

Eyebright

Botanical: *Euphrasia officinalis* (LINN.)

Family: N.O. Scrophulariaceae

Synonyms

Euphrasia.

(*French*) Casse-lunette.

(*German*) Augentröst.

Part Used

Herb.

The Eyebright is the only British species of a genus containing twenty species distributed over Europe, Northern and Western Asia and North America.

Description

It is an elegant little plant, 2 to 8 inches high, an annual, common on heaths and other dry pastures, especially on a chalky soil, and flowering from July to September, with deeply-cut leaves and numerous, small, white or purplish flowers variegated with yellow.

It varies much in size and in the colour of the corolla, which changes to quite white and yellow. On the mountains and near the sea, or in poor soil, it is often a tiny plant, only an inch or so high, with the stem scarcely branched, but in rich soil it assumes the habit of a minute shrub and forms a spreading tuft, 8 or 9 inches high. The leaves, also, are sometimes almost round, and at other times pointed and narrow, their margins, however, always deeply cut into teeth. The variability of the Eyebright has led to much discussion as to how many species of it are known: continental botanists define numerous species, but our botanists follow Bentham and Hooker, who considered that there is only *one* very variable species, with three principal varieties: *officinalis* proper, in which the corolla lip equals or exceeds the tube and the bracts of the flower-spike are broad at the base; *gracilis*, more slender, the corolla lip shorter than the tube, and the flower-spike bracts narrowed at the base, and *maritima*, found on the shores of the Shetland Islands in which the capsule is much longer than the calyx.

The stem is erect and wiry, either unbranched in small specimens, or with many opposite branches. The leaves are 1/6 to 1/2 inch long and about 1/4 inch broad, opposite to one another on the lower portion of the stem, alternate above, more often lance-shaped, though sometimes, as already stated, much broader, and with four to five teeth on each side.

The flowers, white, or lilac and purpleveined, are in terminal spikes, with leafy bracts interspersed. The structure of the flower places the plant in the family of the Foxglove and the Speedwell - Scrophulariaceae. The corolla is two-lipped, its lower, tube-like

portion being enclosed in a green calyx, tipped with four teeth. The upper lip is two-lobed and arches over the stamens, forming a shelter from the rain. The lower lip is spreading and three-lobed, each lobe being notched. A yellow patch emphasizes the central lobe and purple 'honey guides' on both upper and lower lips - marked streaks of colour - point the way down the throat. Four stamens, with brown, downy anthers lie under the upper lip, in pairs, one behind the other; on the underside of each anther is a stiff spur, the two lowest spurs longer than the others and projecting over the throat of the flower. The upper spurs end in miniature brushes which are intended to prevent the pollen being scattered at the side and wasted. When a bee visitor comes in search of the honey lying round the ovary at the bottom of the petal tube, it knocks against the projecting anther spurs, which sets free the pollen, so that it falls on the insect's head. On visiting the next flower, the bee will then rub its dusty head against the outstanding stigma which terminates the style, or long thread placed on the ovary and projects beyond the stamens, and thus cross-fertilization is effected. But though this is the normal arrangement, other and smaller flowers are sometimes found, which suggests that self-fertilization is aimed at. In these, the corolla elongates after opening, and as the stamens are attached to it, their heads are gradually brought almost up to the stigma and eventually their pollen will fertilize it.

The seeds in all kinds of the flowers are produced in tiny, flattened capsules, and are numerous and ribbed.

The Eyebright will not grow readily in a garden if transplanted, unless 'protected' apparently, by grass. The reason for this is that it is a semi-parasite, relying for part of its nourishment on the roots of other plants. Above ground, it appears to be a perfectly normal plant, with normal flowers and bright green leaves - the leaves of fully parasitic plants are almost devoid of green colouring matter - but below the surface, suckers from its roots spread round and lie on the rootlets of the grassplants among which it grows. Where they are in contact, tiny nodules form and send absorption cells into the grass rootlets. The grass preyed upon does not, however, suffer very much, as the cells penetrate but a slight distance, moreover the Eyebright being an annual, renewing itself from year to year, the suckers on the grass roots to which it is attached also wither in the autumn, so there is no permanent drain of strength from the grass.

History

The name *Euphrasia* is of Greek origin, derived from Euphrosyne (gladness), the name of one of the three graces who was distinguished for her joy and mirth, and it is thought to have been given the plant from the valuable properties attributed to it as an eye medicine preserving eyesight and so bringing gladness into the life of the sufferer. The same Greek word is also given to the linnet, whence another old tradition says that it was the linnet who first made use of the leaf for clearing the sight of its young and who then passed on the knowledge to mankind, who named the plant in its honour.

Although always known under a name of Greek origin, the herb seems to have been unnoticed by the ancients and no mention of it is made by Dioscorides, Pliny, Galen or even by the Arabian physicians. In the fourteenth century, however, it was supposed to cure 'all evils of the eye' and is described as the source of 'a precious

water to clear a man's sight.' Matthaeus Sylvaticus, a physician of Mantua, who lived about the year 1329, recommended this plant in disorders of the eyes and Arnoldus Villanovanus, who died in 1313, was the author of a treatise on its virtues, *Vini Euphrasiati tantopere celebrati*. How long before Euphrasia was in repute for eye diseases it is impossible to say, but in Gordon's *Liticium Medicina*, 1305, among the medicines for the eyes, *Euphragia* is named 'and is recommended both outwardly in a compound distilled water and inwardly as a syrup.' *Euphragia* is not, however, mentioned in the *Schola Salernitana*, compiled about 1100.

Markham (*Countrie Farm*, 1616) says: 'Drinke everie morning a small draught of Eyebright wine.' In the eighteenth century Eyebright tea was used, and in Queen Elizabeth's time there was a kind of ale called 'Eyebright Ale.'

