

# Lavenders

**Family: N.O. Labiatae**

## **Habitat**

Lavender is a shrubby plant indigenous to the mountainous regions of the countries bordering the western half of the Mediterranean, and cultivated extensively for its aromatic flowers in various parts of France, in Italy and in England and even as far north as Norway. It is also now being grown as a perfume plant in Australia.

The fragrant oil to which the odour of Lavender flowers is due is a valuable article of commerce, much used in perfumery, and to a lesser extent in medicine. The fine aromatic smell is found in all parts of the shrub, but the essential oil is only produced from the flowers and flower-stalks. Besides being grown for the production of this oil, Lavender is widely sold in the fresh state as 'bunched Lavender,' and as 'dried Lavender,' the flowers are used powdered, for sachet making and also for pot-pourri, etc., so that the plant is a considerable source of profit.

Various species of Lavender are used in the preparation of the commercial essential oil, but the largest proportion is obtained from the flowers of *Lavandula vera*, the narrow-leaved form, which grows abundantly in sunny, stony localities in the Mediterranean countries, but nowhere to such perfection as in England. (The Editor has often come across fields of French Lavender in bloom and the scent has been poor compared with English Lavender grown under the worst conditions. -- EDITOR.) English Lavender is much more aromatic and has a far greater delicacy of odour than the French, and the oil fetches ten times the price. The principal English Lavender plantations are at Carshalton and Wallington in Surrey, Hitchin in Herts, Long Melford in Suffolk, Market Deeping (Lincs) and in Kent, near Canterbury. Mitcham in Surrey used to be the centre of the Lavender-growing industry, but with the extension of London the famous Lavender plantations of Mitcham and surrounding districts have been largely displaced by buildings, and during the War the cultivation of Lavender was still further diminished to give place to food crops, so that in 1920 not more than ten acres under Lavender cultivation could be stated to be found in the whole of Surrey, though some of the oil is still distilled in the neighbourhood, and the finest products continue to be described as 'Mitcham Lavender Oil.'

## **Description**

**ENGLISH LAVENDER** (*Lavandula vera*), the common narrow-leaved variety, grows 1 to 3 feet high (in gardens, occasionally somewhat taller), with a short, but irregular, crooked, much-branched stem, covered with a yellowish-grey bark, which comes off in flakes, and very numerous, erect, straight, broom-like, slender, bluntly-quadrangular branches, finely pubescent, with stellate hairs. The leaves are opposite, sessile, entire, linear, blunt; when young, white with dense stellate hairs on both surfaces; their margins strongly revolute; when full grown, 1 1/2 inch long, green with scattered hairs above, smoothly or finely downy beneath, and the margins only slightly revolute. The flowers are produced in terminating, blunt spikes from the young shoots, on long stems. The spikes are composed of whorls or rings of flowers,

each composed of from six to ten flowers, the lower whorls more distant from one another. The flowers themselves are very shortly stalked, three to five together in the axils of rhomboidal, brown, thin, dry bracts. The calyx is tubular and ribbed, with thirteen veins, purple-grey in colour, five-toothed (one tooth being longer than the others) and hairy; shining oil glands amongst the hairs are visible with a lens. The majority of the oil yielded by the flowers is contained in the glands on the calyx. The two-lipped corolla is of a beautiful bluish-violet colour.

*French* Lavender oil is distilled from two distinct plants, found in the mountain districts of Southern France, both included under the name of *L. officinalis* by the sixteenth-century botanists, and *L. vera* by De Candolle. The French botanist Jordan has separated them under the name of *L. delphinensis*, the Lavender of Dauphine, and *L. fragrans*. The oils from the two plants are very similar, but the former yields oils with the higher percentage of esters.

### **Description**

**The SPIKE LAVENDER** (*L. spica*, D.C., or *latifolia*, Vill.) is a coarser, broadleaved variety of the Lavender shrub, also found in the mountain districts of France and Spain, though preferring alluvial ground which has been brought down by water from higher levels. In this country it cannot so easily be cultivated in the open as the common Lavender, to which it has a very close similarity, but from which it can be distinguished by the inflorescence, which is more compressed, by the bracts in the axils of which the flowers are placed being much narrower and by the leaves which are broader and spatula shaped. The flowers yield three times as much of the essential oil - known as Spike oil - as can be got from our narrowleaved plant, but it is of a second-rate quality, less fragrant than that of the true Lavender, its odour resembling a mixture of the oils of Lavender and Rosemary.

