Pacific Yew

Botany

Taxus brevifolia is a species of Yew tree native to western North America. It is commonly referred to as the Western Yew, Pacific Yew or Montana Yew. The Pacific Yew, like other forms of yew, belongs to the botanical family Taxaceae, which is a small family with one main genus – Taxus. Species include Taxus baccata (European Yew), Taxus cuspidate (Japanese Yew), Taxus globosa (Mexican Yew) and Taxus canadensis (Canadian Yew). Taxus brevifolia is found primarily in the Pacific Northwest region of the United States in the areas of Montana, Idaho, Oregon and Washington.

The remedy was made from the Montana Yew. Its typical growth habit is a bushy, shrub-type tree generally reaching 10 to 15 feet in height with an almost equal spread. It grows best on northerly slopes at elevations of 3,000 to 7,000 feet, preferring a canopy of mature timber.

The leaves consist of linear, flat, slightly sickle-shaped needles forming two comb-like ranks along the stem. Leaves have a distinct, short petiole at the base.
The undersides are marked with two yellowish to grayish-green lengthwise stripes. Species of this genus differ from other gymnosperms in having a single, dark bluish seed surrounded by a red, fleshy, cup-shaped covering. The seed with the covering is about the size of a pea. The Pacific Yew does not contain levels of certain compounds called taxines (alkaloids) that make other species of yew toxic and has been used for centuries by Native Americans and eaten by animals without any harm.

Allopathic Use
The use of the Pacific Yew as a modern medicine dates back to the late 1950's and early 1960's. During this time there was pressure for serious cancer research and the National Cancer Institute (NCI) was formed. One of their agendas was to look for medicinal plants that could help in the newly declared war against cancer. The NCI contracted the U.S. Department of Agriculture to find samples of many plant species for research.

Taxus brevifolia, amongst many other species, was found and analyzed in 1962. Researchers quickly saw that Taxus brevifolia showed a broad spectrum of anti-cancer activity. It took another two years to isolate a particular compound from the bark of the tree that appeared to provide the yew's anti-cancer properties. The Pacific Yew's cancer-killing compound was christened 'Taxol' and seemed to provide real hope.

In order to make a synthetic drug from a natural substance, scientists must first be able to see its molecular structure. The Taxol molecule, however, is very complex, and therefore almost impossible to reproduce in the laboratory. As Taxol could not be readily synthesized, the NCI would have to rely on extractions of the Taxol compound from the Pacific Yew tree itself. Teams of collectors would be required to go into the wilds of the Pacific Northwest to cut down the trees and harvest the bark. From the bark, the Taxol constituent would be extracted and made into a medicine. The process would be very expensive and time consuming and the NCI postponed the project for several years.

The NCI eventually began long-term trials on Taxol with Bristol Meyers Squibb. The pharmaceutical giant was given rights to exclusively market Taxol and to use
its name as its own proprietary trademark. Even in the trial stage, the drug showed such promise that cancer patients were clamoring for it.

In December of 1992, Taxol was given new drug approval, 30 years after research was begun.

Bristol Meyers Squibb’s 1997 Annual Report stated that although Taxol was originally approved for use as a treatment for refractory ovarian cancer, ongoing research was showing its efficacy in other arenas such as cancers of the lung, breast, bladder, prostate, esophagus, head and neck, cervix, and endometrium and also Kaposi's sarcoma.

Taxol made such an impact on the medical community that an entire book of more than 400 pages was compiled, which includes formerly unpublished research data detailing the history, chemistry, formulation and production of Taxol.

Because of the limited population of slow-growing Pacific Yews and environmental concerns (more than 400,000 trees were cut down for Taxol production), supply became a problem. As a result, Taxol became scarce and one of the most expensive drugs on the market.

By 1994, scientists found a way to semi-synthesize Taxol from a substance called 10-deactylbaccatin 111, which could be grown and harvested commercially from a species of ornamental yew tree foliage. This discovery removed the tremendous burden on Pacific Yew tree populations and made the drug less scarce.

The Taxol compound belongs to a family of compounds called Taxanes that are unique to the Yew species. During the Taxol studies, several yew taxanes in addition to the Taxol tanane were found to exert anti-cancer properties. Other Pacific Yew taxanes (also called diterpenes) are known by various names such as baccatin 111, brevitaxin, brevifoliol and cephalomannine, as well as variations of taxol compounds. Therefore, Taxol is only one of hundreds of organic compounds in Taxus brevifolia.

Research showed that Pacific Yew taxanes were able to destroy cancer cells by a unique mechanism not seen in other anti-cancer substances. Cancer cells
replicate by sending out what are referred to as 'spindle fibers' (or microtubules). At the end of these fibers, a new cancer cell matures. The spindle fibers, which connect the new cell to its parent, disintegrate and the new cell is then separate and able to give birth to more cancer cells. This process creates uncontrolled cell growth that forms tumors and radically interferes with normal body functioning. Most chemotherapeutic agents work by destroying the cancer cell's ability to form the spindle fibers. However, the spindle fibers may re-grow when the drug is stopped. The yew taxanes destroy cancer cells by a completely different route. The yew taxane allows the cancer cell to grow its spindle fibers, but prevents the spindle fibers from disintegrating, which paralyzes cell division and permanently stops the growth of the cancer cells.

Reportedly, drug companies have considered possible uses for Pacific Yew taxanes other than the Taxol taxane. However, as one researcher states, the number and complexity of these naturally occurring taxanes makes them difficult candidates for drug formulation and synthesis.

