

# Mayapple Root Profile

## Also known as

Podophyllum peltatum, wild mandrake, American mandrake

## Introduction

Mayapple is of a different species than European mandrake, but a lot of the same fears have been attributed to it by early settlers that are not true. Mayapple is a relative of barberry and goldenseal found in the eastern half of North America. Plants grow 6 to 18 inches (15 to 40 cm) tall in patches, producing a single stalk capped with an "umbrella" of one or two deeply indented leaves. They grow in perennial patches or colonies all arising from a single shared stem. There may be thousands of plants in the colony, sometimes resembling a miniature forest. The colony itself must be at least 12 years old to begin to flower. As these colonies grow quite slowly, it is possible that larger ones may be well over 100 years old. The plant blooms with a single small white flower that produces a single yellow, mushy berry, the only part of the plant that can be eaten safely in moderation. The berry has been known to be made into jams and jellies, although the seeds and rinds are poisonous in large doses. Native Americans used mayapple as an emetic, to induce vomiting, as a cathartic, to relieve severe constipation, and as an escharotic, to remove unusual growths of the skin in large doses. The latter property is now most valued, podophyllum resin being employed externally in the treatment of venereal warts and similar papillomas caused by viral infection.

## Constituents

At least 4% resin with podophyllotoxin, alpha-petalin, and beta-petalin.

## Parts Used

The dried root.

## Typical Preparations

For topical application only, usually in ointment or tincture.

## Summary

In Japan, mayapple is used to make Hakkakuren, an over the counter preparation for removing genital warts. Other preparations of mayapple or podophyllum resin are used for the same purpose in Europe, Australia, and North America. Although the herb contains berberine, it cannot be used interchangeably with barberry and goldenseal. More than a very small dose of mayapple taken by mouth can cause violent vomiting or diarrhea.

# Precautions

Do not take internally. The treated skin surface must not be larger than 25 cm<sup>2</sup> (approximately 3 inches by 3 inches). Be sure to protect skin adjacent to treated area. If administered medicinally, it is recommended to be done so by a qualified practitioner.

**Botanical: Podophyllum peltatum (LINN.)**

**Family: N.O. Berberidaceae**

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---**Synonyms**---May Apple. Wild Lemon. Racoonberry. Duck's Foot. Hog Apple.

---**Parts Used**---Root, resin.

---**Habitat**---The American Mandrake is a small herb with a long, perennial, creeping rhizome, a native of many parts of North America, common in the eastern United States and Canada, growing there profusely in wet meadows and in damp, open woods.

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---**Description**---The root is composed of many thick tubers, fastened together by fleshy fibres which spread greatly underground, sending out many smaller fibres at the joints, which strike downward. The stems are solitary, mostly unbranched, 1 to 2 feet high, crowned with two large, smooth leaves, stalked, peltate in the middle like an umbrella, of the size of a hand, composed of five to seven wedge-shaped divisions, somewhat lobed and toothed at the apex. Between their foot-stalks, grows a solitary, drooping white flower, about 2 inches across, appearing in May. The odour of the flower is nauseous. When it falls off, the fruit that develops swells to the size and shape of the common rosehip, being 1 to 2 inches long. It is yellow in colour and pulpy. In taste it is sweet, though slightly acid and is edible. The leaves and roots are poisonous. The foliage and stems have been used as a pot-herb, but in some cases with fatal results.

The drug was well known to the North American Indians as an emetic and vermifuge. It was included in the British Pharmacopoeia in 1864.

The Latin name is derived from *pous*, *podos* (a foot) and *phyllon* (a leaf), alluding to a fanciful resemblance in the palmate leaf to the foot of some web-footed aquatic bird. Hence one of the popular names of the plant - Duck's Foot.

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---**Cultivation**---It grows in warm, sheltered spots, such as partially shaded borders, woods, and marshes, liking a light, loamy soil. It requires no other culture than to be kept clear of weeds, and is so hardy as to be seldom injured by frost.

Propagate (1) by sowing seeds, in sandy soil, planting out in the following spring or autumn; (2) by division of roots. It propagates so fast by its creeping roots that this mode of propagation is preferred. Every part of the root will grow. Divide either in autumn, when the leaves decay, or in spring, just before the roots begin to shoot, preferably the latter.

**---Part Used---**The dried rhizome, from which a resin is also extracted.

It must be carefully distinguished from English Mandrake (*Bryonia dioica*), which is sometimes offered as Mandrake root.

**---Constituents---**A neutral crystalline substance, podo-phyllotoxin, and an amorphous resin, podophylloresin, both of which are purgative. It also contains picro-podophyllin, a yellow colouring matter, quercetin, sugar, starch, fat, etc.

It yields about 3 per cent of ash on incineration.

Podophyllum rhizome is said to be most active when it is beginning to shoot. It is used almost entirely in the form of podophyllum resin.

The resin is prepared by making a tincture of the rhizome, removing from this the greater part of the spirit by distillation and pouring the remaining liquor into water acidified with hydrochloric acid. By this means the resin is precipitated, and may be collected and dried.

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**---Medicinal Action and Uses---**Antibilious, cathartic, hydragogue, purgative.

Podophyllum is a medicine of most extensive service; its greatest power lies in its action upon the liver and bowels. It is a gastro-intestinal irritant, a powerful hepatic and intestinal stimulant. In congested states of the liver, it is employed with the greatest benefit, and for all hepatic complaints it is eminently suitable, and the beneficial results can hardly be exaggerated.

In large doses it produces nausea and vomiting, and even inflammation of the stomach and intestines, which has been known to prove fatal. In moderate doses, it is a drastic purgative with some cholagogue action. Like many other hepatic stimulants, it does not increase the secretion of bile so much when it acts as a purgative.

Podophyllum is a powerful medicine exercising an influence on every part of the system, stimulating the glands to healthy action. It is highly valuable in dropsy, biliousness, dyspepsia, liver and other disorders. Its most beneficial action is obtained by the use of small doses frequently given. In such circumstances, it acts admirably upon all the secretions, removing obstructions, and producing a healthy condition of all the organs in the system. In still smaller doses, it is a valuable remedy in skin diseases.

It may either be given in infusion, decoction, tincture or substance, but it is not to be given warm.

It is often employed in combination with other purgatives, such as colocynth, aloes or rhubarb, and also administered in pills, with extract of henbane or belladonna, to prevent griping.

Externally applied the resin, of podophyllum acts as an irritant. If incautiously handled, it often produces conjunctivitis, and in America it has on this account, when dissolved in alcohol, been used as a counterirritant.

**---Preparations and Dosages---**Powdered root, 5 to 30 grains. Fluid extract, 5 to 30 drops. Tincture root, 5 to 30 drops. Tincture resin, B.P., 5 to 15 drops. Solid extract, 1 to 5 grains. Podophyllum resin, 1/4 to 1 grain.

---**Substitutes**---*Podophyllum Emodi* (Indian Podophyllum), a native of Northern India. The roots are much stouter, more knotty, and about twice as strong as the American. It is not identical with, nor should it be substituted for, the American rhizome. It contains twice as much podophyllotoxin, and in other respects exhibits differences. Indian podophyllum is official in India and the Eastern Colonies, where it is used in place of ordinary podophyllum.