ABSTRACT

*Correspondence for Author
Dinesh Kumar Yadav
College of Pharmacy, Shree Ganpati Institute of Technology, Ghaziabad (U.P.).

_Abies webbiana_ Lindl., commonly known as Talispatra in Bengali and Hindi, Talispatram in Sanskrit and Indian Silver Fir in English, is a large, tall, evergreen tree occurring in the Himalayan region from Kashmir to Assam states in India. _A. webbiana_ leaf has been reported as antibacterial and antifungal, mast cell stabilizing, anxiolytic, antitumor, anti-inflammatory, anti-tussive, female antifertility, febrifuge, anti-spasmodic properties, central nervous system (CNS) depressant actions and are effective against hyperglycemia, conception, rheumatism and high temperature. In phytochemical screening certain chemical constituents, mainly monoterpenes (from essential oil), flavonoids, biflavonoid glycosides, phytosterols, amino acids, saponins, tannins, alkaloids, lipids, triterpenoids, steroids and diterpene glycosides were found and a new alkaloid namely 1-(4'-methoxyphenyl)-aziridine, a nitrogenous compound and a new biflavonoid, Abiesin have been isolated.

KEYWORDS: _Abies webbiana_, Pharmacological, phytochemical, pharmacognostical.

INTRODUCTION

_Abies webbiana_ Lindl., commonly known as Talispatra in Bengali and Hindi, Talispatram in Sanskrit and Indian Silver Fir in English, is a large, tall, evergreen tree occurring in the Himalayan region from Kashmir to Assam states in India. It comes under the Family: Pinaceae.\(^1\) The leaves of this plant have different uses in Ayurveda.\(^2\) the traditional system of Indian medicine and has been described for using against swasa (chronic obstructive pulmonary diseases), kasa (cough), gulma (tumor), agnimandya (hypochlorhydria), amadosha
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(amoebiasis), hikka (hiccup), chhardi (vomiting), krimi (helminthiasis) and mukharoga (mouth disorders).\[^{[3]}\] A. webbiana leaf has been reported as antibacterial and antifungal, mast cell stabilizing, anxiolytic, anti-tumor, anti-inflammatory, anti-tussive, female antifertility, febrifuge, anti-spasmodic properties, central nervous system (CNS) depressant actions and are effective against hyperglycemia, conception, rheumatism and high temperature.\[^{[2,4,5,6,7,8]}\] In phytochemical screening certain chemical constituents, mainly monoterpenes (from essential oil), flavonoids, biflavonoid glycosides, phytosterols, amino acids, saponins, tannins, alkaloids, lipids, triterpenoids, steroids and diterpene glycosides were found and a new alkaloid namely 1-(4'-methoxyphenyl)-aziridine, a nitrogenous compound and a new biflavonoid, Abiesin have been isolated.\[^{[2,3,9,10]}\] Aim of the review was designed to highlight the chemical constituents and pharmacological effect of the leaf of Abeis webbiana.

Distribution & Habitat\[^{[5]}\]

This lofty fir is widely distributed on higher ranges of Himalayas region from Kashmir to Assam states in India. Other parts of India the plants are also available, Bengal, Nepal. A tall evergreen coniferous tree grows up to 60 m with strong horizontally spreading branches, young shoots covered with short brown hair, leaves simple, densely covering the twigs spreading in all direction, each leaf 1.5-2.3 cm long; the cones are bluish in colour, seed are winged. Leaves flat, 1 to 5.5 cm long, about 2 mm broad; shining, midrib in the upper surface channelled down the middle but raised beneath; with two faint white lines on either side of the midrib beneath, petiole very short, colour- greyish-brown; odour- terebinthine like; taste- astringent. Powder of leaf - Greenish-brown; shows sclerenchymatous cells, palisade, spongy parenchyma and a few epidermal cells.

Pharmacognosy properties\[^{[1,11]}\]

Organoleptic evaluation showed simple and alternate arrangement on stem, flattened, linear, needle shaped and 1.25 cm to 2.5 cm long, some are very long as 6.0 cm 0.2 cm to 0.3 cm broad, having petiolated and round base, notched and round apex, entire and incurved margin, parallel venation pattern; deep green in fresh condition and blackish-brown in colour; slightly aromatic odour and bitter and acrid taste. Microscopically it was found that the upper epidermis is single layered followed by sclerenchymatous hypodermis; lower epidermis is single; sunken stomata present lower surface; spongy parenchyma 4-6 layered; vascular bundle single; secretary cavities two in numbers, located on either types of vascular bundle.
Physicochemical properties
Total ash 5.8%, acid insoluble 4.8%, water soluble 1.4%, water soluble extractive value 13.2%, alcohol soluble extractive value 7.4%, methanol soluble extractive value 8.4%, chloroform extract value 7.6% and Pet. ether extract value 4.2%.

