieties of *M. piperita* are not identical with those cultivated in England. The variety cultivated in France is known as 'Red Mint' and can grow on certain soils where the true Peppermint does not grow. The 'Red Mint' can be cultivated for four or five years in the same field, but the true *M. piperita* can be cultivated in the same field for two years only. 'Red Mint' gives a higher yield of oil, but is of inferior quality. In the Siagne Valley, it is calculated that 300 kilos of fresh plant produce 1 kilo of essential oil, elsewhere a yield of 2 kilos to about 1,000 kilos of stems and green leaves is claimed. It has been proved by experience that all parts of the plant do not give the same proportion of oil, and it is more abundant when the plants have been grown in a hot region and have flowered to the best advantage.

The product of absolutely genuine English plants cultivated in French soil varies according to the district, for the soil has a very important influence upon the flavour of the oil and also the climate: badly-drained ground is known to give unfavourable results both as to the quantity and quality of the oil.

An oil very similar to Mitcham oil, and of an excellent quality, is distilled from English plants grown in Italy, mostly in Piedmont and also in Sicily. Next to the essential oils of lemon and orange, that obtained from Peppermint enjoys a high reputation among the numerous volatile oils produced by Italy. Vigone and Pancalieri are the centres of the cultivation and distillation of Peppermint in the province of Turin. This district, which has been designated the 'Mitcham of Italy,' yields annually about 11,000,000 kilograms of Peppermint, from which 25,000 to 27,000 kilograms of essential oil are obtained. A new variety of Peppermint, found at Lutra on the island of Tino, in the Grecian Archipelago, has been cultivated in the Royal Colonial Garden at Palermo.

A small amount of Peppermint oil of good quality is distilled from plantations in Germany, at Miltitz, in Saxony and near Leipzig, where the little town of Colleda, before the War, produced annually as much as 40,000 cwt. of the herb. Russia also produces some Peppermint, in the Ukraine and the Caucasus, but most of it is used in the country itself.

With regard to Hungarian oil of Peppermint, organized effort to secure improvement began in 1904 and has been greatly developed. Hungarian oil compares favourably with American oil of Peppermint as regards percentage of Menthol contained: Hungarian oil yielding 43 to 56 per cent of free menthol, and 35 to 65 per cent of total menthol; while American oil yields 40 to 45 per cent free menthol and 60 per cent total menthol.

Peppermint oil distilled in 1914 from Mitcham plants grown at Molo, in the highlands of British East Africa, possesses a most excellent aroma, quite free of bitterness, and a very high figure indeed for the menthol contained, and there is no question that this source of supply should be an important one in the

future.

The United States, however, are now the most important producers of Peppermint oil, producing - mostly in Michigan, where its cultivation was introduced in 1855, Indiana, the western districts of New York State, and to a smaller extent in Ohio - rather under half of the world's total output of the oil. The whole of the Peppermint cultivation is confined to the north-east portion of the United States, and the extreme south of Canada, where some is grown in the province of Ontario. The first small distillery was erected in Wayne County, New York State, in the early part of last century, and at the present day the industry has increased to such an extent, that there are portions of Michigan where thousands of acres are planted with nothing else but Peppermint.

English oil is incomparably the best, but it fetches a very high price, and the French oil, though much inferior, is of finer quality than the American.

The problem is to obtain a strain of mint plants which would yield larger quantities of oil in our climate. It is possible that varieties yielding a more abundant supply of essential oils might be secured by persistent endeavour, without reducing our English standard of refinement. Also economy in harvesting and distilling should be studied. If our English oils could be reduced in price, they would replace the foreign to a greater or less extent depending upon the reduction in cost of production.

There are several varieties of Peppermint. The two chief, the so-called 'Black' and 'White' mints are the ones extensively cultivated. Botanically there is little difference between them, but the stems and leaves of the 'Black' mint are tinged purplish-brown, while the stems of the 'White' variety are green, and the leaves are more coarsely serrated in the White. The oil furnished by the Black is of inferior quality, but more abundant than that obtained from the White, the yield of oil from which is generally only about four-fifths of that from an equal area of the Black, but it has a more delicate odour and obtains a higher price. The plant is also more delicate, being easily destroyed by frost or drought; it is principally grown for drying in bundles - technically termed 'bunching,' and is the kind chiefly dried for herbalists, the Black variety being more generally grown for the oil on account of its greater productivity and hardiness. The variety grown at Mitcham is classified by some authorities as *M. piperita*, var. *rubra*.

