

# Wild yam

*Dioscorea villosa*

In the 18th and 19th centuries, herbalists used wild yam (*Dioscorea villosa*) to treat menstrual cramps and problems related to childbirth, as well as for upset stomach and coughs. In the 1950s, scientists discovered that the roots of wild yam -- not to be confused with the sweet potato yam -- contain diosgenin. Diosgenin is a phytoestrogen, or plant-based estrogen, that can be chemically converted into a hormone called progesterone. Diosgenin was used to make the first birth control pills in the 1960s.

Although herbalists continue to use wild yam to treat menstrual cramps, nausea and morning sickness, inflammation, osteoporosis, menopausal symptoms, and other health conditions, there's no evidence to show it works for these uses. Several studies have found that it has no effect at all. That is because the body cannot change diosgenin into progesterone; it has to be done in a lab. Wild yam, by itself, does not contain progesterone.

## General

Early Americans used wild yam to treat colic, a reason for another name for the plant, colic root. Traditionally, it has been used to treat inflammation, muscle spasms, and a range of disorders, including asthma. However, there is no scientific evidence that it works. Several studies show wild yam has powerful antifungal properties and may help fight yeast and other fungal infections.

## Menopause and Osteoporosis

Although wild yam is often advertised as a natural source of estrogen, there is no scientific evidence that wild yam works to treat menopausal symptoms or osteoporosis. In fact, several studies have found that wild yam does not reduce the symptoms of menopause, such as hot flashes, or raise levels of estrogen or progesterone in the body. Some preparations of wild yam may contain progesterone, but only because a synthetic version of progesterone (medroxyprogesterone acetate or MPA) has been added to them.

## Breast Cancer

Preliminary studies suggest wild yam may act as an anti-invasive agent in breast cancer.

## High Cholesterol

Researchers have speculated that taking wild yam may help lower cholesterol levels, although studies have shown mixed results. Diosgenin seems to block the body from absorbing cholesterol, at least in animal studies. But in studies of people, cholesterol levels have not gone down -- although fats in the blood (triglycerides) have decreased. More research is needed to determine whether wild

yam would help people with high cholesterol.

## **Plant Description**

Also known as colic root, wild yam is a twining, tuberous vine. One species is native to North America; another is native to China. Both contain diosgenin and have similar medicinal properties. There are an estimated 600 species of yam in the genus *Dioscorea*. Many of them are wild species that flourish in damp woodlands and thickets, and not all of them contain diosgenin. Wild yam is a perennial vine with pale brown, knotty, woody cylindrical rootstocks, or tubers. Unlike sweet potato yams, the roots are not fleshy. Instead they are dry, narrow, and crooked, and bear horizontal branches of long creeping runners. The thin, reddish-brown stems grow to a length of over 30 feet. The roots initially taste starchy, but soon after taste bitter and acrid.

The wild yam plant has clusters of small, greenish-white and greenish-yellow flowers. The heart-shaped leaves are long and broad and long-stemmed. The upper surface of the leaves is smooth while the underside is downy.

## **What's it Made of?**

The dried root, or rhizome, is used in commercial preparations. It contains diosgenin, a phytoestrogen that can be chemically converted to the hormone progesterone. However, diosgenin on its own does not seem to act like estrogen in the body.

## **Available Forms**

Wild yam is available as liquid extract and as a powder. The powdered form may be purchased in capsules or compressed tablets. The fluid extract can be made into tea. Creams containing wild yam are also available.

## **How to Take It**

### **Pediatric**

Wild yam hasn't been studied in children, so it is not recommended for pediatric use.

### **Adult**

Wild yam frequently comes in capsule form as a dried herb. Often it is dosed in a tincture, which is an alcohol extract. It is also available as a 12% cream for topical use.

Ask your doctor to help you find the right dose.

**Note:** Wild yam is often combined with other herbs said to have estrogen-like effects, such as black cohosh. Wild yam creams, as well as tablets and powders, may contain synthetic hormones. Check the ingredients carefully.

## Precautions

The use of herbs is a time-honored approach to strengthening the body and treating disease. However, herbs can trigger side effects and can interact with other herbs, supplements, or medications. For these reasons, you should take herbs with care, under the supervision of a health care provider.

Anyone with a personal or family history of hormone-related cancer (such as breast cancer, ovarian cancer, and uterine cancer) should check with their doctor before using any form of natural hormone replacement, including wild yam. Although it does not seem to act like a hormone in the body, there is a slight risk that wild yam could produce similar effects to estrogen.