Chemical constituents
Petroleum ether extract was dark green color and present phytoconstituents; lipids, flavonoids, triterpenoids and steroids. Chloroform extract was brownish red color and present phytoconstituents; alkaloids and flavonoids. Ethyl acetate extract was reddish color and present phytoconstituents; tannins, amino acid flavonoids, triterpenoids and steroids. Methanol extract was reddish brown color and present phytoconstituents; saponins, alkaloids, amino acid, flavonoids, triterpenoids and steroids. Water extract was black color and present phytoconstituents; amino acid, saponins, carbohydrates and tannins. There was found that a new alkaloid namely 1-(4'-methoxyphenyl)-aziridine from the leaf of A. webbiana and its chemical structure was elucidated on the basis of elemental and spectral analysis. has been isolated, a new biflavonoid, Abiesin from the leaves of A. webbiana and identified as 5,3”,7”- trihydroxy- 7,4’,4”’-trimethoxy-(3’,6”)-biflavone.

Pharmacological studies
Anti-inflammatory and hypnotics[7]
During the determine LD 50 value methanol extract of Abeis webbiana leaves and produces sedation on sleeping time in mice. Various doses of the methanol extract (100,150 and 200 mg/kg body weight) were administered alone, no hypnotics activity was observed. It was found that significant synergic effects (P< 0.001) at those dose levels in mice when administered of standard sedatives (pentobarbitone sodium: 50mg/kg and diazepam; 6 mg/kg, respectively). Anti inflammatory effect and LD 50 were checked of methanol, chloroform, and petroleum ether extract against carrageenan-induced paw edema model in rats and it was found that methanol extract (400 mg/kg p.o.) of leaves showed the best significant activity as compared to diclofenac sodium.in rat and LD 50 were found to be 986, 1387 and >1387 mg/kg.

Antipyretic activity[12]
Methanol extract of Abeis webbiana was evaluated for the antipyretic potential on normal temperature and yeast induced pyrexia in rats of dose 200 and 400 mg/kg body weight and it
was found that 200 mg/kg body weight caused significant lowering body temperature up to 3 hr and 400 mg/kg dose lowering of body temperature up to 6 hours. In models yeast induced elevation of body temperature showed dose dependent.

**Antibacterial activity**[8]

Antibacterial activity of leaves was screened for 625 μg/ml, 1.25 mg/ml, 2.5 mg/ml, 5 mg/ml concentrations by cup plate method *Bacillus cereus, Bacillus pumilus, Bacillus subtilis, Bordetella bronchiseptica, Micrococcus luteus, Staphylococcus epidermidis, Staphylococcus aureus, salmonella typhi, Escheria coli, Candida albicans, Aspergillus niger and Saccharomyces cerevisiae*, and exhibited significant antimicrobial activity. It was concluded that the leaves of *Abeis webbiana* (625-5000 μg/ml) exhibited activity against all tested strains. The maximum antibacterial activity was exhibited against *Staphylococcus aureus and salmonella typhi*. The extract also showed concentration dependent antifungal activity.

**Therapeutic Uses**[3]

Swasa (chronic obstructive pulmonary diseases), kasa (cough), gulma (tumor), agnimandya (hypochlorhydria), amadosha (amoebiasis), hikka (hiccup), chhardi (vomiting), krimi (helminthiasis) and mukharoga (mouth disorders).

**Medicinal uses**[2,4,5,6,7,8]

The leaf juice used in the treatment of asthma, bronchitis, antiperiodic, used in the treatment of dyspepsia, flatulence and diarrhea and epilepsy vomiting, hoarseness and hiccough colic fever and emaciation. An essential oil obtained from the leaves is used to treat colds, rheumatism and nasal congestion and also used as carminative, stomachic, tonic astringent antispasmodic and expectorant.

**Preparation**[5]

Preparation of leaves are used as in the form of tincture, infusion, powder and confection. Ayurvedic formulation was found; Drakshadi Churna, Talisadi Curna, Bhaskara Lavana, Pranada Gutika. Jatiphaladi Churna, Puga Khanda and Talisadi Modaka

**REFERENCES**