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---Cultivation---Both Peppermint and Spearmint thrive best in a fairly warm, preferably moist climate, and in deep soils rich in humus and retentive of moisture, but fairly open in texture and well drained, either naturally or artificially.

These conditions are frequently combined in effectively drained swamp lands, but the plants may also be commercially cultivated in well-prepared upland soils, such as would produce good corn, oil or potatoes. Though a moist situation is preferable, Peppermint will succeed in most soils, when once started into growth and carefully cultivated. It flourishes well in what are known in America as muck land, that is, those broad level areas, often several thousand acres in extent, of deep fertile soil, the beds of ancient lakes and swamps where the remains of ages of growths of aquatic vegetation have accumulated. In Michigan and Indiana, where there are large areas of such land, mint culture has become highly specialized, a considerable part of the acreage being controlled by a few well-equipped growers able to handle the product in an economical manner, who have of late years installed their own upto-date distilling plants. The cultivation of Peppermint is a growing industry now also on the reclaimed lands of Louisiana.

The usual method of mint cultivation on these farms in America is to dig runners in the early spring and lay them in shallow trenches, 3 feet apart in well-prepared soil. The growing crop is kept well cultivated

and absolutely free from weeds and in the summer when the plant is in full bloom, the mint is cut by hand and distilled in straw. A part of the exhausted herb is dried and used for cattle food, for which it possesses considerable value. The rest is cut and composted and eventually ploughed into the ground as fertilizer.

The area selected for Peppermint growing should be cropped for one or two years with some plant that requires a frequent tillage. The tillage is also continued as long as possible during the growth of the mint, for successful mint-growing implies clean culture at all stages of progress.

In one of our chief English plantations the following mode of cultivation is adopted. A rich and friable soil, retentive of moisture is selected, and the ground is well tilled 8 to 10 inches deep. The plants are propagated in the spring, usually in April and May. When the young shoots from the crop of the previous year have attained a height of about 4 inches, they are pulled up and transplanted into new soil, in shallow furrows about 2 feet apart, lightly covered with about 2 inches of soil. They grow vigorously the first year and throw out numerous stolons and runners on the surface of the ground. After the crop has been removed, these are allowed to harden or become woody, and then farmyard manure is scattered over the field and ploughed in. In this way the stolons are divided into numerous pieces and covered with soil before the frost sets in, otherwise if the autumn is wet, they are liable to become sodden and rot, and the next crop fails. In the spring the fields are dressed with Peruvian Guano.

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---**Manuring**---Liberal manuring is essential, and the quantity and nature of the manure has a great effect on the characteristics of the oil. Mineral salts are found to be of much value. *Nitrate of Soda*, applied at the rate of 50 to 150 lb. to the acre both stimulates the growth of foliage and improves the quality of the essence. Half the total quantity should be applied a month before planting and the remainder a month before the harvest. *Potash*, also, is particularly useful against a form of chlorosis or 'rust' (*Puccinia menthoe*) due, apparently, to too much water in the soil, as it often appears after moist, heavy weather in August, which causes the foliage to drop off and leave the stems almost bare, in which circumstances the rust is liable to attack the plants. Some authorities have calculated that an acre of Peppermint requires 84 lb. of Nitrogen, 37 lb. of Phosphoric Acid and 139 lb. of Potash. Ground Bone and Lime do not seem to be of marked benefit. The top dressing of the running roots with fine loam either by ploughing as above described, or otherwise, is very essential before winter sets in.

In the south of France, sewage (1,300 lb. per acre) is extensively used, together with Sesame seeds from which the oil has been expressed. The latter are especially suited for light and limey soils, and are either worked in before planting or placed directly in the furrows with the plants. Up to 5,000 or 6,000 lb. per acre are applied, giving a crop of from 2,100 to 2,600 lb. per acre. The residues from the distillation of the crop are invariably used as manure. It is found, however, that although these manures supply sufficient nitrogen, they are deficient in phosphoric acid and potash. This shortage must be made up by chemical manures, otherwise the soil will become exhausted. Chemical manures *alone* are equally unsatisfactory in soils poor in organic matter. In conjunction with organic manures they give excellent results.

