

Lauren Chattigré, DVM, DVetHom, CVA, CVCP  
Cascade Summit Animal Hospital, 22320 Salamo Road, West Linn, OR 97068  
Phone: 503-655-1722. Fax: 607-0136

### **Ginseng**

Many nutraceuticals for both humans and animals today contain ginseng, and some clients add ginseng to their pet's diet as part of routine meal preparation. It's important to know which type of ginseng is being used, however, as there are important differences between them. There are actually eleven species within the genus *Panax* (meaning "all-heal" in Greek, as in *panacea*), a group of perennials with fleshy roots that prefer cooler climates in the Northern hemisphere. Plants in this genus contain ginsenosides, a group of triterpene saponins (steroid-like compounds) found only in ginseng species. Their effects have been difficult to study due to a wide array of actions involving multiple biochemical pathways. The most commonly used varieties of ginseng for medicinal purposes include Asian ginseng (*Panax ginseng*), American ginseng (*Panax quinquefolius*), and Pseudoginseng (*Panax notoginseng* or *Panax pseudoginseng*). All three are used in Chinese herbal medicine. Siberian "ginseng" (*Eleutherococcus senticosus*) is not a true ginseng, and must currently be marketed as eleuthero rather than ginseng.

Asian ginseng, called rén-shēn (man-root) in Chinese because its forked root resembles legs, occurs primarily in China, Korea, and eastern Siberia. One of its primary uses is as an adaptogen – a substance that improves the body's ability to handle stress. Research supports this use, as recent studies show benefit in ailments such as heart disease, diabetes mellitus, cancer, immune deficiency, hepatotoxicity, and high cholesterol. The mechanisms underlying these benefits include antioxidant, anti-inflammatory, and immune stimulant effects. Research also suggests benefit against the effects of aging and neurodegenerative disorders, due in part to anti-apoptotic mechanisms. It is also traditionally used to improve sexual function, and has been demonstrated to improve both libido and copulatory performance in laboratory animals. In Chinese herbology, rén-shēn is categorized as a substance that tonifies (strengthens) the body's qì (commonly translated as "energy" in English but more accurately thought of as energy/matter in continual transition) and yàng (attributes including warmth, activity, outward, upward, light, dry, and masculine). It is used in cases of collapse, shallow breathing, cold limbs, heart palpitations, and forgetfulness. Caution is warned in cases of deficient yīn (attributes including cool, passive, inward, downward, dark, damp, and feminine), but rén-shēn is said to generate fluids in cases of fever, and calm the spirit in cases of anxiety and insomnia. The toxicity of adaptogens in general is considered low, even in high doses, but side effects of Asian ginseng have included headache, insomnia, palpitations, nausea, diarrhea, tremor, weight loss, epistaxis, mastalgia, and alterations in blood pressure (usually toward hypertension, the traditional cure for which is mung bean soup). Asian ginseng is contraindicated during pregnancy and lactation, acute infections, acute asthma, excessive menstruation, hypertension, and epistaxis.

Asian ginseng is sold in two forms, white ginseng (bái-rén-shēn) and red ginseng (hóng-rén-shēn). It's the same ginseng root, but to make red ginseng the root has been left unpeeled, and heated by steaming prior to drying. This process is thought to prevent breakdown of active ingredients, and to give stronger yàng properties to the herb. Studies suggest greater efficacy of red ginseng in the treatment of erectile dysfunction and some forms of cancer. A variant of red ginseng is sun ginseng, which has been heated to an even higher temperature.

Siberian "ginseng" (more properly called eleuthero), is often used as a cheaper alternative to Asian ginseng in herbal formulas since it has similar adaptogenic

properties. While not as well researched as Asian ginseng, studies suggest eleuthero also has cholesterol reducing effects, antioxidant effects, and benefits the nervous and immune systems. Uses and cautions are similar to those of Asian ginseng.

American ginseng, called *xī-yáng-shēn* (west ocean ginseng) or *huā-qí-shēn* (fancy flag ginseng) in Chinese, is native to eastern North America (originally widespread in the Appalachian and Ozark regions). It was introduced to China in the 1800s by “sang hunters” who sold the roots to traders visiting from China and Hong Kong. Gone from much of its original habitat by overharvesting, it is commercially grown in Wisconsin and Minnesota, as well as China. Although it is also considered an adaptogen, the proportions of its active ingredients are different than Asian ginseng, and Chinese herbology considers it a *yīn*, rather than *yáng*, tonic. It is said to benefit the *qì*, generate fluids, nourish the *yīn*, and clear heat; it has special affinity for the lungs. Conditions calling for its use include wheezing and coughing up blood-streaked sputum, and chronic fever with weakness, irritability, and thirst. One randomized double-blind study showed that American ginseng benefitted elderly patients with influenza. In Chinese medicine, it is contraindicated in cases of damp cold (i.e. *yīn* excess).

