

Under the Mistletoe... Myth, Medicine, and More!

Christmas holidays and merrymaking may be over, but mistletoe lingers on! This intriguing parasitic plant is even more evident in winter treescapes, mostly deciduous oaks of our region. In other words, plants can be more easily seen without leaf cover of their host trees. Mistletoe of our region blooms in the fall, and female plants produce fruit, their white berries, during winter. Flowers on male plants produce pollen and then wither.



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There are 1300 or so species of plants called “mistletoe.” The name “mistletoe” originated from two Anglo-Saxon words: “mistel” for dung and “tan” for twig. How so? Probably because it had been observed that mistletoe plants grow from spots on tree twigs that have been spattered with bird poop, containing sticky mistletoe seeds. A number of bird species feed on mistletoe berries and show no adverse effects, though these fruits are toxic to humans and caution should be taken decorating with fruiting mistletoe in homes with young children and pets.

“Our” mistletoe species growing throughout the southeast is American Mistletoe. Its botanical name is *Phoradendron leucocarpum*, from Greek meaning “thief of a tree with white fruit”; Phor = thief, dendron = tree, Leuco = white and carpum = fruit. It is actually a “small time thief,” because its parasitic roots extend only into vessels of xylem tissue from which it steals water and minerals. American mistletoe has green leaves which photosynthesize. Its roots do not extend into sugar-conducting tissue (phloem). For a healthy tree, mistletoe is mostly a benign pest. But a mistletoe infestation can ultimately kill a tree if it already is, or becomes, diseased or damaged. This time of year a heavily infested tree can appear to be evergreen, like the one pictured. This water oak reportedly called “the hanging tree” grew in front of the courthouse in Abbeville, S.C. (Hmmmmmmmm?) until it was cut down a couple of years ago.



Photo by J.Haldeman

Some species of mistletoe are complete parasites, making no food by photosynthesis and therefore stealing sugar as well as water and minerals. In forests of Canada, Minnesota and Michigan, and especially in pine forests of the north and southwestern United States, mistletoes that infest spruce and pine species are considered serious pests. One commonly called "Pine Dwarf Mistletoe" infests important species of the Northwest. Growing on pine stems, this mistletoe forms clumps of abnormal shoot growth called "Witches Brooms." This form of mistletoe has a fruit that builds up hydrostatic pressure as it ripens and when ripe, shoots its sticky seed with a force strong enough to propel it 60 mph to a distance of up to 30 feet!



Pine Dwarf Mistletoe <http://del.typepad.com/del/2010/05/dwarf-mistletoe-and-witches-broom.html>

So what about myths of mistletoe? These go back to pre-Christian Europe, when Druids welcomed the New Year with branches of mistletoe. It was considered a mystical plant because it appeared suddenly in trees and lacked roots. There are various stories of mistletoe in the lore of Vikings and Celts. Plants were said to have miraculous healing powers, to enhance fertility of animals and humans, and to give protection from witches and ghosts. The tradition of kissing under the mistletoe comes from Vikings who viewed it as the sacred plant of Frigga their Goddess of Love. A story tells how she revived her slain son Balda, whereupon her tears of joy turned into white mistletoe berries, and she kissed everyone who passed beneath the tree where it grew! This naturally evolved into Christian tradition of Love that conquers Death, as well as a number of symbols of friendship and goodwill for Christmas Season.

And how about mistletoe as a medicinal plant? American as well as European, Korean, and Australian mistletoes (different species in different families) have been used for medical remedies for centuries. Teas and extracts are prepared from leaves and berries. Because of toxicity its medical use is controversial. As a folk medicine, mistletoe preparations are reported to relieve digestive upsets, and mental disturbances such as epilepsy. It has been shown to stimulate smooth muscles and has been used to prevent hemorrhage after childbirth. Migraine headaches, rheumatism, asthma, and diarrhea have been treated with mistletoes. Effects on blood pressure are apparently the opposite for American and European mistletoes. American mistletoe causes blood pressure to rise; European mistletoe causes it to drop. Mistletoe extracts are available for purchase from many herbal medicine stores (pharmacies in Europe) as well as online.

An extract of European mistletoe named Iscador has gained considerable interest as a treatment for cancer. It is reported to act by stimulating the immune system in a manner that enhances destruction of cancerous cells. Mistletoe extracts have been used to treat AIDS. In 1996 a patent was granted for a mistletoe component named T4GEN, and a synthetic version has been produced. The National Cancer Institute supports clinical trials of mistletoe extracts, and it is hoped their usefulness for cancer treatment will be validated.