Goji berry, or gōu qí zì in Chinese, has recently become popular. It is being used in energy and rejuvenation drinks and candy bars sold through natural food stores and multi-marketing companies. The Chinese _Lycium chinense_, as well as _L. barbarum_, native from North Africa to Iraq, are well-known in Chinese herbalism as wolfberry. Although often referred to as Tibetan, its use in Tibet is borrowed from China. In all, there are over 100 species worldwide mostly from desert climates. The berries of those native to the U.S. were eaten by numerous Indian tribes. _Lycium chinense_ and European species of the shrub are naturalized in the U.S. and also sold in nurseries as matrimony vine and box thorn.

Considered a yin tonic, lyuimium berries are recommended in Traditional Chinese Medicine as an antiaging herb and to improve eyesight, as well as to treat diabetes, dizziness, impotence, menopausal complaints, and strengthen weak back and knees. It is commonly added to soups, rice dishes, and drinks. The berries are also considered aphrodisiac by India’s Ayurvedic medicine. The leaves have been used to correct eyesight problems and ailments that include skin rashes, diabetes, and to restore energy. Young leaves are also eaten as a vegetable in China. However, as with some other members of the nightshade (Solanaceae) family, large amounts can be toxic. The bitter root bark is an antibacterial that controls coughs and asthma and lowers fevers, blood pressure, and cholesterol levels.

Goji berries contain the highest known content in plants of the compound zeaxanthin, exceeding spinach many times. This carotenoid promotes eye health by concentrating in the macula of the eye where it is thought to help prevent age-related macular degeneration, a common disorder responsible for the loss of central vision. It is currently being tested in a 5-year clinical trial for its ability to slow this disease. When 14 people in a placebo trial study took goji daily (almost 3 mg. zeaxanthin from _L. barbarum_ for only one month, the amount of zeaxanthin in their blood increased two and a half times. In another study, even healthy young people, had their sight improve, including better adaptation to the dark. They also had the maximum levels of vitamin A in their blood after taking goji for about a month. So far, most studies are preliminary trials with rodents from China and Hong Kong, but they do back the traditional use. Goji berries added to the diet prevented the loss of ganglion nerve cells in the eye from glaucoma (a neurological eye disorder that leads to blindness) so successfully that the researchers suggested it may be a candidate for a neuroprotective drug.

Studies on goji berry focus on isolated "Lycium barbarum polysaccharides," nicknamed LBP. Research suggests that LBP enhances the immune system on several levels by maintaining white blood, lymphocyte, macrophage, antibody, and immune system protein cells and by decreasing porosity of cell membranes. It also inhibits growth of tumors and human liver cancer and leukemia cells, and may even enhance the effectiveness of radiation treatments in fighting cancer. In addition it appears to accelerate the manufacture of the cell’s DNA and protect it from damage. The berry also promotes the health of white blood cells. And, it is high in flavonoids, which protect red blood, as well as cells in general, from oxidative damage.

A strong tea of goji combined with Chinese rehmannia (Rehmannia glutinosa) inhibited the growth and breakdown of cancer in a study with cultures from human liver cells. In a clinical trial, advanced cancer patients were treated with _Lycium_ polysaccharides combined with compounds that increase the immune system’s killer T-cell activity. Some regression of the cancer was experienced by 75 people with melanoma, renal cell, colorectal, lung, nasal-pharyngeal, and hydrothorax cancers.

Both goji’s potent antioxidants and polysaccharides may account for its potential in lowering cholesterol and slow age-related problems, such as degenerative nervous system diseases like Alzheimer’s disease. It seems that goji’s antioxidants and polysaccharides combined with its several monosaccharides and 17 amino acids also help it to lower blood sugar levels and decrease cellular oxidation and DNA damage. Researchers have speculated that goji as a dietary supplement might avert complications of diabetes and even help prevent some cancers. It is hoped that clinical studies will show that goji berry extracts and polysaccharides control blood sugar levels, sugar metabolism, and insulin resistance, function, and transport in non-insulin dependent diabetics, as has been seen with rats. Several studies from the 1980’s done in China gave fruit extracts to elderly people. Their immune function improved, with levels of immune factors, including lymph cells increasing. Testosterone, cyclic AMP, and SOD (superoxide dismutase) also rose.

The combination of goji’s polysaccharides, zeaxanthin, and amino acids are beneficial to skin care. According to a U.S. study, goji supports cellular health and creates more collagen and fibroblasts to strengthen and support skin and connective tissue. The berry juice is used topically in China to treat many skin problems, such as burns, wounds, bedsores, frostbite, and canker sores. Juice made from the leaf is also a topical treatment on insect bites.
And, about that marketing hype? Some of it is being promoted in Goji: The Himalayan Health Secret (Lake Dallas, TX: Momentum Media; 2003), a book by pharmacist Earl Mindell. He is the author of numerous other books on vitamin therapy and also a partner in the multi-marketing company, FreeLife International that sells Himalayan goji juice. The company’s promotional literature inserts a second species name (making a Latin trinomial instead of a binomial?) to claim that Lycium Elegans barbarum is from Tibet and is different from Lycium barbarum. Fact is, it doesn’t exist botanically. According to Daniel Winkler M.Sc., of the Eco-Montane Consulting, "Lycium, called phang-ma (no f sound in Tibetan), has been part of Tibetan Medicine for at least five centuries. The plant is more common in the NE area of Qinghai, and there’s not much in central Tibet. However, it is sold all over Tibet in large markets along with the raisins and nuts. One source lists the two species in Tibet as L. chinense and L. halimsoliou." A Lycium ruthenicum, with brown berries, is also found on the alpine steppes of the Tibetan Plateau in the Karakoram area.

There is also no evidence that goji contains either of the sesquiterpenes known as cyperone and solavetivone that are found in some other members of the nightshade family. Changes are that goji’s reputation to counter fatigue may be true for people, although this is currently only backed by a study with mice. After strenuous exercise, glycogen storage in muscles and the liver improved and excess nitrogen was eliminated. The immediate rushes of energy described by some people who drink goji juice are most likely a sugar rush produced by the fruit juice that composes most of the commercial drink.

However, despite inaccurate hype, goji has a lot going for it medicinally and can stand alone as an important Chinese medicinal herb without bestowing additional properties upon it.

GOJI REFERENCES
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