Pseudoginseng, called *sān-qī* (three-seven root) in Chinese because the plant has three branches with seven leaves each, is native to China and Japan. Unlike Asian and American ginseng, it is not an adaptogen; it is famous for its hemostatic properties. In Chinese medicine it is used in cases of bleeding, blood stasis, and blood deficiency; thus it stops bleeding while at the same time reducing swelling and promoting regeneration of lost blood. It is the herb of choice in traumatic injuries. It is also used for hematuria, hematochezia, and hematemesis as well as epistaxis. There is no hemostatic effect in vitro, but in vivo animal studies show significantly reduced bleeding time; this effect is lost if the portal vein is ligated, suggesting liver involvement. Studies also show an increase in coronary blood flow and reduced blood pressure in cases of coronary artery disease. One small study showed a reduction in serum cholesterol; another showed reduced pain and improved peristalsis in cases of Crohn’s disease. Toxicity is considered low, but pseudoginseng is contraindicated during pregnancy; caution is advised in patients with blood or *yīn* deficiency.

Pseudoginseng is the main ingredient in *Yúnnán báiyào* (white medicine from Yunnan province), developed over 80 years ago and used extensively on the battlefield. (Baiyao is also spelled *paiyao*.) Other ingredients include yam root, sweet geranium, galangal, ox gallbladder, and borneol (though the exact formula is closely guarded). *Yúnnán báiyào* is used to stop bleeding, promote wound healing, and alleviate pain. Research suggests that the formula promotes degranulation of platelets, and may promote peripheral vasoconstriction; positive hemostatic effects are well-documented. There are debated claims for antimicrobial, anti-inflammatory, and anti-neoplastic effects. Some veterinary uses include internal and external bleeding tumors, sheared nails/hooves, surgical bleeds, epistaxis, nasal procedures, gastrointestinal hemorrhage, abdominal trauma, disseminated intravascular coagulation, avian bumblefoot, von Willebrand’s disease, thrombocytopenia, aural hematomas, oral/dental surgery, and spays in estrus. *Yúnnán báiyào* typically comes in 250mg capsules; the following oral doses are recommended for animals (it may also be applied topically):

**Dogs:** < 15kg receive 1 cap BID, 15-30kg receive 2 caps BID, >30kg receive 2 caps TID. Alternate dog doses in the literature: 1 cap per 10kg SID-BID, 75mg/kg daily in divided doses.

**Cats:** ½ - 1 cap BID.

**Horses** (500kg): 1 bottle (4 grams) TID as oral slurry in water, or 2 bottles BID for 6 days followed by 1 bottle BID for 6 days.

**Birds** (400-1000g): 1 cap dissolved in water SID, given by oral gavage.

The capsule version of *Yúnnán báiyào* is sold in cards of 16 caps, with a red pellet on one end of the card. This pellet is said to have the equivalent hemostatic effect of all 16 caps (or one 4-gram bottle), and is given for acute severe bleeding. Long-term use of *Yúnnán báiyào* is associated with anecdotal reports of liver enzyme elevation; when

chronic dosing is required, many alternative veterinarians recommend pulse dosing (e.g. 1 week on, 1 week off; alternate days).

Finally, other plants veterinarians may come across that are not true ginseng species but are often referred to as such include *Gynostemma pentaphyllum* (Southern ginseng, a.k.a. jiǎo-gǔ-lán), *Pseudostellaria heterophylla* (Prince ginseng), *Withania somnifera* (Indian ginseng, a.k.a. ashwagandha), *Pfaffia paniculata* (Brazilian ginseng, a.k.a. suma), *Lepidium meyenii* (Peruvian ginseng, a.k.a. maca), and *Oplopanax horridus* (Alaskan ginseng). These are considered mostly adaptogenic plants, but each has different medicinal properties and applications, and should be researched prior to use. Another plant referred to as ginseng, but not considered an adaptogen, is *Angelica sinensis* (Female ginseng, a.k.a. dāng-guī or dong quai); common uses include premenstrual and menopausal ailments, with pregnancy being a contraindication.

With so many plants being referred to as ginseng, it's no wonder confusion occurs among clients and veterinarians alike. Most ginseng-containing nutraceuticals encountered by veterinarians contain either Asian ginseng or eleuthero, as do many Western herbal tinctures sold over-the-counter as tonics or immune boosters. For safety's sake though, it's good to have clients bring their product in to check on the species of ginseng used; then potential problems may be more easily avoided, and improvement or decline more easily traced to a particular medication.