

WHAT WAS IT ?

AMERICAN GINSENG – PANAX QUINQUEFOLIUS

2012 NIH EARTH DAY “NAME IT” CONTEST

CLUES FROM ORF & THE NIH RECORD

- According to an ancient doctrine going back to the time of Galen and Dioscurides what I look like suggests the parts of the body that my healing properties may be applied to. Prices paid for my best shaped specimens like the one in the photo would certainly support this idea.

This refers to the Doctrine of Signatures. Large mature roots that resemble the shape of a whole person can sell for thousands of dollars.

- Native Americans traditionally used me as a stimulant and to treat headaches, fever, indigestion, and infertility.
- Scientists are investigating potential uses of me to treat a wide variety of diseases including diabetes, attention deficit hyperactivity disorder and inflammatory diseases. In laboratory studies I also showed powerful inhibitory activity against colorectal cancer cells.
- Even though my medicinal properties have not been proven there is wide belief in them and collectors have been depleting my wild populations for over 250 years.

American ginseng was once widespread in the Ozark and Appalachian regions but due to its popularity the wild plant has been overharvested and it is now rare in most parts of its previous range.

- I'm now listed by CITES and the U.S. Fish and Wildlife Service and states near NIH's headquarters have established special programs to protect me.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Maryland has a program to protect wild ginseng and promote sustainable harvesting practices.

- No, I am not the one native to Siberia or Asia and only my binomial scientific name will be accepted as a correct answer.

American ginseng (*Panax quinquefolius*), our mystery organism is native to eastern U.S. and Canada and sometimes cultivated in China. Other species of plants referred to as ginseng are native to areas of Siberia and Asia.



Photo Credits: (Top Photo) American ginseng berries are ripe by late August in Maryland. Photograph by Larry Harding. Courtesy of Maryland Department of Agriculture; (Middle Photo, Left) American ginseng in human figure. Cultivated in Marathon Ginseng Gardens. Courtesy of Drginseng, Wikimedia Commons, http://en.wikipedia.org/wiki/Creative_Commons; (Middle Photo, Right) Ginseng drying in a window. Photograph by Lyntha Scott Eiler. "Tending the Commons: Folklife and Landscape in Southern West Virginia" website. Courtesy of the American Folklife Center, Library of Congress. Call No. CRF-LE-C171-07; (Bottom Photo) Five-prong ginseng. Photograph by Lyntha Scott Eiler. "Tending the Commons: Folklife and Landscape in Southern West Virginia" website. Courtesy of the American Folklife Center, Library of Congress. Call No. CRF-LE-C171-15.

CONSERVATION ISSUES

Declining Wild Populations

- American ginseng is a native herbaceous perennial plant that grows in woodland habitats and was widely distributed over the eastern U.S. and Canada.
- Wild populations of ginseng are under pressure and have now disappeared or are declining over much of the plant's original range.



Adapted from a map published by the Royal Ontario Museum http://www.rom.on.ca/ontario/risk.php?doc_type=map&id=19 that was modified from Argus, G.W., K.M. Pryer, D.J. White, and C.J. Keddy, 1982-87. Atlas of the Rare Vascular Plants of Ontario, 4 parts. National Museum of Natural Sciences, Ottawa, Ontario. Looseleaf.

Factors Contributing to the Decline

- Overharvesting and poaching – plants are slow growing in the wild and can take years to reach maturity and produce seeds.
- Timber extraction, agriculture and development activities – clear the land, fragment forest habitats and adversely affect ecological conditions needed for growth and maintenance of genetically diverse populations.

Promoting Conservation & Sustainable Harvesting

- American ginseng has been protected since 1975 under the CITES Treaty.
- The U.S. Fish & Wildlife Service (FWS) and state agencies regulate the collection and export of ginseng and promote sustainable production.
- A Maryland Department of Agriculture (MDA) program protects American ginseng from overharvesting while allowing diggers to collect wild and cultivated plants where permitted.
- Maryland law requires anyone who collects and harvests ginseng for sale to have a valid permit, plants must be of minimum age (5 years) and size (3 prongs) and collection is only allowed in season (September 1 to December 1). Harvested ginseng is certified so licensed dealers can sell it in international markets.

DIETARY SUPPLEMENTS

American Ginseng is a dietary supplement used widely in the U.S. and elsewhere. While this plant is being studied for its ability to help patients with a variety of health conditions, it is not a drug. To date, there have been no definitive clinical trials that establish its efficacy as a treatment for any disease or to improve symptom management.

An American Tonic

The roots of American Ginseng have been used in this country for hundreds of years as a folk medicine. An incredibly diverse array of activities has been associated with this plant. These are summarized in the Medline database and include:

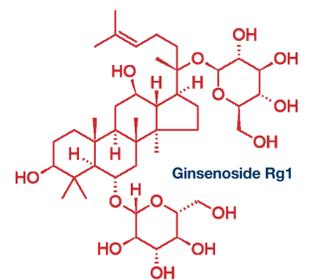
- To alleviate stress, boost the immune system, and as a general tonic and stimulant.
- To fight infections such as colds and flu. There is some evidence that it might help prevent these illnesses and make symptoms milder when infections do occur.
- For other infections including HIV/AIDS, dysentery, and *Pseudomonas* infections that are common in people with cystic fibrosis.
- To improve digestion and for loss of appetite, as well as for vomiting, inflammation of the colon (colitis), and inflammation of the lining of the stomach (gastritis).

Ongoing Research

There are varying levels of evidence to support the uses described above. The NIH continues to fund research on this plant and its constituents to better understand its biological activity. The funding is for both basic science and clinical study, and is in a variety of areas including: HIV-related fatigue; combined with chemotherapy in breast cancer patients; colitis; and colorectal cancer.

Active Principles

American Ginseng contains many different types of compounds. One group of compounds thought to be responsible for the activity of ginseng is known collectively as the ginsenosides. One example of this class of compounds is ginsenoside Rg1.



Acknowledgements

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