Parkinson in his *Garden of Pleasure* says the *L. spica* 'is often called the Lesser Lavender or minor, and is called by some, Nardus Italica.' Some believe that this is the Spikenard mentioned in the Bible.

### **History**

Dr. Fernie, in *Herbal Simples*, says:

'By the Greeks the name Nardus is given to Lavender, from Naarda, a city of Syria near the Euphrates, and many persons call the plant "Nard." St. Mark mentions this as Spikenard, a thing of great value.... In Pliny's time, blossoms of the Nardus sold for a hundred Roman denarii (or L.3 2s. 6d.) the pound. This Lavender or Nardus was called Asarum by the Romans, because it was not used in garlands or chaplets. It was formerly believed that the asp, a dangerous kind of viper, made Lavender its habitual place of abode, so that the plant had to be approached with great caution.'

*L. SPICA* and *L. FRAGRANS* often form hybrids, known as 'Bastard Lavender,' which grow in the mountain districts of France and Spain. Great care is necessary to avoid admixture in the still during distillation of Lavender, as Spike and the hybrids both injure the quality of the essential oil of true Lavender.

'White Lavender,' which is sometimes found in the Alps at extreme altitudes, is considered to be a form of *L. delphinensis*, the white flowers being a case of albinism. Attempts to propagate this form in this country rarely meet with much success.

## Description

***L. Stoechas*** Another species of LAVENDER, *L. Stoechas*, known also as French Lavender, forms a pretty little shrub, with narrow leaves and very small, dark violet flowers, terminated with a tuft of brightcoloured leaflets, which makes it very attractive. It is an inhabitant of the coast, but only occurs on sand or other crystalline rocks, and never on limestone. It is very abundant on the islands of Hyères, which the Ancient Romans called the 'Stoechades,' after this plant. This was probably the Lavender so extensively used in classical times by the Romans and the Libyans, as a perfume for the bath (whence probably the plant derived its name - from the Latin, *lavare*, to wash). It is plentiful in Spain and Portugal and is only used as a rule for strewing the floors of churches and houses on festive occasions, or to make bonfires on St. John's Day, when evil spirits are supposed to be abroad, a custom formerly observed in England with native plants. The odour is more akin to Rosemary than to ordinary Lavender. The flowers of this species were used medicinally in England until about the middle of the eighteenth century, the plant being called by our old authors, 'Sticadore.' It was one of the ingredients of the 'Four Thieves' Vinegar' famous in the Middle Ages. It is not used for distillation, though in France and Spain, the country people, in a simple manner extract an oil, used for dressing wounds, by hanging the flowers downwards in a closed bottle in the sunshine. The Arabs make use of the flowers as an expectorant and antispasmodic.

The Dwarf Lavender is more compact than the other forms and has flowers of a deeper colour. It makes a neat edging in the fruit or kitchen garden, where the larger forms might be in the way, and the flowers, borne abundantly, are useful for cutting.

All the forms of Lavender are much visited by bees and prove a good source of honey.

Lavender was familiar to Shakespeare, but was probably not a common plant in his time, for though it is mentioned by Spencer as 'The Lavender still gray' and by Gerard as growing in his garden, it is not mentioned by Bacon in his list of sweet-smelling plants. It is now found in every garden, but we first hear of it being cultivated in England about 1568. It must soon have become a favourite, however, for among the long familiar gardenplants which the Pilgrim Fathers took with them to their new home in America, we find the names of Lavender, Rosemary and Southernwood, though John Josselyn, in his *Herbal*, says that 'Lavender Cotton groweth pretty well,' but that 'Lavender is not for the Climate.'

Parkinson has much to say about Lavender:

'Of Sage and of Lavender, both the purple and the rare white (there is a kinde hereof that beareth white flowers and somewhat broader leaves, but it is very rare and seene but in few places with us, because it is more tender and will not so well endure our cold Winters).'

