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# Echinacea



Echinacea is a common name for three species of large, daisylike plants of the Aster family (Compositae). They are *Echinacea angustifolia*, *Echinacea pallida* and *Echinacea purpurea*. The plant species are commonly known as narrow-leaved purple coneflower, pale purple coneflower, and purple coneflower respectively. Other common names for *Echinacea angustifolia* are hedgehog coneflower, black sampson, sampson root, and rudbeckia.

The plant, which grows to a height of 2 to 3 feet, sends up a stout, haired stem. The stem bears thick hairy leaves, which are 3 to 8 inches in length. The flowers appear from July to October. They vary from rich purple to pale purple. The flower heads consists of ray and dick flowers. The florets are seated around a high cone. The root is tapering, cylindrical and longitudinally furrowed. The root is collected in autumn.

The plant was listed in the National Formulary, a pharmacists' reference book,

from 1916 to 1946. The roots and rhizomes are used most often in medicinal preparations. In some preparations the whole flowering plant is also used.



*Echinacea purpurea*

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## Medicinal properties

Plains Indians are said to have used echinacea for more medicinal purposes than any other plant group. It is one of the several herbs that possess antibacterial, antiviral, and antifungal properties.

The ethnobotanical uses of *Echinacea angustifolia* include its use as an alterative, antiseptic, aperient, aperitif, aphrodisiac, depurative, digestive, sialogogue and sudorific. (Please refer to the Dictionary of Modern Herbalism by Mills for further information on these terms.)

The root has been used for fever, colds, sore throat, burns, wounds, and cancer. The ethnobotanical use of *Echinacea pallida* include its use as an alterative and diaphoretic. It has been used for breast cancer too. The ethnobotanical uses of *Echinacea purpurea* include its use as a depurative and for treatment of snake bites, rabies and syphilis.

There are many complementary agents that enhance the effectiveness of echinacea as a medicine. Echinacea could be combined with one or more of the following plants: ginseng, goldenseal, cat's claw, or astragalus. For example, a combination of echinacea, astragalus and garlic helps to boost the immune system to guard against developing respiratory infections.

It is important that you exercise caution when considering using echinacea products for medicinal purposes; seek professional advice before using them.



## Natural habitat

*Echinacea angustifolia* is found in scattered patches in rich prairie soil or sandy soil of Texas, Oklahoma, Kansas, Nebraska,

Colorado, Montana, and North Dakota. *Echinacea pallida* is found in the prairies and glades from Arkansas to Wisconsin, and in Minnesota, Oklahoma, Kansas and Nebraska. *Echinacea purpurea* is found in open woods and thickets, and cultivated in gardens in Michigan, Ohio to Louisiana, and in Texas and Oklahoma. Hybrids occur where the range of *Echinacea angustifolia* and *Echinacea pallida* overlap.



## Cultivation

*Echinacea angustifolia* and *Echinacea pallida* are harvested from the prairies of the midwestern United States. Some commercial cultivation of these two species has developed as they have become scarcer in the wild. *Echinacea purpurea*, also native to the Midwest, is the most widely used species of the three.

The current world supply is primarily from cultivated sources. Trout Lake Farms in the state of Washington cultivates the species and is one of the biggest suppliers.

Echinacea is a hardy perennial that can be grown in 'dry, open woods' soil under partial shade conditions. It is easily propagated by seeds. A good germination rate is achieved if the seeds are sown when the air temperature is 70 °F. The plant thrives in raised beds.



## Harvest, storage, and processing

The root of echinacea is collected in the late fall of the third or fourth year of the plant's growth. The plant dies back after several hard frosts. This is the time to harvest the root. Echinacea roots need to be dehydrated in a dryer within a temperature range of 85 °F to 110 °F. The root dries using this drying method. Miller (1998) mentions that the dried roots should be packaged in polypropylene sacks and stored in a heated warehouse.

Miller (1998) mentions that the size of Echinacea roots in the milling operation should be ½ inch using the cut and sift operation. In some extraction operations, the roots are cryogenically ground immediately prior to a cold-process percolation to ensure potency of the extract.