On suitable soil and with proper cultivation, yields of from 2 to 3 tons of Peppermint herb per acre may be expected, but large yields can only be expected from fields that are in the best possible condition. A fair average for well-managed commercial plantings may be said to be 30 lb. of oil per acre, but the yield of oil is always variable, ranging from only a few pounds to, in extremely favourable cases, nearly 100 lb. per acre. About 325 lb. of Peppermint, nearly 3 cwt., are required to produce a pound of oil in commercial practice, i.e. about 7 lb. of oil are generally obtained from 1 ton of the herb. The price

varies as widely as the yield, the value depending upon the chemical composition.

The presence of weeds among the Peppermint, especially other species of *Mentha*, is an important cause of deterioration to the oil. *M. arvensis*, the Corn Mint, if allowed to settle and increase among the crop to such an extent as not to be easily separated, has been known when distilled to absolutely ruin the flavour of the latter. In new ground the Peppermint requires handweeding two or three times, as the hoe cannot be used without injury to the plant.

In America great detriment is occasioned by the growth of *Erigeron canadensis*, and newly cleared ground planted with Peppermint, is liable to the intrusion of another plant of the order Compositae, *Erechtites hieracifolia*, which is also highly injurious to the quality of the oil.

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---Irrigation---Peppermint requires frequent irrigation. In the south of France the crop is irrigated on the 15th of May, and thereafter every eight or ten days. When the plants are fully developed they are watered at least three times a week. It is important to keep the soil constantly moist, although well drained. Absorption of water makes the shoots more tender, thus facilitating cutting, and causes a large quantity of green matter to be produced.

A plantation lasts about four years, the best output being the second year. The fourth-year crop is rarely good. A crop that yields a high percentage of essential oil exhausts the ground as a rule, and after cropping with Peppermint for four years, the land must be put to some other purpose for at least seven years. In some parts of France the plantations are renewed annually with the object of obtaining vigorous plants.

Few pests trouble Peppermint, though crickets, grasshoppers and caterpillars may always do some damage.

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---Harvesting---The herb is cut just before flowering, from the end of July to the end of August in England and France, according to local conditions. Sometimes when well irrigated and matured, a second crop can be obtained in September. With new plantations the harvest is generally early in September.

Harvesting should be carried out on a dry, sunny day, in the late morning, when all traces of dew have disappeared. The first year's crop is always cut with the sickle to prevent injury to the stolons. The herb of the second and third years is cut with scythes and then raked into loose heaps ready for carting to the stills.

In many places, the custom is to let the herb lie on the ground for a time in these small bundles or cocks. In other countries the herb is distilled as soon as cut. Again, certain distillers prefer the plants to be previously dried or steamed. The subject is much debated, but the general opinion is that it is best to distil as soon as cut, and the British Pharmacopoeia directs that the oil be distilled from the fresh flowering plant. Even under the best conditions of drying, there is a certain loss of essential oil. If the herbs lie in heaps for any time, fermentation is bound to occur, reducing the quality and quantity of the oil, as laboratory experiments have proved. Should it be impossible to treat all the crop as cut, it should be properly dried on the same system as that adopted for other medicinal plants. The loss is then small. Variation in the chemical composition of the essence should be brought about by manuring, rather than by the system of harvesting, though in America the loss caused by partial drying in the field is not regarded by growers as sufficient to offset the increased cost of handling and distilling the green herb.

Exposure to frost must, however, be avoided, as frozen mint yields scarcely half the quantity of oil which could otherwise be secured.