'Lavender,' he says, 'is almost wholly spent with us, for to perfume linnen, apparell, gloves and leather and the dried flowers to comfort and dry up the moisture of a cold braine.

'This is usually put among other hot herbs, either into bathes, ointment or other things that are used for cold causes. The seed also is much used for worms.'

Lavender is of 'especiall good use for all griefes and paines of the head and brain,' it is now almost solely grown for the extraction of its essential oil, which is largely employed in perfumery.

Of French Lavender he says:

'The whole plant is somewhat sweete, but nothing so much as Lavender. It groweth in the Islands Staechades which are over against Marselles and in Arabia also: we keep it with great care in our Gardens. It flowreth the next yeare after it is sowne, in the end of May, which is a moneth before any Lavender.'

Lavender was one of the old street cries, and white lavender is said to have grown in the garden of Queen Henrietta Maria.

### **Cultivation**

Lavender is of fairly easy culture in almost any friable, garden soil. It grows best on light soil - sand or gravel - in a dry, open and sunny position. Loam over chalk also suits it. It requires good drainage and freedom from damp in winter.

The plant flourishes best on a warm, well drained loam with a slope to the south or south-west. A loam that is too rich is detrimental to the oil yield, as excessive nourishment tends to the growth of leaf. Protection against summer gales by a copse on the southwest is also of considerable value, as these gales may do great damage to the crop by causing the tall flower-spikes to break away at their junction with the stem. Lavender also is liable to injury by frost and low-lying situations and those prone to become weatherbound in winter are to be avoided.

The founding of a Lavender plantation for the purpose of oil production is an enterprise which requires very careful consideration. The land should first be carefully cleaned of weeds in the autumn; these should be burnt, and the ashes distributed over the ground, together with some ordinary wood ashes if obtainable. The soil should then be prepared by 'trenching in' a quantity of short straw and stable refuse, but not much rich dung, and should lie fallow until the following spring, when any weeds remaining should be dealt with as before and the whole ploughed over. Towards late spring, the young plants should be dibbed in in rows running from north to south. Some growers plant out in rows 2 feet apart, leaving a foot between each plant. Another mode of planting favoured is to plant out 18 inches apart each way and when these plants have occupied the ground for one year, each intervening plant and those of every other row are taken out, leaving the land planted 36 inches by 36 inches, the wide spaces being judged to allow the plant full growth for flower-bearing, room for cutting flowers and for keeping the ground quite clear of weeds. The plants removed are utilized for planting up fresh ground, each being divided into about three.

The crop may be grown from seed, sown in April, but is mainly propagated by cuttings and layerings. It may also be propagated by division of roots. Cuttings of the young wood, or small branches, with a root or heel, pulled off the large plants, may be inserted in free, sandy soil, under hand-lights in August and September, and planted out during the following spring. The 'cuttings' are taken by pulling the small branches down with a quick movement, when they become detached with the desired 'heel' at their base. Cuttings root freely in April, also, in the open, protection being given in cold weather. They should be of young growths. A certain amount of watering will be required in dry weather until the cuttings are thoroughly established.

Young plants should as far as possible be kept from flowering during the first year by clipping, so that the strength of the plant is thrown into the lateral shoots to make it bushy and compact. A full picking is usually obtained from the second to the fifth year. After the third year, the bushes are apt to become straggly. They can be pruned in March and care should be taken to always have young plants ready to follow on, to take the place of exhausted, over-straggly bushes. In commercial practice, the bushes are seldom retained after their fifth year. It follows, therefore, that in order to keep up a continuous supply of bushes in their prime, planting and grubbing must, on an established plantation, be done every year. Most growers plant say a fifth portion of the ultimate area of Lavender aimed at in the first instance and this is repeated each year until the fifth year, when the area first planted is grubbed immediately after flowering, the old plants burnt, the ashes put upon the ground, and the land ploughed and manured and left fallow until the following spring, when re-stocking can commence.

At Mitcham, Lavender was grown for even six years in succession by judiciously removing worn plants and inserting young ones. Severe frost will often kill rows of plants and their place must be renewed.

