



## WILD YAM

*(Dioscorea villosa and other Dioscorea spp.)*

**Family:** Dioscoreaceae

**Synonyms:** Colicroot, Rheumatism root,<sup>1</sup> Wilde Yamwurzel,<sup>2</sup> Atlantic yam, China Root, Mexican Yam, Yuma, Natural DHEA, Phytoestrogen.<sup>3</sup>

Key Clinical Points	
<ul style="list-style-type: none"> <li>❖ Although wild yam is popular as a topical remedy for menopausal symptoms, its efficacy for this indication is not supported by clinical trials.</li> <li>❖ Herbalists use wild yam as an antispasmodic agent (e.g., for dysmenorrhea). No clinical trials have yet been published for this indication.</li> <li>❖ Avoid use in patients with estrogen-sensitive tumors until its estrogenic properties are better understood.</li> </ul>	
Key Constituents and pharmacology	
<p><i>Dioscorea villosa</i> contains saponins (including diosgenin) and isoquinuclidine alkaloids (including dioscorin).<sup>4</sup> Diosgenin is a steroid precursor. Researchers and manufacturers have used it to create estrogens, progesterones, androgens, and corticosteroids.<sup>3</sup> Diosgenin IS NOT converted to steroids in vivo. In animal studies, subcutaneous diosgenin stimulated the growth of mammary tissue in the mouse,<sup>5</sup> reduced intestinal inflammation and increased biliary cholesterol output in rats treated with indomethacin, and reduced biliary stasis in rats given a cholestatic agent.<sup>6</sup> Chinese researchers have demonstrated diosgenin antitumor activity in mice.<sup>7</sup> In Taiwan, researchers found evidence that dioscorin exhibited ACE inhibition<sup>8</sup> and had antioxidant properties in vitro.<sup>9</sup> In a study of steroid hormone activity of multiple natural products, Rosenberg Zand found that wild yam root had weak anti-estrogenic properties in vitro.<sup>10</sup></p>	
<p><b>Herbal properties:</b> antispasmodic, anti-inflammatory, anti-rheumatic, cholagogue, diaphoretic, and expectorant.<sup>1,11</sup></p>	
History and traditional use	Indications supported by clinical trials
<p>Aztecs used wild yam externally to treat scabies and boils.<sup>12</sup> Other Native Americans used a decoction of the root to relieve labor pain and later physicians gave wild yam to patients with colic, morning sickness, asthma, hiccough, rheumatism and gastritis related to alcoholism.<sup>13</sup> Modern herbalists value wild yam to treat intestinal colic, biliary colic, and flatulence as well as menstrual cramps and rheumatoid arthritis.<sup>1,2,4,11</sup> Herbalists combine wild yam with black cohosh<sup>11</sup> (and sometimes burdock root and motherwort)<sup>12</sup> for rheumatic complaints. Chinese herbalists use wild yam as a tonic.<sup>12</sup></p>	<p><b>Effectiveness for menopausal symptoms:</b> <b>unknown.</b> A study of topical wild yam in a double-blind, placebo-controlled cross-over study showed no difference in the treatment and control groups in FSH, estradiol, and progesterone levels or in symptoms.<sup>16</sup> No studies have examined oral administration of wild yam.</p> <p><b>Effectiveness for colic and cholecystitis:</b> <b>Unknown.</b> No studies have been done.</p>

<p>Currently, manufacturers market wild yam as a treatment for menopausal symptoms.<sup>14</sup></p> <p><b>Preparation and dosage:</b></p> <ul style="list-style-type: none"> <li>• Tea (decoction) boil 1-2 tsp (2-4g) of dried root in one cup of water for 15 minutes and drink TID</li> <li>• Tincture (1:5 strength in 45% ethanol): 2-10 TID</li> <li>• Fluid extract (1:1 in 45% ethanol) 2-4 ml TID<sup>15</sup></li> </ul>	<p><b>Effectiveness for rheumatoid arthritis:</b> <b>Unknown.</b></p> <p>No studies have looked at wild yam for treatment of joint symptoms.</p>
<p><b>Interactions with other herbs, pharmaceuticals, disease states</b></p>	<p><b>Adverse effects/precautions/side effects/contraindications</b></p>
<p><b>Interactions with pharmaceuticals:</b> None known.<sup>3</sup></p> <p><b>Interactions with other herbs:</b> No negative interactions known. Herbalists combine wild yam with other anti-spasmodic herbs to achieve the desired effect on joint pain and colic.</p>	<p><b>Side effects:</b> Vomiting at high doses</p> <p><b>Adverse events:</b> None reported for <i>Dioscorea villosa</i>. A related species, from Java contains a weak picrotoxin, a convulsive poison.<sup>2</sup></p> <p><b>Precautions/contraindications:</b> No information exists regarding safety in pregnant women and children. Wild yam constituents have exhibited estrogenic activity in mice<sup>5</sup> and anti-estrogenic activity in vitro.<sup>10</sup> However, the relevance of these effects to physiologically achievable concentrations is unknown. Until the mechanism of action of the herb is better understood, it should probably be avoided in patients with estrogen-responsive tumors.<sup>3</sup></p>
<p><b>Botanical characteristics</b></p>	
<p>Wild yam is a member of the Yam family. The yams are vining plants with 600 known species, 71 of which are native to North America (67 species in Mexico).<sup>12</sup> In many species of yam, the rhizome (tuber) serves as both a food and a medicine.<sup>12</sup></p> <p><i>Dioscorea villosa</i>, the species common in North Carolina, is a perennial vine that grows in moist thickets and hedges.<sup>12,13</sup> It has a reddish-brown stem, heart-shaped leaves with prominent veins, and inconspicuous greenish yellow flowers from September to October.</p> <p>Farmers cultivate yams as a food source and harvest the roots in the fall.<sup>11</sup> Herbalists prepare medicines from fresh or dried root. The taste is initially bland and then acrid.<sup>2,11</sup></p>	