## Marketing

Echinacea is marketed as a dietary supplement to promote a healthy immune system and general well being during the cold and flu season. It is marketed in the form of tablets, capsules, flex-tabs, soft gels, fluid extracts (glycerin and alcohol extract), tinctures, ointments, powder and sprays.

A tea or a decoction made from Echinacea is good for the acute stages of any infection. The tincture is also effective for infections such as influenza, urinary tract infection, and glandular fever. Tinctures have been

used in concentrated form for food poisoning and snakebites, and combined with water to make a gargle for sore throats. Echinacea can be used externally as a wash made of the decoction or diluted tincture for infected wounds.

When incorporated into an ointment, it can be used for application on burns and other skin wounds. In a powdered form, it can be dusted on infected skin conditions such as boils and eczema. The capsules can be used for treating cold, flu, urinary tract and kidney infections.

Some commercial preparations are also made from fresh pressed juice. These are more difficult to obtain because processing these require freshly harvested plants.

Echinacea is marketed by many manufacturers of herbal products, including Frontier Herbs, Nutraceutical Corp. (with the KAL, SOLARAY and Veg Life line of supplements), Nature's Way, Nature's Answer, Zand, Futurebiotics, and Herbs Etc.



## References and information resources

*(You may be able to find some of these or other publications in your local library. Another valuable resource is your local cooperative extension office.)*

Anonymous. 1995. Echinacea. Woodland Publishing. Pleasant Grove, Utah.

Anonymous. 1986. Magic and Medicine of Plants. Reader's Digest. Pleasantville, New York

Duke, James A. 1997. The Green Pharmacy. Rodale Press. Emmaus, Pennsylvania.

Foster, S. 1998. 101 Medicinal Herbs: An Illustrated Guide. Interweave Press. Loveland, Colorado.

Foster, S. and J. A. Duke. 1990. A Field Guide to Medicinal Plants: Eastern and Central North America. Houghton Mifflin Company. New York.

Grieve, M. 1971. A Modern Herbal. Dover Publications. New York. (Vol. I & II) 902 p.

Griggs, Barbara. 1981. Green Pharmacy: A History of Herbal Medicine. Viking Press. New York.

Hutchens, Alma R. 1991. Indian Herbage of North America. Shambhala Publications, Inc., Boston. 382 p.

Miller, R. A. 1998. The Potential of Herbs as a Cash Crop. Acres U.S.A. Kansas City, Missouri.

Mills, Simon. 1985. The Dictionary of Modern Herbalism. Thorsons Publishing Group. New York.

Morton, J. F. 1977. Major Medicinal Plants. Thomas Books. Springfield, Illinois.

Ottariano, Steven G. 1999. Medicinal Herbal Therapy: A Pharmacist's Viewpoint. Nicolin Fields Publishing. Portsmouth, New Hampshire.

Simon, James E., Alen F. Chadwick, and Lyle E. Craker. 1984. Herbs: An Indexed Bibliography, 1971-1980: The Scientific Literature on Selected Herbs, and Aromatic and Medicinal Plants of the Temperate Zone. Archon Books. Hamden, Connecticut.

Thomas, Margaret G. and David R. Schumann. 1993. Income Opportunities in Special Forest Products: Self-Help Suggestions for Rural Entrepreneurs. Agriculture Information Bulletin AIB-666. U.S. Department of Agriculture. Washington, D.C.

Weiss, Gaea and Shandor Weiss. 1985. Growing and Using Healing Herbs. Rodale Press. Emmaus, Pennsylvania.



## Electronic resources

The American Herbal Pharmacopoeia  
<http://www.herbal-ahp.org/>

Kress, H. Echinacea photo.  
<http://www.ibiblio.org/herbmed/herbpics.html>

The National Center for the Preservation of Medicinal Herbs  
<http://www.ncpmh.org/>

Phytochemical Database, USDA - ARS -  
NGRL, Beltsville Agricultural Research  
Center, Beltsville, Maryland  
<http://www.ars-grin.gov/duke/ethnobot.html>

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*This is part of a series of fact sheets on non-timber forest products. The full set of fact sheets is available at the  
Non-timber Forest Products website: <http://www.sfp.forprod.vt.edu/>*

*Please give us your comments on this fact sheet and suggestions for future fact sheets. Direct your comments  
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