During the last few years, plants have been subject to Lavender disease, caused by the fungus, *Phoma lavandulae*; this causes a heavy loss, as the disease spreads rapidly. It can be eradicated, however, by eliminating and burning the infested plants. English Lavender is more robust in habit than the French plant.

A parasitic plant, *Cuscuta epithimum*, one of the Dodders, will attack and destroy the fine Lavenders, *delphinensis* and *fragens*, but does not affect the less valuable 'Bastard' Lavender, which eventually survives by itself.

*Insect pests* are principally small caterpillars and similar animals, which feed upon the leaves of the plant.

### **Harvesting**

The bulk of the flowers are used for the distillation of the volatile oil, which is commonly distilled from the flowerstalks and flowers together, the spikes being cut with a small hook about 6 to 9 inches below the flowers, at the end of July or August, according to season. It will be necessary to provide a small distilling plant on the grower's premises, unless arrangements can be made for the distillation of the crop at a local distillery.

Cutting for distilling takes place generally about a week later than for market; the blooms must all be fully developed, because the oil at this time contains the maximum amount of esters.

Harvesting should be carried out rapidly - the cutting managed in a week if possible - so long as the weather is dry and there is no wind, the morning and evening of a fine day being particularly favourable to the flower gathering, on account of the fact that a certain amount of the ester portion of the oil is dissipated by a hot sun, as is easily seen by the fact that the Lavender plantations, and all fields of aromatic plants, are most highly perfumed about mid-day. Further, if there is any wind, the mid-day is the time when it will be hottest and most saturated with moisture, thus easily taking up the more volatile and more soluble particles of the essential oil. Very cold weather prevents the development of esters and rain is fatal for harvesting. If rain or fog appears, cutting should cease and not be resumed till the sun shines again. The cut Lavender should be laid on clean dry mats and covered from sun scorch immediately. There must be no moisture in the stook, neither must it be dried up by wind or sun. The mats will be rolled up in the cool of the evening before the dew is falling and carted to the still. For some purposes, the stalks are shortened to about 6 inches before stilling, but, generally, the whole of the contents of the mat are placed carefully in the still right away.

If more flowers are cut than can be dealt with quickly in the still, the flowers should be stored in a closed shed so as to prevent them drying and losing a portion of the essential oil. Every effort should be taken to prevent the slightest fermentation of the flowers before distillation. Fermentation means a smaller yield and a poorer quality of oil.

In making the most refined Lavender oil, the blossoms are carefully stripped off the stalk previous to distillation and distilled alone, but this is necessarily a more expensive way of proceeding. The oil in the stalks has a much coarser odour. The British Pharmacopoeia directs that Lavender oil for medicinal use should be thus distilled from the flowers after they have been separated from their stalks, and the oil distilled in Britain is alone official, as it is very superior to foreign oil of Lavender.

### **Distillation**

The stills usually employed by growers are of simple construction, any fault in the distillate being subsequently rectified by fractional distillation. The stills are constructed of copper, and generally built to take a charge of about 5 cwt. of flowers at a time. It is important to avoid burning, and the practice is to provide the stills with two chambers, with a perforated false bottom between, the lower chamber being filled with water which should be as soft as possible. Distillation is conducted by boiling the water beneath the charge with steam brought from a boiler to a coil, the top of which must be at least 1 foot beneath the bottom of the charge chamber. The oilflow from the condenser must be watched for, and complete distillation of the charge usually takes about six hours from commencement of the flow.

The yield of the oil is apt to vary considerably from season to season, as the age of the bushes and the weather will affect both the quantity and quality of the product. The

amount of sunlight in the weeks before distillation has a great influence: the best oil is obtained after a hot, droughty season, heavy rains detract from the yield.

An acre of Lavender in its prime would in a favourable year yield from 15 to 20 lb. of oil, but taking the whole of the area planted as described above, an average yield of 12 lb. to the area would be a fair estimate.

The distillate should be left for several months to become quite clear and transparent before it is offered for sale.

At Hitchin, it has been calculated that 60 lb. of good flowers will yield on the average 16 fluid ounces of oil.

