


Ginseng

By Penny Keller

Ginseng has long been recognized as an herb possessing great value. The first written record of the use of ginseng can be found in a Chinese Herbal dated in the 1st Century B.C. This Chinese Herbal, *Shen-nung pen ts'ao ching*, was surely preceded by a long verbal history of ginseng for in ancient China, ginseng was always held in the highest esteem as a powerful drug (5).

History shows that early Chinese emperors placed great value in ginseng. Early emperors proclaimed its roots as having many uses, primarily as a tonic or stimulant for both physical and mental disorders (9). In addition, it was used for increasing fertility and sexuality, and most importantly for strengthening the body. In fact, ginseng was so esteemed as a botanical drug that it was an important trade commodity, at times serving as payment for ransom and as payments of tribute to the Chinese government (3).

As the demand for ginseng increased, cultivation of the plant was initiated to offset the dwindling supply of wild ginseng. The earliest plantations were in southeastern Manchuria and what is present day North Korea (5). Missionaries in China during the early 1700s became aware of ginseng and subsequently their knowledge of its commercial value spread to eastern North America.

The export of wild ginseng root from America to the Orient began in the early 1700s. In 1773 the sloop "Hingham" sailed from Boston to China with 55 tons of ginseng on board. The first shipment of ginseng to China after the American Revolution is reported to have been made by John Jacob Astor from New York in 1782. The root from that shipment was said to have been sold for three dollars a pound. As in Asia, wild American ginseng became scarce. Its cultivation began in the 19th Century with much of the plant being grown in Wisconsin and Ohio. It has been reported that nearly 21,000 tons of American ginseng has been exported between 1821 and 1983 (1).

Ginseng is the common name of two species of *Panax* of the family Araliaceae. *Panax ginseng* is the Asian species and *Panax quinquefolius* is the American species. Harding (1972) describes four varieties of *P. ginseng* and three varieties of *P. quinquefolius* (4). Shorter forms of the common name ginseng, "sang" and "seng", are used in the United States. Other common names include red-berry and five

fingers.

Ginseng is a perennial herb 60-80 cm tall. Its root is fleshy, often bifurate and aromatic. The stem is simple, erect and deep red. Ginseng's flowers, on the other hand, are pink and its fruit, a small berry, is red. The leaves are compound, digitate, oval and thin. There are a total of five leaflets, the three terminal leaflets are larger than the two lateral ones (6). Some say the leaf resembles the human hand, thus the common name five fingers.

Ginseng's roots are 5-6 cm long, grayish white to amber yellow. The surface is wrinkled and furrowed. The taste is sweetish at first, with a somewhat bitter aftertaste (4).

In old China, the age of ginseng roots was ascertained according to the number of "rings" on its surface. Rings are transverse wrinkles that appear from the shrinking of the root. However, since ginseng produces only one aerial shoot for each growing season, the number of stem scars on the rhizome may also be used for establishing the age of the plant. Ginseng is a very long lived plant. The life span of ginseng plants has been reported to be from thirty to three hundred years old.

Fork shaped roots with many annular circular wrinkles or scars on the root stock, or rhizome have the greatest value. The closer the resemblance of the root is to the human body, the greater it is thought of as having associative signature. Thus, in employing the doctrine of signatures, the portion of the root that resembles a leg would be perceived as having medical value for an ailment affecting the human leg. Because the "ideal" ginseng root represents the human body, the plant is supposedly a cure-all, panacea, for the entire body (8). In fact, the word ginseng is derived from the Chinese term *jen-shen*, meaning "shaped like a man". Old roots, some nearly a century old with many scars, commanded very high prices because the plant's longevity was said to be transferred to individuals who consumed them (2).

With respect to distribution *P. ginseng*, Asian ginseng, is native of Manchuria and Korea and presently cultivated in Korea and Japan. *Panax quinquefolius* is native of rich cool woods from Quebec and Manitoba southward to Florida, Alabama, Louisiana and Arkansas. American ginseng is cultivated in Illinois, Kentucky, Missouri and West Virginia, but the three leading states are North Carolina, Georgia, and Tennessee (10). As ginseng is a native of the forest, in the cultivation of this plant, the grower strives to approach forest conditions as nearly as possible.