At Market Deeping the harvest usually commences in the beginning or middle of August, or as soon as the plant begins to flower and lasts for six weeks, the stills being kept going night and day. The herb is carted direct from the fields to the stills, which are made of copper and contain about 5 cwt. of the herb. Before putting the Peppermint into the still, water is poured in to a depth of about 2 feet, at which height a false bottom is placed, and on this the herb is then trodden down by men. The lid is then let down, and under pressure the distillation is conducted by the application of direct heat at the lowest possible temperature, and is continued for about 4 1/2 hours. The lid is then removed, and the false bottom with the Peppermint resting on it is raised by a windlass, and the Peppermint carried away in the empty carts on their return journey to the fields, where it is placed in heaps and allowed to rot, being subsequently mixed with manure applied to the fields in the autumn. The usual yield of oil, if the season be warm and dry, is 1 OZ. from 5 lb. of the fresh flowering plant, but if wet and unfavourable, the product is barely half that quantity.

If the cut green tops have some distance to travel to the distillery, they should be cut late in the afternoon, so as to be sent off by a night train to arrive at their destination next morning, or they would be apt to heat and ferment and lose colour.

Since the oil is the chief marketable product, adequate distilling facilities and a market for the oil are essential to success in the industry, and the prospective Peppermint grower should assure himself on these points before investing capital in plantations.

There is also a market, chiefly for herbalists, for the dried herb, which is gathered at the same time of year. It should be cut shortly above the base, leaving some leafbuds, and not including the lowest shrivelled or discoloured leaves and tied loosely into bundles by the stalk-ends, about twenty to the bundle on the average, and the bundles of equal length, about 6 inches, to facilitate packing, and dried over strings as described for Spearmint. Two or three days will be sufficient to dry.

Peppermint culture on suitable soils gives fair average returns when intelligently conducted from year to year. The product, however, is liable to fluctuation in prices, and the cost of establishing the crop and the annual expenses of cultivation are high.

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---Constituents--- Among essential oils, Peppermint ranks first in importance. It is a colourless, yellowish or greenish liquid, with a peculiar, highly penetrating odour and a burning, camphorescent taste. It thickens and becomes reddish with age, but improves in mellowness, even if kept as long as ten or fourteen years.

The chief constituent of Peppermint oil is Menthol, but it also contains menthyl acetate and isovalerate, together with menthone, cineol, inactive pinene, limonene and other less important bodies.

On cooling to a low temperature, separation of Menthol occurs, especially if a few crystals of that substance be added to start crystallization.

The value of the oil depends much upon the composition. The principal ester constituent, menthyl acetate, possesses a very fragrant minty odour, to which the agreeable aroma of the oil is largely due. The alcoholic constituent, Menthol, possesses the wellknown penetrating minty odour and characteristic cooling taste. The flavouring properties of the oil are due largely to both the ester and alcoholic constituents, while the medicinal value is attributed to the latter only. The most important determination

to be made in the examination of Peppermint oil, is that of the total amount of Menthol, but the Menthone value is also frequently required. The English oil contains 60 to 70 per cent of Menthol, the Japanese oil containing 85 per cent, and the American less than ours, only about 50 per cent. The odour and taste afford a good indication of the quality of the oil, and by this means it is quite possible to distinguish between English, American and Japanese oils.

Menthol is obtained from various species of *Mentha* and is imported into England, chiefly from Japan. The oils from which it is chiefly obtained are those from *M. arvensis*, var. *piperascens*, in Japan, *M. arvensis*, var. *glabrata* in China, and *M. piperita* in America.

Japan, and to a certain extent China, produce large quantities of Peppermint oil distilled from the plants just mentioned. The oils produced from these plants are greatly inferior to those distilled from *M. piperita*, but have the advantage of containing a large proportion of Menthol, of which they are the commercial source.

The Japanese Menthol plant is now being grown in South Australia, having been introduced there by the Germans from Japan.

Chinese Peppermint oil is largely distilled at Canton, a considerable quantity being sent to Bombay, also a large quantity of Menthol. Peppermint is chiefly cultivated in the province of Kiang-si.

M. incana, cultivated near Bombay as a herb, also possesses the flavour of Peppermint.

M. arvensis, var. *javanesa*, growing in Ceylon, has not the flavour of Peppermint, but that of the garden mint, while the type form of *M. arvensis*, growing wild in Great Britain, has an odour so different from Peppermint that it has to be carefully removed from the field lest it should spoil the flavour of the Peppermint oil when the herb is distilled.