Growers not doing their own distilling, but preparing the flowers dry for market, should spread the stalks out in the open, on trays or sieves, in a cool, shady position, out of the sun, so that they may dry slowly. The trays should be raised a few feet from the ground, to ensure a warm current of air, and the stems must not be allowed to touch, or the flowers will be spoiled by the moist heat engendered. They must be taken indoors before there is any risk of them getting damp either by dew or showers. When dry, they should be stored in a dry place and made up into bundles. The flowers may also be stripped from the stalks and dried by a moderate heat. They have a greyish-blue colour when dried.

### **Constituents**

The principal constituent of Lavender is the volatile oil, of which the dried flowers contain from 1.5 to 3 per cent fresh flowers yielding about 0.5 per cent. It is pale yellow, yellowish-green or nearly colourless, with the fragrant odour of the flowers and a pungent, bitter taste. The chief constituents of the oil are linalool and its acetic ester, linalyl acetate, which is also the characteristic ingredient of oil of bergamot and is present in English oil of Lavender to the extent of 7 to 10 per cent. Other constituents of the oil are cineol (in English oil, only a trace in French oils), pinene, limonene, geraniol, borneol and some tannin. Lavender oil is soluble in all proportions of alcohol.

It is principally to the esters that Lavender oil owes its delicate perfume. In the oil there are two esters which practically control the odour, of these the principal is linalyl acetate, the second is linalyl butyrate, and Lavender oil nowadays is very largely valued by chemical analysis, involving a determination of the esters. Many things influence the ester value of Lavender oil. In the first place, the preponderance of one or other of the varieties of Lavender used for distillation makes an appreciable difference; in cultivated material, the use of artificial manures not only increases the ester value of the oil, but also increases the yield. The gathering of the flowers when fully expanded and their rapid transport to the stills has considerable influence and the rapid distillation by steam shows a very marked advantage over water distillation. The proportion of esters in Lavender also depends on the period of development of the flower. In June, the esters are found disseminated throughout all the green parts of the plant. From this time onwards, as the plants develop, the esters commence to concentrate in the flowering spikes: the accumulation of oil in these spikes can be distinctly seen by the naked eye in brilliant sunshine, the tiny oil globules shining like

little diamonds. The delicacy is completed by the concentration of the esters during the following month, in an ordinary year, the maximum odour is developed by the end of July. About the middle of August, the perfume commences to deteriorate. Oil distilled from the earliest flowers is pale and contains a higher proportion of the more valuable esters, oil distilled from the later flowers has a preponderance of the less valuable esters and is darker in colour. It is evident from these facts that the correct time of gathering is directly flowering is at the full, and English Lavender is always entirely harvested in under a week, and the flowers are distilled on the spot.

### **Medicinal Action and Uses**

Lavender was used in earlier days as a condiment and for flavouring dishes 'to comfort the stomach.' Gerard speaks of Conserves of Lavender being served at table.

It has aromatic, carminative and nervine properties. Though largely used in perfumery, it is now not much employed internally, except as a flavouring agent, occurring occasionally in pharmacy to cover disagreeable odours in ointments and other compounds.

Red Lavender lozenges are employed both as a mild stimulant and for their pleasant taste.

The essential oil, or a spirit of Lavender made from it, proves admirably restorative and tonic against faintness, palpitations of a nervous sort, weak giddiness, spasms and colic. It is agreeable to the taste and smell, provokes appetite, raises the spirits and dispels flatulence. The dose is from 1 to 4 drops on sugar or in a spoonful or two of milk.

A few drops of the essence of Lavender in a hot footbath has a marked influence in relieving fatigue. Outwardly applied, it relieves toothache, neuralgia, sprains, and rheumatism. In hysteria, palsy and similar disorders of debility and lack of nerve power, Lavender will act as a powerful stimulant.

'It profiteth them much,' says Gerard, 'that have the palsy if they be washed with the distilled water from the Lavender flowers, or are anointed with the oil made from the flowers and olive oil in such manner as oil of roses is used.'

Culpepper says that:

'a decoction made with the flowers of Lavender, Horehound, Fennel and Asparagus root, and a little Cinnamon, is very profitably used to help the falling-sickness (epilepsy) and the giddiness or turning of the brain.'

