



Traditional Medicinal and Economic uses of Gymnosperms

*Shonali Chaturvedi and Saily Dass

*Ewing Christian College, Allahabad

ABSTRACT

The ethnobotanical data of gymnosperms belonging to three families was collected from the Himalayas, from Ladak eastward to Khasi, jayantia and Naga hills. A complete list of the plants is given with their name, family and ethnobotanical use, distribution and occurrence. Indigenous knowledge of local inhabitants about the use of native plants were collected during field trips through questionnaire. The inhabitants of the area used the medicinal plants for various purposes and have for a long time been dependent on surrounding plant resources for their food, shelter, fodder's, health, care and other cultural purposes. *Pinus roxburgii*, *P. wallichiana*, *Cedrus deodara*, *Abies pindrow* *Ephedra Gerardiana* and *Taxus wallichiana* are prominent gymnosperms.

Key words: Ethnobotanical uses, gymnosperms, medicinal.

INTRODUCTION

The relation between plants and man is immemorial old as his hunger, and long before the science was born, our ancestors, studied the plants around them to meet their basic needs, which laid the foundation of civilization. The people of different societies of the world delivered their knowledge of plants through respective literature. In India, Sanskrit and Vedic literature viz, Samitas, Purans, Nighantus etc. Embody the vast treasure of knowledge regarding multifarious use of plants, where the main emphasis was given on medicinal, magico- medicinal, magico- religious and mythological aspects. Ethnobotany is a very broad discipline and it includes all sorts of human-plants interactions. It is the study of how people of a particular culture and region make use of indigenous plants. However, there are other definitions also. The most widely accepted and used is "the use of plants in primitive societies". Richard Evans Schultes, one of the modern fathers of ethnobotany defined ethnobotany as "the study of human evaluation and manipulation of plant materials, substances, and phenomenon, including relevant concepts, in primitive or unlettered societies."

METHODS AND MATERIAL

Ethnobotanical survey was carried out during November 2004 and June 2005. A semi structured questionnaire method was followed to collect ethnobotanical uses of gymnosperms of the valley. Interviews of about ~100 informants including local community, herds men, herbalists and pansaries were conducted on random basis. The outcome of the results were rechecked and compared with literature. Analysis of the data was done and indigenous knowledge was documented. Various samples were taken randomly. The collected material was pressed and dried using blotting papers for about two weeks at room temperature. The dried material was disinfected using mercuric chloride and absolute alcohol. After poisoning; the plants were mounted on the standard size herbarium sheets. The data taken in the field was transferred to the slip pasted on the herbarium sheets. The plants were identified with the help of taxonomic literature, manuals and floras [1]. Stereomicroscope was used for critical examination of the material.

RESULTS

FAMILY: EPHEDRACEAE

Ephedra Gerardiana Wall.

Vernacular Names: Asmani Booti (Hindko), Asmania (Urdu, Hindko), Chewa (Urdu), Ehewa, Budshur, Dundula, Kuchan (Punjabi), Chepat, Thayon, Cheldymb (Kashmiri).

Medicinal and Economic Properties: Chiefly used in treatment of bronchitis, asthma, and relieving bronchial spasm. Useful heart stimulant. Also used in hepatic diseases, as blood purifier and cleaning of teeth. Decoction of stem and roots used as remedy for rheumatism and syphilis. Fruit edible [2]. The tincture is cardiac and circulatory stimulant. Liquid extract is used for controlling asthmatic attack. Decoction of stem and root considered a remedy for rheumatism and syphilis. Juice of berry is given in affection of respiratory passage [3]. Used as alterative, diuretic, stomachic, tonic, anti-asthmatic,

sudorific, effective in the management of bronchi spasm, in reversible airway obstruction associated with stable asthma or chronic bronchitis, for the relief of unproductive cough accompanied by congestion of the upper respiratory tract, including congestion by allergy. Ephedrine exerts a sympathomimetic action similar to that of adrenaline. Specific action is anti-asthmatic (anti-histamine bronchodilator). History reveals its use over the centuries as “*Soma*” of the Aryans in the East [4]. The drug, ephedrine obtained from the plant, used to treat coughs, asthma and hayfever. It stimulates the heart and constricts blood vessels. It is also used in anaesthesia, and, because it may be taken orally, it is prescribed frequently for treatment of cold, sinusitis, hayfever and bronchial asthma. “*Ma huang*” has been in use in China for more than 5000 years, for the treatment of asthma. Branches and roots treat asthma, influenza, coughs, lung fever, chronic bronchitis, rheumatism, whooping cough and sweating in the night. Used in hay fever, laryngitis and asthma. The seeds are used as cooling medicine [5].

FAMILY: PINACEAE

Abies pindrow Royle.

Vernacular Names: Himalayan silver fir (English), Paludar, Rewar (Hindko).

Medicinal and Economic Properties: Tincture or decoction of the dried terebinthinous leaves is useful in case of cough, phthisis, asthma, chronic bronchitis and catarrh of the bladder and other pulmonary affections. Juice of the fresh leaves is administered in fever of infants during dentition and also in affections of the chest. The dose being 5-10 drops in water or mother’s milk. Powder of leaves is given with juice of *Adhatoda vasica* and honey in cough, asthma and haemolysis [6]. Wood is used for construction purpose i.e. doors, windows, houses, furniture and as fuel wood [7].