The Japanese have long recognized the value of Menthol, and over 200 years ago carried it about with them in little silver boxes hanging from their girdles. The distillation of oil of Peppermint forms a considerable industry in Japan. The chief centre of cultivation is the province of Uzen, in the north-east of the island of Hondo, the largest of the Japanese Islands, and much is grown in the northern island of Hokkaido, but the best oil is produced in the southern districts of Okayama and Hiroshimo, the second largest Peppermint area in Japan, the yield of mint being yearly on the increase. The mint crop is a favourite one for farmers, owing to the distilling work it furnishes during the long and otherwise unprofitable winter.

The roots are planted at the end of November and beginning of December. The plant, which needs a light, well-drained soil, attains its full growth during the summer months and is cut in the latter part of July, during August and in the early part of September, three cuttings being made during the season. The third cutting yields the greatest percentage of oil and menthol crystals. The preliminary steps in the manufacture of Menthol are carried out by the farmers themselves, with the aid of stills of a simple design. The Peppermint plants are first dried in sheds, or under cover from the sun for thirty days. Then they are placed in the stills where they undergo a process of steaming. The resulting vapours are led off through pipes into cooling chambers, are condensed and deposited as crude Peppermint oil. This crude Peppermint is shipped to Yokohama and Kobe to the Menthol factories, of which there are over seventy in various parts of Japan, specially equipped for obtaining the full amount of Menthol. The residue of dementholized oil is further refined to the standard of purity required in the trade, and is known as Japanese Peppermint oil. The oil (known in Japan under the name of *Hakka no abura*) is exported from Hiogo and Osaka, but is frequently adulterated. The cheapest variety of Peppermint oil available in commerce is this partially dementholized oil imported from Japan, containing only 50 per cent of

Menthol.

Adulteration of American Peppermint oil with dementholized Japanese oil, known as Menthene, which is usually cheaper than American oil, is frequently practised. The failure of the mint crop in America in 1925 and the consequent scarcity and high price of the American oil caused this adulteration to be very extensive.

The Japanese oil, termed by the Americans Corn-Mint oil and not recognized by the United States Pharmacopoeia, is at best only a substitute in confectionery and other products, such as tooth-pastes, etc. There are other varieties of so-called Peppermint oil on the market which are residues from Menthol manufacture and are inferior even to the oil imported from Japan. These are not suitable for use in pharmacy.

As Japanese Peppermint oil, after being freed from Menthol crystals, is inferior both in taste and odour to English and American oil, experiments have been made in Japan with the cultivation of English and American Peppermint, but so far without success.

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---**Adulterants**---Camphor oil is occasionally used as an adulterant of Peppermint oil, also Cedarwood oil and oil of African Copaiba. The oil is also often adulterated with one-third part of rectified spirit, which may be detected by the milkiness produced when the oil is agitated by water. Oil of Rosemary and oil of Turpentine are sometimes used for the same purpose. If the oil contains turpentine it will explode with iodine. If quite pure, it dissolves in its own weight of rectified spirits of wine.

In the form in which Menthol is imported, it bears some resemblance to Epsom Salts, with which it is sometimes adulterated.

Before the War about half the Menthol crystals exported from Japan were sent to Germany. During the War the United States became the largest purchaser of these crystals, followed in order by Great Britain, France and British India.

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---**Medicinal Action and Uses**---Peppermint oil is the most extensively used of all the volatile oils, both medicinally and commercially. The characteristic anti-spasmodic action of the volatile oil is more marked in this than in any other oil, and greatly adds to its power of relieving pains arising in the alimentary canal.

From its stimulating, stomachic and carminative properties, it is valuable in certain forms of dyspepsia, being mostly used for flatulence and colic. It may also be employed for other sudden pains and for cramp in the abdomen; wide use is made of Peppermint in cholera and diarrhoea.

It is generally combined with other medicines when its stomachic effects are required, being also employed with purgatives to prevent griping. Oil of Peppermint allays sickness and nausea, and is much used to disguise the taste of unpalatable drugs, as it imparts its aromatic characteristics to whatever prescription it enters into. It is used as an infants' cordial.