Salmon in his *Herbal* (1710) says that:

'it is good also against the bitings of serpents, mad-dogs and other venomous creature, being given inwardly and applied poultice-wise to the parts wounded. The spirituous tincture of the dried leaves or seeds, if prudently given, cures hysterick fits though vehement and of long standing.'



In some cases of mental depression and delusions, oil of Lavender proves of real service, and a few drops rubbed on the temple will cure nervous headache.

Compound Tincture of Lavender, sold under the name of Lavender drops, besides being a useful colouring and flavouring for mixtures, is still largely used for faintness. This tincture of red Lavender is a popular medicinal cordial, and is composed of the oils of Lavender and Rosmary, with cinnamon bark, nutmeg and red sandal wood, macerated in spirit of wine for seven days. A teaspoonful may be taken as a dose in a little water after an indigestible meal, repeating after half an hour if needed.

It has been officially recognized in the successive British Pharmacopoeia for over 200 years. In the eighteenth century, this preparation was known as 'palsy drops' and as 'red hartshorn.' The formula which first appeared in the London Pharmacopoeia at the end of the seventeenth century was a complicated one. It contained nearly thirty ingredients, and was prepared by distilling the fresh flowers of lavender, sage, rosemary, betony, cowslips, lily of the valley, etc., with French brandy; in the distillate such spices as cinnamon, nutmeg, mace, cardamoms were digested for twenty-four hours, and then musk, ambergris, saffron, red roses and red sandal-wood were tied in a bag and suspended in the spirit to perfume and colour it. The popularity of this remedy for two hundred and fifty years may be understood by referring to the statements made concerning its virtues when it was first made official. It was said to be useful:

'against the Falling-sickness, and all cold Distempers of the Head, Womb, Stomach and Nerves; against the Apoplexy, Palsy, Convulsions, Megrin, Vertigo, Loss of Memory, Dimness of Sight, Melancholy, Swooning Fits and Barrenness in Women. It was given in canary, or the Syrup of the Juice of Black-cherries, or in Florence wine. Country people may take it in milk or fair water sweetened with sugar.... It is an excellent but costly medicine.'

In the London Pharmacopoeia of 1746 a very drastic change was made in the recipe and practically no change has been made since that time.

A tea brewed from Lavender tops, made in moderate strength, is excellent to relieve headache from fatigue and exhaustion, giving the same relief as the application of Lavender water to the temples. An infusion taken too freely, will, however, cause griping and colic, and Lavender oil in too large doses is a narcotic poison and causes death by convulsions.

'The chymical oil drawn from Lavender,' to quote Culpepper, 'usually called Oil of Spike, is of so fierce and piercing a quality, that it is cautiously to be used, some few drops being sufficient to be given with other things, either for inward or outward griefs.'

Lavender oil is found of service when rubbed externally for stimulating paralysed limbs. Mixed with  $\frac{3}{4}$  spirit of turpentine or spirit of wine it made the famous Oleum Spicae, formerly much celebrated for curing old sprains and stiff joints. Fomentations with Lavender in bags, applied hot, will speedily relieve local pains.

A distilled water made from Lavender has been used as a gargle and for hoarseness and loss of voice.

Its use in the swabbing of wounds obtained further proof during the War, and the French Academy of Medicine is giving attention to the oil for this and other antiseptic surgical purposes. The oil is successfully used in the treatment of sores, varicose ulcers, burns and scalds. In France, it is a regular thing for most households to keep a bottle of Essence of Lavender as a domestic remedy against bruises, bites and trivial aches and pains, both external and internal.

Lavender oil is also used in veterinary practice, being very efficacious in killing lice and other parasites on animals. Its germicidal properties are very pronounced. In the south-east of France it is considered a useful vermifuge.

The oil is used in the embalming of corpses to a steadily increasing extent.

### **Preparations and Dosages**

Fluid extract, 1/2 to 1 drachm. Compound Tincture, B.P., and U.S.P., 1/2 to 1 drachm. Oil, 1 to 3 drops. Spirit, B.P. and U.S.P., 5 to 30 drops.