In addition to its taxane content, Taxus brevifolia also contains other important beneficial plant compounds such as lignans, which have been found to exhibit significant anti-cancer, antibacterial, antifungal, antiviral and anti-inflammatory activities. Flavonoids are also present in Taxus brevifolia such as quercitin, rhamnetin and sciadopitysin. Flavonoids are plant compounds known for their anti-inflammatory, anti-allergenic, anti-viral and anti-cancer properties. Flavanoids also act as powerful antioxidants, providing protection against free radical damage.

Herbal Use
During 1991, 1992 and 1993, Bighorn Botanicals, Inc. was under contract to Hauser Chemical Research, Inc., to process Montana Yew bark for the ultimate production of Taxol. Hauser was under contract to Bristol, Meyers, Squibb Pharmaceutical, Inc. to extract the Taxol from the processed bark. Upon completion of those contracts, Bighorn Botanicals continued to wild craft, process and develop selected species of botanicals indigenous to northwestern Montana.

Although the plant was originally thought to be poisonous workers handling the
plant suffered no ill effects. During the Environmental Impact Study conducted by the United States Forest Service, a letter came to light detailing the story of a woman who had made a tea from the limb tips and used it as a dietary supplement to treat her ovarian cancer. In 1992 the owner of the company began to drink the tea made from the bark, with no adverse effects. In 1994, after the company's contract ended with Hauser Chemical Company, the owner made contact with an alternative cancer clinic in Mexico, which began to use the bark as part of their cancer protocol. During this time, it was found that the bough tips of the plant (the terminal 6 to 8 inches of the limb) seemed to work more effectively than the bark. Research confirmed that greater amounts of naturally occurring taxanes with anti-tumor activity were found in the needles of Taxus brevifolia when harvested and processed properly.

Bighorn Botanicals now produces a tincture, a tea and a salve, all from the yew tips. The experience of Bighorn, the cancer clinic in Mexico, other health practitioners, and the general public seems to show very positive effects of this plant on many different conditions, including cancer.

The Taxol content in the Montana Yew is twice as high as the yew harvested in other northwest states, as documented by Hauser Chemical Research Corporation. Additionally, it seems that a species of fungi (Taxomyces andreanae) occurring on the Pacific Yew itself produces Taxol. The more recent discovery that the hazelnut tree (Corylus avellana) also contains Taxol has raised hopes that it may be obtainable from a variety of trees.

History
The yew tree has been an integral part of human history. Various yew species are native to Europe, Egypt, India, China, Japan and the United States. The wood was prized by many civilizations for thousands of years in the making of shelter, tools and weapons. One yew spear point found in England is thought to be more than 50,000 years old. The mummified remains of the 5,300 year-old "Ice Man" found recently in the Alps revealed that he carried a yew handled copper axe, along with a 6-foot yew bow and arrows. In medieval Europe, yew wood was used for domestic tools, as well as for implements of war. In the Battle of Agincourt, the English used long bows made from yew. The hardness and durability of the
wood allowed its use for many daily items such as tables, dishes, flooring, bowls and beds. Funeral offerings, sculptures, crosses, altars, maypoles, yule logs and sacred objects were also made of yew wood, largely because of the yew’s mystical lineage which may have stemmed from recognition of the yew tree’s innate properties of structural strength and medicinal power.

"Many cultures used yew for medicine; teas were made of leaves and bark, powders from the bark; even the wood itself was thought to have healing properties. Europeans used the yew as an abortifacient and as a cure for hydrophobia and heart ailments. Claudius suggested in the 1st century A.D. that the juice of yew served as an antidote to the bite of the viper. Du Monceau and Lowe noted its use as a heart tonic..." (The Yew Tree, A Thousand Whispers by Hal Harzell, Jr.)

In parts of India, the yew is called Deodar or God’s tree Historically it was used for bows, dyes, incense and medicine. Indians made salves of crushed yew needles mixed with butter to treat skin cancer.

The indigenous people of the northwest coast have traditionally used the Pacific Yew for tools, weapons, personal items and sacred objects. Native Americans still consider the yew to be sacred and continue to make spirit poles, death masks, ceremonial boxes and platters, as well as shaman’s wands, whistles, rattles, drum frames, and other religious objects out of its wood. Some tribes call it "Chief of the Forest." Branches and staves from living trees are fashioned into bows, canoe paddles, or digging sticks. They crush needles to make salves for skin diseases and poultices for bronchitis. Needles and bark are brewed into teas or smoked for remedies against headaches, dizziness, and stomach and lung problems. In Canada, Native Americans use Pacific Yew as a remedy for rheumatism, scurvy, numbness, pain, fever, colds, arthritis, stomachache, as a diuretic and to alleviate the pain of childbirth.

**RESOURCES**

Bighorn Botanicals, Inc. #3 Bighorn Lane, Noxon, MT 59853, USA.

Niatum, Duane: Carriers of The Dream Wheel. Contemporary Native American

PHARMACY

The source of the remedy was from Bighorn Botanicals. The tincture was
prepared from the bough tips of the plant, using a sub-species specific to
Montana. The remedy was potentized by Helios Pharmacy, Tunbridge Wells,
Kent, UK, and Hahnemann Pharmacy, San Rafael, California, USA.

PROVERS

Prover - #Potency - Sex
1 - 12C - F
3 - 6C - F
5 - 12C - F
6 - 30C - F
7 - 30C - F
9 - 30C - F
10 - 12C - F
13 - 30C - F
14 - 200C - F
15 - 30C - F
18 - 200C - F
19 - 30C - M
23 - 6C - F
25 - 30C - F

There were two placebos but both recipients dropped out before doing the
proving. Two other people also dropped out and one did not report any effects.

Unfortunately, there were only two males in the proving and one male reported
no symptoms. All but three provers were homeopathic students and
practitioners. Twelve provers were in the San Francisco Bay Area, one in Los
Angeles and one in Colorado.