

Taxus Wallichiana:- The Anti-Cancerous Miracle Plant From The Himalayan Region

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Introduction:

Taxus wallichiana commonly known as Himalayan yew is an evergreen plant native to the Himalayas, is widely renowned for its potent anti-cancer properties. It is found in the Northeastern states of India, such as Meghalaya and Manipur, Himachal Pradesh etc. The medicinal benefits of this plant have been noted in numerous traditional medicinal systems including Ayurveda, Unani, Homeopathy, and Tibetan medicine. The plant is consumed in various forms such as decoctions, herbal teas, and juice to treat respiratory infections, colds, coughs, indigestion, and epilepsy. Additionally, the plant's bark and leaves are utilized in steam baths to treat rheumatism, and the paste made from its bark is used for fractures and headaches.



Fig : *Taxus wallichiana*
Source : *Flowers of India*
(flowersofindia.net)

Extracts from the tree are also used in medicinal hair oils. In Pakistan, the stem's decoction is used to treat tuberculosis. The bark and leaves of *T. Wallichiana* are applied in Unani medicine as a deliver of the drug Zarnab, which is prescribed as a sedative, aphrodisiac, and treatment for bronchitis, asthma, epilepsy, snake bite, and scorpion stings. In Ayurveda, the young shoots of the plant are used to prepare a tincture to treat various conditions such as headache, giddiness, feeble and falling pulse, coldness of extremities, diarrhea, and severe biliousness. (The primary phytochemical constituent that is responsible for the plant's anti-cancerous properties is called "Taxol".

Botany :

The tree can be grow up-to 10-30 meters. It is slow-growing evergreen tree that can reach a height of up to 30 meters. It has dark green, needle-like leaves that are arranged spirally along its branches. The tree produces small, inconspicuous flowers that are followed by fleshy red berries. The bark of the Himalayan Yew is reddish-brown and has a rough texture.

Taxol :

It is an anti-cancerous chemotherapy drug classified as a “Plant alkaloid”. It is used for ovarian, breast, bladder, lung, prostate type of cancers. Taxol, also known as paclitaxel which was first isolated from the bark of the Pacific yew tree, *Taxus brevifolia*, in the 1960s. However, Pacific yew is a slow-growing tree and contains only small amounts of taxol. The search for an alternative source of taxol led to the discovery of the Himalayan yew, *Taxus wallichiana*. Taxol works by inhibiting the division of cancer cells, which slows down or stops the growth of the tumor. Taxol is commonly used to treat breast, ovarian, and lung cancer, among others. Taxol is administered through intravenous injection, and the dose is determined based on the patient's body weight and the type and severity of the cancer.

Side effects:

Important things to keep in mind regarding Taxol side effects are: Most people do not experience all of the listed side effects of Taxol. The onset and duration of side effects of Taxol are often predictable. The side effects of Taxol are almost always reversible and disappear after stopping treatment. There are many ways to minimize or prevent the side effects of Taxol. There is no association between the occurrence or severity of Taxol side effects and drug efficacy. The side effects of Taxol and their severity will vary depending on the amount of drug administered and/or the timing of administration.

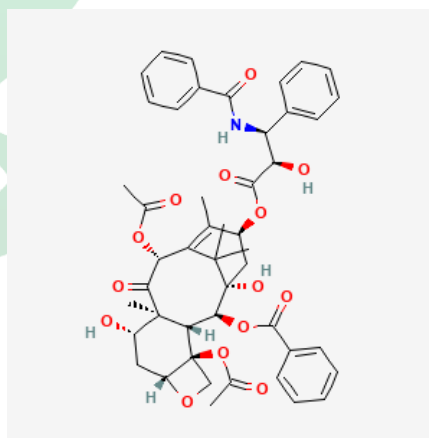


Fig : Paclitaxel / Taxol
Source : National Library of medicine

The following side effects of Taxol are common (occurring in more than 30%) of patients taking Taxol:

- Low blood count. The number of white and red blood cells and platelets may temporarily decrease. This could put you at a higher risk of infection, anemia and/or bleeding.
- Hair loss
- Joint and muscle pain, joint and muscle pain. It usually occurs transiently 2 to 3 days after Taxol administration and resolves within a few days.
- Peripheral Neuropathy (numbness and tingling in hands and feet)
- Nausea and Vomiting (usually mild)
- Diarrhea
- Mouth ulcers
- Hypersensitivity reaction - fever, flushing, chills, shortness of breath or hives after administration of Taxol. Most of these reactions occur within the first 10 minutes after the infusion. Tell your doctor right away (the premedication regimen has significantly reduced the incidence of this reaction).

The following side effects are less common (occurring in 10-29%) in patients treated with Taxol: Swelling of the feet or ankles, Increase in blood tests to measure liver function. These symptoms normalize when treatment is stopped (see Liver problems), Low blood pressure (occurs within the first 3 hours after the infusion), Darkening of the skin at the site of previous radiotherapy (radiological recall - see Skin Reactions), Nail disorder (discoloration of the nail bed - rare). (Ref : chemocare.com)

Conclusion:

The over-exploitation of the Himalayan yew for taxol has raised fears that the species may be endangered or even extinct. The bark of the Himalayan yew tree is the only known source of taxol, and demand for taxol has led to unsustainable harvesting practices. The tree's slow growth rate also makes it difficult for people to recover from the effects of overharvesting. Additionally, the high value of taxol has led to illegal logging, further exacerbating the problem. Efforts to develop synthetic methods for taxol production and to promote sustainable harvesting practices for the Himalayan badger are important steps towards ensuring the long-term survival of the species. It is necessary to balance the benefits

of using taxol as a valuable anticancer drug with the need to protect the natural resources that produce it.

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