In cultivating ginseng, ripe seeds are gathered in the fall from plants that begin to produce fruit, red berries, after the third year. Some growers who do not use the seeds will remove all blooms from plants so that the roots grow larger and faster. The fruit must be harvested carefully to avoid their breaking open, resulting in wind blown seeds. When removed from the fruit the seeds are washed and placed by layers in barrels of slightly damp sand, sawdust or forest soil for one year, this called the stratification process. In the following fall, three to four seeds are planted 1 in. deep in hills 1 ft. apart in beds 5 ft. wide in the "sang" gardens. They germinate in the spring after freezing temperatures have broken their eighteen month dormancy. It takes approximately 6-7 growing seasons to produce a marketable root from seed. Ginseng can be planted in seed beds, 25-50 seeds per square foot, in the spring to obtain

seedlings. The seedlings, when 1-2 years old, are transplanted to the sang gardens in the fall, putting the roots 2 in. into the ground and 6 in. apart in rows that are 1 ft. apart. They can then be harvested in about five years. Mulch consisting of straw, sawdust, and occasionally forest leaves is spread several inches deep especially over the new beds in the fall to protect the seedling against frost upheaval and to retain moisture in the spring.

Intensive hand labor is an integral part in the early production of cultivated ginseng. Cautious harvesting of the root is also important. Careful and immediate attention is given to washing, grading, and drying the crop. If not properly dried, mildew and root rot become problems. Roots are dried for 14-15 days. The temperature at first between 60-80 degrees Fahrenheit and then raised to 90 degrees Fahrenheit. Three tons of green ginseng roots will result in one ton of dried roots, the average amount harvested per acre. After the dry fibrous rootlets are rubbed off, about 30 or more roots are needed to make one pound of dried ginseng. The dried roots are packed immediately for export in 100 pound or larger cylindrical, cardboard containers or drums to protect them from breaking and to avoid absorption of moisture (10).

From 1980 to 1983, some 1,197 metric tons of domestic (wild and cultivated) ginseng were exported from the United States. The average value per pound was $62.47, exported to destinations such as Africa, Asia, Europe, Latin America, Oceania, and Canada. Japan and South Korea both export processed Asiatic ginseng to Hong Kong although much of the ginseng from Japan is originally from South Korea and is merely transshipped (2). In fact South Korea, where ginseng production is subsidized and controlled by the government has become the chief competitor for growers in the United States. Asian ginseng has long been more highly prized for its alleged superior medicinal properties compared to those of American ginseng, however none can be imported with claims of possessing medicinal value.

Despite increased research on ginseng that tends to support its alleged medicinal value, consumption has remained concentrated largely in the Far East. In the early 1970s, symposiums on ginseng held in South Korea and research reports claimed that the herb stimulated protein synthesis, lowered blood sugar and cholesterol levels, regulated the metabolism rate, and protected against stress and could therefore reduce mortality. Koreans fed ginseng to race horses to obtain better performance. In particular, the Soviet Academy of Sciences' Ginseng Committee conducted extensive research on the plant. Asiatic ginseng from eastern Siberia was reportedly used by Soviet cosmonauts and Olympic team trainees to reduce fatigue. The Fromm operation funded research in the early 1970s on the possibility of using compounds from American ginseng in cancer research. In Britain many drugstores stocked Pharmaton, a Swiss made capsule containing ginseng, and vitamins and minerals possessing ginseng.

In the United States, ginseng has been sold without medical prescriptions in the forms of liquid extracts, capsules, chewing gum, teas, candy and even cigarettes. Customers used it for treating rheumatism, anemia, insomnia and various other problems. Some purchased the ginseng products for their alleged aphrodisiac properties. A ginseng cocktail was developed as well as "Ginseng Rush", a soft drink. Ginseng fragrances have been used in cosmetics, soaps, after shave cologne, and perfumes, including Jovan products and shampoo by Clairol. An estimated 5-6 million Americans used ginseng products by the late 1970s (2).

Because ginseng root is so valuable, many collectors dig all plants from wild populations. They often fail to reseed, and as a consequence, there is serious concern about the survival of American ginseng in the forest ecosystem. Some diggers consider wild ginseng free to exploit, however, such collecting is a criminal act in Missouri and many other states unless one owns the land or has permission to dig. It seems that, in the future, ginseng will become a completely domesticated new economic plant. This will, apparently happen as a result of the scarcity of wild ginseng, the systematical agricultural work with this perennial and the change from digging of wild roots to their production through commercial agriculture.

At the present time, however, a solution to the ginseng problem is found not only in widening its cultivation and increasing its output, but also in the search for substitutes. According to recent reports it appears that the most promising of the substitutes may be *Eleutherococcus senticosus,* a Far Eastern forest shrub which is also in the Araliaceae family. The extract from its roots has exactly the same properties as that of ginseng (1). This discovery is important, since the natural supply of *Eleutherococcus senticosus* is enormous and virtually untouched.

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