Eyebright, says Salmon (*Syn. Med.*, 1671), strengthens the head, eyes and memory and clears the sight.

Euphrasia was regarded as a specific in diseases of the eyes by the great herbalists of the sixteenth century, Tragus, Fuchsius, Dodoens, etc., and has been a popular remedy in most countries.

The French call it *Casse-lunette*, the Germans *Augentröst* (consolation of the eyes).

It was the Euphrasy of Spenser, Milton and other poets. Milton relates how the Archangel Michael ministered to Adam after the Fall:

' . . . to nobler sights
Michael from Adam's eyes the film removed,
Then purged with euphrasine and rue
His visual orbs, for he had much to see.'

It is probable that the belief in its value as an eye medicine originated in the old Doctrine of Signatures, for as an old writer points out-

'the purple and yellow spots and stripes which are upon the flowers of the Eyebright doth very much resemble the diseases of the eye, as bloodshot, etc., by which signature it hath been found out that this herb is effectual for the curing of the same.'

Part Used

A fluid extract is prepared from the plant in the fresh state, gathered when in flower, and cut off just above the root.

Euphrasia is best collected in July and August, when in full flower and the foliage in the best condition.

Constituents

The precise chemical constituents of the herb have not yet been recorded; it is known to contain a peculiar tannin, termed Euphrasia-Tannin acid (which gives a dark-green precipitate with ferric salts and is only obtainable by combination with lead) and also

Mannite and Glucose, but the volatile oil and acrid and bitter principle have not yet been chemically analysed.

Medicinal Action and Uses

Slightly tonic and astringent.

Although neglected nowadays by the faculty, modern herbalists still retain faith in this herb and recommend its use in diseases of the sight, weakness of the eyes, ophthalmia, etc., combining it often with Golden Seal in a lotion stated to be excellent for general disorders of the eyes. The juice obtained by expression from the plant in the fresh state is sometimes employed, or an infusion in milk, but the simple infusion in water is the more usual form in which it is applied. An infusion of 1 OZ. of the herb to a pint of boiling water should be used and the eyes bathed three or four times a day. When there is much pain, it is considered desirable to use a warm infusion rather more frequently for inflamed eyes till the pain is removed. In ordinary cases, the cold application is found sufficient.

In Iceland, the expressed juice is used for most ailments of the eye, and in Scotland the Highlanders make an infusion of the herb in milk and anoint weak or inflamed eyes with a feather dipped in it.

The dried herb is an ingredient in British Herbal Tobacco, which is smoked most usefully for chronic bronchial colds.

Homoeopaths hold that Eyebright belongs to the order of scrofula-curing plants, and Dr. Fernie tells us that it has recently been found by experiment:

'to possess a distinct sphere of curative operation, within which it manifests virtues which are as unvarying as they are potential. It acts specifically on the mucous lining of the eyes and nose and the upper part of the throat to the top of the windpipe, causing when given so largely as to be injurious, a profuse secretion from these parts; if given of reduced strength, it cures the troublesome symptoms due to catarrh. Hay Fever, and acute attacks of cold in the head may be checked by an immediate dose of the infusion repeated every two hours. A medicinal tincture is prepared from the whole plant with spirits of wine, of which a lotion is made with rose-water, for simple inflammation of the eyes. Thirty drops of the tincture should be mixed with a wineglassful of rose-water for making this lotion, which may be used several times a day.'

Preparation

Fluid extract, 1/2 to 1 drachm.

'A Marvelous Water to Preserve the Sight.

'Take the leaves of red roses, mints, sage, maidenhaire (or leave out sage and mint and take eyebright and vervin), bittony, such of the mountain, and endive, of each 6 handfuls: steep them in Whitewine 24 hours: then distill them in Alimpeck; the first water is like silver, the second like gold, the third like balme; keep it close in glasses.

'It helps all diseases of the eye.' (*A Plain Plantain.*)

Gerard said that the powder of the Eyebright herb, mixed with mace, 'comforteth the memorie,' and Culpepper says:

'If the herb was but as much used as it is neglected, it would half spoil the spectacle maker's trade and a man would think that reason should teach people to prefer the preservation of their natural before artificial spectacles, which that they may be instructed how to do, take the virtues of Eyebright as followeth: The juice or distilled water of the Eyebright taken inwardly in white wine, or broth, or dropped into the eyes for several days together helpeth all infirmities of the eye that cause dimness of sight. Some make conserve of the flowers to the same effect. Being used any of the ways, it strengthens the weak brain or memory. This tunned with strong beer that it may work together and drunk, or the powder of the dried herb mixed with sugar, a little mace, fennel seed and drunk, or eaten in broth; or the said powder made into an electuary with sugar and taken, hath the same powerful effect to help and restore the sight decayed through age and Arnoldus de Villa Nova saith it hath restored sight to them that have been blind a long time.'

This is another eye lotion of Culpepper:

'An Excellent Water to Clear the Sight.

'Take of Fennel, Eyebright, Roses, white Celandine, Vervain and Rue, of each a handful, the liver of a Goat chopt small, infuse them well in Eyebright Water, then distil them in an alembic, and you shall have a water will clear the sight beyond comparison.'

Hildamus also firmly believed that Eyebright would restore the sight of many persons at the age of seventy or eighty years!

Many of the older herbalists describe a 'Red-flowered Eyebright,' which, however, is no longer considered another species of *Euphrasia*, but regarded as a very closely allied plant. Linnaeus himself, though he afterwards made a new genus, *Bartsia*, for it, called it *Euphrasia*, both in his *Flora Suecia*, his monograph on the flora of Sweden, that appeared in 1755, and in his great work, *Systema Vegetabilium*, published in 1784. Later, however, he named it after his friend Dr. Johann Bartsch of Königsberg.