#### References

1. Tierra Michael (1998): *The Way of Herbs*. New York, Pocket Books
2. Grieve M. (1971): *A Modern Herbal*. New York, Dover Publications, Inc
3. Jellin J.M., Gregory P.J., Batz F. and Hitchens K. (2004): Pharmacist's Letter/ Prescriber's Letter Natural Medicines Comprehensive Database. Stockton, CA, Therapeutic Research Faculty. Accessed: 1/12/2004, [http://www.naturaldatabase.com/member\\_home.asp?ph\\_img=memberhome.gif&ex=0&ex=0](http://www.naturaldatabase.com/member_home.asp?ph_img=memberhome.gif&ex=0&ex=0)
4. Fleming Thomas, Guenwald Joerg, Brendler Thomas, Jaenicke Christof and Mehtoa Mukesh (eds.) (1998): *PDR for Herbal Medicines*. Montvale, NJ, Medical Economics Company, Inc.
5. Aradhana, Rao A. R. and Kale R. K. (1992): Diosgenin—a growth stimulator of mammary gland of ovariectomized mouse. *Indian J Exp Biol*. 30(5): 367-70.
6. Accatino L., Pizarro M., Solis N. and Koenig C. S. (1998): Effects of diosgenin, a plant-derived steroid, on bile secretion and hepatocellular cholestasis induced by estrogens in the rat. *Hepatology*. 28(1): 129-40.
7. Wang L. J., Wang Y., Chen S. W., Ma J. S., Fu Q. and Wang B. X. (2002): [The antitumor activity of Diosgenin in vivo and in vitro]. *Zhongguo Zhong Yao Za Zhi*. 27(10): 777-9.

8. Hsu F. L., Lin Y. H., Lee M. H., Lin C. L. and Hou W. C. (2002): Both dioscorin, the tuber storage protein of yam (*Dioscorea alata* cv. Tainong No. 1), and its peptic hydrolysates exhibited angiotensin converting enzyme inhibitory activities. *J Agric Food Chem.* 50(21): 6109-13.
9. Hou W. C., Lee M. H., Chen H. J., Liang W. L., Han C. H., Liu Y. W. and Lin Y. H. (2001): Antioxidant activities of dioscorin, the storage protein of yam (*Dioscorea batatas* Decne) tuber. *J Agric Food Chem.* 49(10): 4956-60.
10. Rosenberg Zand R. S., Jenkins D. J. and Diamandis E. P. (2001): Effects of natural products and nutraceuticals on steroid hormone-regulated gene expression. *Clin Chim Acta.* 312(1-2): 213-9.
11. Hoffman David (1990): *The New Holistic Herbal*. Boston, MA, Element
12. Hutchens Alma R. (1991): *Indian Herbology of North America*. Boston, Shambhala Publications, Inc.
13. Foster S. and Duke J. (2000): *A Field guide to Medicinal Plants and Herbs of Eastern and Central North America*. New York, Houghton Mifflin
14. Russell L., Hicks G. S., Low A. K., Shepherd J. M. and Brown C. A. (2002): Phytoestrogens: a viable option? *Am J Med Sci.* 324(4): 185-8.
15. Hoffman David (2003): *Medical Herbalism*. Rochester, Vermont, Healing Arts Press
16. Komesaroff P. A., Black C. V., Cable V. and Sudhir K. (2001): Effects of wild yam extract on menopausal symptoms, lipids and sex hormones in healthy menopausal women. *Climacteric.* 4(2): 144-50.