Pregnant women and nursing mothers should avoid wild yam.

People who have protein S deficiency should not take wild yam without talking to their doctor. Some doctors think wild yam may possibly increase the risk of forming clots, because of its estrogen-like effects.

## Possible Interactions

### Hormone Replacement Therapy or Birth Control Pills

An animal study indicated that the active component of wild yam, diosgenin, may interact with estradiol. Estradiol is a hormone that occurs naturally in the body and also is used in some birth control medications and certain hormone replacement therapies.

If you are currently being treated with either of these medications, you should not use wild yam without first talking to your provider.

## Supporting Research

Accatino L, Pizarro M, Solis N, Koenig C. Effects of diosgenin, a plant derived steroid, on bile secretion and hepatocellular cholestasis induced by estrogens in the rat. *Hepatology*. 1998;28(1):129-140.

Ali Z, Smillie TJ, Khan IA. Cholestane steroid glycosides from the rhizomes of *Dioscorea villosa* (wild yam). *Carbohydr Res*. 2013;370:86-91.

Aumsuwan P, Khan SI, Khan IA, et al. The anticancer potential of steroidal saponin, dioscin, isolated from wild yam (*Dioscorea villosa*) root extract in invasive human breast cancer cell line MDA-MB-231 in vitro. *Arch Biochem Biophys*. 2016;591:98-110.

Aumsuwan P, Khan SI, Khan IA, et al. Evaluation of wild yam (*Dioscorea villosa*) root extract as a potential epigenetic agent in breast cancer cells. *In Vitro Cell Dev Biol Anim.* 2015;51(1):59-71.

Bhandari MR, Kawabata J. Bitterness and toxicity in wild yam (*Dioscorea* spp.) tubers of Nepal. *Plant Foods Hum Nutr.* 2005;60(3):129-35.

Boban PT, Nambisan B, Sudhakaran PR. Hypolipidaemic effect of chemically different mucilages in rats: a comparative study. *Br J Nutr.* 2006;96(6):1021-1029.

Bone K, Mill S, eds. *Principles and Practices of Phytotherapy, Modern Herbal Medicine.* London: Churchill Livingstone; 2000.

Carroll DG. Nonhormonal therapies for hot flashes in menopause. *Am Fam Physician.* 2006;73(3):457-464. Review.

Chang WC, Yu YM, Wu CH, Tseng YH, Wu KY. Reduction of oxidative stress and atherosclerosis in hyperlipidemic rabbits by *Dioscorea* rhizome. *Can J Physiol Pharmacol.* 2005;83(5):423-430.

Cho J, Choi H, Lee J, Kim MS, Sohn HY, Lee DG. The antifungal activity and membrane-disruptive action of dioscin extracted from *Dioscorea nipponica*. *Biochim Biophys Acta.* 2013;1828(3):1153-1158.

Foster S, Tyler VE. *Tyler's Honest Herbal.* Binghamton, NY: The Haworth Herbal Press; 2000:381-382.

Haimov-Kochman R, Hochner-Celnikier D. Hot flashes revisited: pharmacological and herbal options for hot flashes management. What does the evidence tell us? *Acta Obstet Gynecol Scand.* 2005;84(10):972-9. Review.

Kelley KW, Carroll DG. Evaluating the evidence for over-the-counter alternatives for relief of hot flashes in menopausal women. *J Am Pharm Assoc (2003).* 2010;50(5):e106-115. Review.

Komesaroff PA, Black CV, Cable V, Sudhir K. Effects of wild yam extract on menopausal symptoms, lipids and sex hormones in healthy menopausal women. *Climacteric.* 2001;4(2):144-150.

Manda VK, Avula B, Ali Z, et al. Characterization of in vitro ADME properties of diosgenin and dioscin from *Dioscorea villosa*. *Planta Med.* 2013;79:1421-1428.

Park MK, Kwon HY, Ahn WS, Bae S, Rhyu MR, Lee Y. Estrogen activities and the cellular effects of natural progesterone from wild yam extract in mcf-7 human breast cancer cells. *Am J Chin Med.* 2009;37(1):159-167.

Taylor M. Alternatives to conventional hormone replacement therapy. *Compr Ther.* 1997;23(8):514-532.

Zava DT, Dollbaum CM, Blen M. Estrogen and progestin bioactivity of foods, herbs, and spices. *Proc Soc Exp Biol Med.* 1998;217(3):369-378.