Cedrus deodara (Roxb.ex Lamb) G. Don.

Vernacular Names: Cedar (English), Deodar (Urdu), Diar (Hindko), Paludar (Upper Kaghan).

Medicinal and Economic Properties: The wood is carminative, diaphoretic, useful in fever flatulence, pulmonary and urinary disorders, rheumatism, piles, stone in kidney and also antidote to snake bite. Bark is astringent, useful in fever, diarrhoea and dysentery. Oil is diaphoretic, useful in skin diseases and for ulcer. Oil extracted from root is used for skin diseases of goats and camels. Wood of this tree is of an excellent quality and used for construction and furniture purposes [7]. Oleoresin and dark colored oil or turpentine, are applied to ulcers and skin diseases. They are valuable in horses and sore feet of cattle. Cedar wood oil is used in microscopic work.

Pinus roxburgii Sargent.

Vernacular Names: Long leaved pine (English), Chir (Hindko, Urdu, Punjabi).

Medicinal and Economic Properties: Resin is stimulant. Internally it is used as stomachic and as remedy for gonorrhoea. Externally it is applied as a plaster to buboes and abscesses for suppuration. Wood is diaphoretic and stimulant. Used in burning of body, cough, fainting and ulceration. Wood and oleoresin is used in snake bite and scorpion sting. Wood is used as timber in construction, makes a good fuel. Good for reforestation and soil conservation [8, 9, 10]. The oil has irritant action and most of its medicinal uses are due to that property. In controlled small doses it acts as a stimulant expectorant and is useful in chronic bronchitis. It cures flatulent. It has limited use also in typhoid, minor hemorrhages (such as from gums, nose etc.). Given as an anemia, it cures constipation. Its commonest use, however, is as liniment in rheumatic pains. Inhaling the vapors of turpentine is useful in bronchitis. The timber of the tree is largely used for various purposes, e.g. house building, furniture, tea chests, match industry, sport goods, musical instruments, etc. Its resin *Biroja* is used for bangles. The bark has tannins and coloring matter, used for colouring the leather [11]. Wood is aromatic, antiseptic, deodorant, and stimulant, diaphoretic, refrigerant, rubefacient and carminative. Oleoresin is used for fumigations. Essential oil is used with success as a stimulant diuretic in gleet, long standing gonorrhoea. The tar is employed for chronic bronchitis phthisis and in skin diseases. The wood is not so durable. It may be used for construction purposes. It is also valuable for its resin extract. Used as fuel wood. Leaves are used in construction of roofs as “*Chanana*”. Resin is also used as hair remover [12].

Pinus wallichiana A.B.Jackson.

Vernacular Names: Blue pine (English), Biar, Kail (Hindko).

Medicinal and Economic Properties: Used similar as *Pinus roxburgii* [13]. Wood is used for preparation of body of trucks. Its wood is also used for construction purposes, i.e. doors, windows, etc. It is used for furniture and fuel purposes [7].

FAMILY: TAXACEAE

Taxus wallichiana Zucc.

Vernacular Names: Yew (English), Birmi (Hindko, Punjabi).

Medicinal and Economic Properties: Recently Taxol, an anti cancer compound has been found in bark and leaves. This discovery has raised its demand and the tree is vulnerable to get extinct. Wood traditionally used for cabinet and furniture making. Tea of leaves is useful in high fever and asthma [2]. Leaves are used in bronchitis, hiccough and asthma, for indigestion, epilepsy and as aphrodisiac. Leaves and fruit are sedative, antiseptic and emmenagogue Plant is poisonous, used as fish poison. Branches are lopped for fodder.

DISCUSSION

The present Ethnobotanical study provides information on the ethnobotanical uses of the gymnosperms belonging to four families. These plants are also used by the local herbal healers and hakims as traditional medicines. Chopra [14] described and classified gymnosperms into five orders (including ancient gymnosperms). He also highlighted on the importance of gymnosperms in nature and in human life. Lal *et al.* [15] described fifty plant species (including *Taxus baccata* which is used against colds) used as ethnomedicines by Gaddis (migratory shepherds of western Himachal Pradesh) for treating cattle as well as humans. Most of the species were used for treating arthritis, rheumatism and stomach disorders. Most of the plant species are reported to be quite effective remedies for different diseases such as fever, diarrhea, diabetes, jaundice, backache, stomachache, ulcers, cold and even cancer. The gymnosperms are a major source of timber, fuel wood and fodder. Wood and other forest products are also sold to earn money, because the community is totally dependent on the forests for their needs. The forests are under heavy pressure of grazing, fuel wood collection, medicinal plants collection and ecotourism. There is a dire need to protect this natural wealth with the involvement of community. *Taxus wallichiana* "Birmi" an important source of important anticancerous drug "Taxol" has been found critically endangered due to heavy lopping as fodder in the winter season.

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