The oil itself is often given on sugar and added to pills, also a spirit made from the oil, but the preparation in most general use is Peppermint Water, which is the oil and water distilled together.

Peppermint Water and spirit of Peppermint are official preparations of the British Pharmacopoeia.

In flatulent colic, spirit of Peppermint in hot water is a good household remedy, also the oil given in doses of one or two drops on sugar.

Peppermint is good to assist in raising internal heat and inducing perspiration, although its strength is soon exhausted. In slight colds or early indications of disease, a free use of Peppermint tea will, in most cases, effect a cure, an infusion of 1 ounce of the dried herb to a pint of boiling water being employed, taken in wineglassful doses; sugar and milk may be added if desired.

An infusion of equal quantities of Peppermint herb and Elder flowers (to which either Yarrow or Boneset may be added) will banish a cold or mild attack of influenza within thirty-six hours, and there is no danger of an overdose or any harmful action on the heart. Peppermint tea is used also for palpitation of the heart.

In cases of hysteria and nervous disorders, the usefulness of an infusion of Peppermint has been found to be well augmented by the addition of equal quantities of Wood Betony, its operation being hastened by the addition to the infusion of a few drops of tincture of Caraway.

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---**Preparations**---Fluid extract, 1/4 to 1 drachm. Oil, 1/2 to 3 drops. Spirit, B.P., 5 to 20 drops. Water, B.P. and U.S.P., 4 drachms.

The following simple preparation has been found useful in insomnia:

1 OZ. Peppermint herb, cut fine, 1/2 OZ. Rue herb, 1/2 OZ. Wood Betony. Well mix and place a large tablespoonful in a teacup, fill with boiling water, stir and cover for twenty minutes, strain and sweeten, and drink the warm infusion on going to bed.

A very useful and harmless preparation for children during teething is prepared as follows:

1/2 OZ. Peppermint herb, 1/2 OZ. Scullcap herb, 1/2 OZ. Pennyroyal herb. Pour on 1 pint of boiling water, cover and let it stand in a warm place thirty minutes. Strain and sweeten to taste, and given frequently in teaspoonful doses, warm.

Boiled in milk and drunk hot, Peppermint herb is good for abdominal pains. 'Aqua Mirabilis' is a term applied on the Continent to an aromatic water which is taken for internal pains. It is a water distilled from herbs, sometimes used in the following form:

Cinnamon oil, Fennel oil, Lavender oil, Peppermint oil, Rosemary oil, Sage oil, of each 1 part; Spirit, 350 parts; Distilled water, 644 parts.

Menthol is used in medicine to relieve the pain of rheumatism, neuralgia, throat affections and toothache. It acts also as a local anaesthetic, vascular stimulant and disinfectant. For neuralgia, rheumatism and lumbago it is used in plasters and rubbed on the temples; it will frequently cure neuralgic headaches. It is inhaled for chest complaints, and nasal catarrh, laryngitis or bronchitis are often alleviated by it. It is also used internally as a stimulant or carminative. On account of its anaesthetic effect on the nerveendings of the stomach, it is of use to prevent sea-sickness, the dose being 1/2 to 2 grains. The bruised fresh leaves of the plant will, if applied, relieve local pains and headache, and in rheumatic affections the skin may be painted beneficially with the oil.

Oil of Peppermint has been recommended in puerperal fevers. 30 to 40 minims, in divided doses, in the twenty-four hours, have been employed with satisfactory results, a stimulating aperient preceding its use.

The local anaesthetic action of Peppermint oil is exceptionally strong. It is also powerfully antiseptic, the two properties making it valuable in the relief of toothache and in the treatment of cavities in the teeth.

Sanitary engineers use Peppermint oil to test the tightness of pipe joints. It has the faculty of making its escape, and by its pungent odour betraying the presence of leaks.

A new use for Peppermint oil has been found in connexion with the gas-mask drill on the vessels of the United States Navy.

Paste may be kept almost any length of time by the use of the essential oil of Peppermint to prevent mould.

Rats dislike Peppermint, a fact that is made use of by ratcatchers, who, when clearing a building of rats, will block up most of their holes with rags soaked in oil of Peppermint and drive them by ferrets through the remaining holes into bags.

See [PENNYROYAL](#).