

## General Introduction of American Ginseng Indigenous in USA and Canada

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### ABSTRACT

American ginseng (*Panax quinquefolium*) is herbaceous perennial plants indigenous to North American forests. This is highly valued as medicinal herbs with a long history of collection from wild populations since 1716. Wild American ginseng distributed from Quebec in Canada to northern Florida in USA. A heavy concentration is found in the Appalachian mountains, although wild American ginseng is considered endangered. The price paid for field cultivated ginseng has dropped dramatically in the past 10 years, while the price for wild or woods cultivated ginseng has risen significantly. The price curve for ginseng resembles a roller coaster, reflecting not only supply and demand but many other factors. This information will be useful to understand American ginseng compared to Korean ginseng.

**Keywords** : Ginseng, Panax, American ginseng

### INTRODUCTION

#### Botanical features of ginseng

Ginseng is the common name for a number of deciduous perennial herbs in the family *Araliaceae*. Hortus Third describes these members of the genus *Panax* as “about six species of glabrous herbs with thick roots and simple stems, native to North America and eastern Asia”(Bailey and staff,1976). There are several species of *Panax* spp. in Asian continent; *Panax ginseng* C.A. MEYER human body shaped Korean ginseng, *Panax wangianus* SUN. describe Sanchi ginseng grown in southern parts of China in Yunnan

and Chinagshi provinces characterized small carrot appearance, *Panax pseudoginseng* WALL. identified Himalayan ginseng, *Panax zingiberensis* WU et FENG called ginger ginseng, *Panax japonicus* C.A. MEYER known as bamboo root shaped Japanese ginseng. and *Panax major* BURKILL TING illustrated pearl ginseng(Table 1). The common name “ginseng” is derived from two Chinese words meaning “likeness of man” because the full-grown root of the ginseng plant often resembles a human shape.

Of the three species mentioned in Hortus Third, two of them are native to north America, *Panax quinquefolius*, which is commonly called American

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Table 1. Classification of American and Asian ginseng

Indigenous region	Scientific name	Common name
Asian continent	<i>Panax ginseng</i> C.A. MEYER	Korean ginseng
	<i>Panax wangianus</i> SUN	Sanchi ginseng
	<i>Panax pseudoginseng</i> WALL	Himalayan ginseng
	<i>Panax zingiberensis</i> WU et FENG	Ginger ginseng
	<i>Panax japonicus</i> C.A. MEYER	Japanese ginseng
	<i>Panax major</i> (BURKILL) TING	Pearl ginseng
American continent	<i>Panax quinquefolius</i> L	American ginseng
	<i>Panax trifolius</i> L	Dwarf ginseng

ginseng and *Panax trifolius* or dwarf ginseng. Only American ginseng is of significant economic interest in the United States and Canada.

The scientific name *Panax comes* from the Greek “panaxos” meaning “all-healing”(Fulder,1980). American Ginseng called to other names that Five fingers, Tartar Root, Five leafed ginseng, Redberry, Garantoquen, and Sang.

**Plant growth characteristics**

American ginseng (*Panax quinquefolius* L.), is a herbaceous perennial occurring exclusively in the Eastern deciduous woods (Greller, 1988). This forest underneath herb is perennial, with a life expectation of at least 60 years (Charron, 1989). Large individuals will typically have several thick taproots, distributed along a slender rhizome, with the largest taproot placed at its end. The rhizome is characterized by scars formed as a result of the annual abscission of the aerial stem. One aerial stem is produced per rhizome per year. Infrequently, two stems are produced (Lewis and Zenger, 1982). Aerial stem appears in late spring after the forest canopy has blocked and varies in height between 7 cm and 40 cm. Full-grown plant has a twist of leaves at its apex. Each leaf consists of a petiole and three to five palmately compounds leaflets. The seedlings have only one leaf with three leaflets. Size and number of leaves increase with age and the plant

does not flower until it has grown large enough to produce two leaves (Schlessman, 1985 and 1987). After a pre-reproductive period of 3 years and more (Charron, 1989), they develop a single umbel. The flowers are small, hermaphroditic and autogamous (Schlessman, 1985), and each can produce one to three seeds, enclosed in a pericarp which turns bright red when ripe. Fruits are mature beginning in August, and are likely dispersed by birds, although most fall to the ground near the parent plant. Seeds remain dormant in the soil for approximately 12 months before germinating, but the seedling will emerge only after another 8 months, in the spring. Vegetative propagation is possible through rhizome fragmentation, although this has rarely been observed (Lewis, 1984).

**American ginseng distribution**

Wild American ginseng distributed in the U.S. and Canada. In the U.S., it is found from Michigan and Wisconsin, south to northern Florida, Alabama, Louisiana, and Oklahoma. A heavy concentration is found in the Appalachian mountains, although wild American ginseng is considered endangered.