*Adulteration of Lavender Oil.* French oils containing less than 30 per cent of esters are very often mixed with Spike or Bastard Lavender oils. Formerly adulteration used to be with oil of Turpentine, often mixed with coco-nut oil, but this has given place to various artificial esters prepared chemically, which are practically odourless and only added to make the oil appear to have a higher ester percentage than it really has. Recently, crude mixtures of Lavender oil with Petitgrain oil have been noticed on the market.

*Spanish Lavender Oil*, distilled in Spain and sold largely to England as Lavender oil, is not a genuine Lavender oil at all, but an oil practically free from esters, having the general character of Spike Lavender oil. The production of this oil now reaches about 40,000 kilos per annum.

*Spike Lavender Oil* is of a penetrating, camphoraceous odour and is never worth more than about one-fifth of the value of genuine Lavender oil. The oil is used in veterinary practice in considerable quantities, as a prophylactic in cases of incipient paralysis. It is also employed (together with that from *L. Stoechas*) in the manufacture of certain types of fine varnishes and lacquers, with oil of turpentine, and used by painters on porcelain. It is used to a very great extent in cheap perfumery and for scenting soaps, especially in England and the United States. The annual production of Spike Lavender oil in France is about 25,000 kilos.

This oil of *Latifolia* or *Spica* is said to admirably promote the growth of the hair when weakly or falling off. A decoction - Spike Water - can be made from the plant.

*Dried Lavender flowers* are still greatly used to perfume linen, their powerful, aromatic odour acting also as a preventative to the attacks of moths and other insects. In America, they find very considerable employment for disinfecting hotrooms and keeping away flies and mosquitoes, who do not like the scent. Oil of Lavender, on

cotton-wool, tied in a little bag or in a perforated ball hung in the room, is said to keep it free from all flies.

Not only are insects averse to the smell of Lavender, so that oil of Lavender rubbed on the skin will prevent midge and mosquito bites, but it is said on good authority that the lions and tigers in our Zoological Gardens are powerfully affected by the scent of Lavender Water, and will become docile under its influence.

The flowers and leaves were formerly employed as a sternutatory and probably still enter into the composition of some snuffs.

In the East, especially in Turkey and Egypt, they are used, as of old, for perfuming the bath.

The 'straw,' completely freed from the flowers, is sold and used as litter and also for making ointment. If burnt, for deodorizing purposes, the stalks diffuse a powerful, but agreeable odour.

*Lavender Water* can easily be prepared at home. Into a quart bottle are put 1 OZ. essential oil of Lavender, one drop of Musk and 1 1/2 pint spirits of wine. These three ingredients are well mixed together by shaking. The mixture is left to settle, shaken again in a few days, then poured into little perfume bottles fitted with air-tight stoppers. This is another recipe from an old family book:

'Put into a bottle half a pint of spirit of wine and two drachms of oil of lavender. Mix it with rose-water, five ounces, orange-flower water, two ounces, also two drachms of musk and six ounces of distilled water.'

This is stated to be 'a pleasant and efficacious cordial and very useful in languor and weakness of the nerves, lowness of spirits, faintings, etc.'

Another recipe is to mix 2 oz. of refined essence of Lavender with 3/4 pint of good brandy. This Lavender Water is so strong that it must be diluted with water before it is used.

*Lavender Vinegar.* A refreshing toilet preparation is made by mixing 6 parts of Rosewater, 1 part of spirits of Lavender and 2 parts of Orleans vinegar.

It can also be prepared from freshly gathered flower-tops. These are dried, placed in a stoppered bottle and steeped for a week in Orleans vinegar. Every day the bottle must be shaken, and at the end of the week the liquid is drained off and filtered through white blotting paper.

Another delicious and aromatic toilet vinegar is made as follows: Dry a good quantity of rose leaves, lavender flowers and jasmine flowers. Weigh them, and to every 4 oz. of rose leaves allow 1 OZ. each of lavender and jasmine. Mix them well together, pour over them 2 pints of white vinegar, and shake well, then add 1/2 pint of rose-water and shake again. Stand aside for ten days, then strain and bottle.