In Canada, it indigenous from Quebec, Ontario, and Manitoba to British Columbia.

American ginseng grows natural in the eastern half of North America. This perennial herb inhabits hardwood forests on well-drained, east-facing slopes in



Fig. 1. Wild simulated grown American ginseng populations and individuals at the forest in Bloomington, Indiana, USA in 2000.

mostly humus-rich soils.

Ginseng was valued by the native Americans long before the white men began to popularize it. The plant contains properties that stimulate the human nervous system, increase blood pressure, influence the endocrine glands, and speed up metabolism. It has been used to cure many human illnesses, such as sleeplessness, gastritis, demulcent, cure-all nervous disorders, and diabetes.

#### **Endangered situation**

Wild and cultivated ginseng produce an annual crop in the United States and Canada valued in excess of \$25 million. The price of wild root is about three times that of cultivated root. Because ginseng root is valuable, many overzealous collectors dig all plants from wild

populations. Some diggers consider wild ginseng free to use, but such collecting is a criminal act in Missouri and many other states unless one owns the land or has permission to dig.

Great Smoky Mountains National Park, North Carolina and Tennessee, is the largest protected area in the southern Appalachians and probably the largest protected reserve for American ginseng in the United States.

This plant has been collected illegally in the Smokies for its medicinal value since the park was established in 1934. Harvesting of wild populations of American ginseng has been likely increased throughout the plant's range of eastern North America. According to buyers, the roots of ginseng found in naturally occurring populations are more expensive than cultivated roots,

making the Smokies an ideal place to collect.

Some years ago environmentalists decided that wild ginseng was an endangered species. Even though all cultivated ginseng originated from wild ginseng and there was no evidence. Notice of an intent to put American ginseng on CITES(The Convention on International Trade in Endangered Species of Wild Fauna and Flora) was published in the Federal Register(Persons, 1986). Ginseng now needs to be certified as to whether it is wild or cultivated and states must approve a conservation program to allow any harvest of the wild roots from the U.S. Fish and Wildlife Service.

#### **Historical aspects**

American ginseng was discovered in North America by a French missionary named Father Joseph Francis Lafitau in 1716 near Montreal, Canada (Persons, 1986). Soon ginseng was found by the native North Americans, purchased by French fur traders and exported to China. Between 1858 and 1901 ginseng exports averaged 278,000 pounds per year and at that time almost all ginseng was gathered from wild populations. In the early 1880's a New York State Ginseng Association was formed with George Stanton who is now widely recognized as the Father of the cultivated ginseng industry(Williams, 1957). Ginseng farming became quite common throughout much of its native range at the turn of the 20th century as the supplies of wild roots disappeared due to over-harvesting. Between 1906 and 1970 ginseng exports averaged 215,000 pounds per year (Harding, 1972).

Between 1988 and 1993 the average certified export of wild ginseng amounted to 158,000 pounds per year nationally with Kentucky and Tennessee leading the states. During that same period of time exports of cultivated ginseng averaged 1,341,000 pound. Almost all of the cultivated Wisconsin ginseng grown under artificial shade (Pritts, 1995). In recent years significant

increases of cultivated ginseng grown under artificial shade have occurred primarily in British Columbia and Ontario, Canada. Ontario alone in 1997 reported more than 2,000 acres and British Columbia has close to 1,000 acres. With an average yield of 2,000 pounds per acre, an additional 6 million pounds per year are being harvested in North America since the late 1980's. China is also becoming a major producer of American ginseng with at least 250 acres in production(Proctor, 1988).

#### **Recent production and tribulations**

The effect of this huge increase in supply has had a predictable effect of the price of cultivated ginseng. While the price paid for field cultivated ginseng has dropped dramatically in the past 10 years, the price for wild or woods cultivated ginseng has risen significantly. In 1985 wild ginseng in New York state was sold approximately \$180 per pound. In 1995 the price was \$500 per pound and in 2002 the average price was in the range of \$300 per pound. Over the years ginseng culture has become modernized. Farm execute dealers have developed sophisticated equipment for planting and harvesting. As an alternative to the wooden lath racks used since the early days provide 70% shade for the crop, plastic shade has been developed. However, despite all the modernization, ginseng growing is very risky from the robbers and severe disease problem. The farmers who grow it, even though the prices rise and fall this unusual crop can be attraction as much as \$70 plus dollars per pound and 2500 pounds can be taken off a single acre.

In summary, the price curve for ginseng resembles a roller coaster, reflecting not only supply and demand but many other factors, not well understood.

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(Received Oct. 5, 2003)

(Accepted Oct. 30, 2003)