

Ethnobotanical Profile of Gymnospermic Flora of Kalash Valley, District Chitral, Hindo-Kush Range, Pakistan

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Abstract: District Chitral is naturally gifted with diverse plant resources. In the present study for the 1st time nine gymnosperms were reported belonging to seven genera and three families growing at Bumburet, Birir and Rumbor areas of famous and historical Kalash valley, district Chitral, Pakistan. The botanical names, families, local names, distribution, habitat, part used and ethnobotanical use are given with each of the plant. The local inhabitants have unique culture and the own way to use the plant natural resources. *Cedrus deodara*, *Ephedra gerardiana*, *Ephedra intermedia*, *Juniperus excelsa*, *Juniperus communis*, *Picea smithiana*, *Pinus gerardiana*, *Pinus wallichiana* and *Thuja orientalis* are the gymnosperms mostly used as timber, fuel wood, medicines and for ornamental purpose.

Key words: Gymnosperms • Ethnobotanical uses • 1st report • Kalash valley • Chitral • Pakistan

INTRODUCTION

District Chitral is a beautiful mountainous area present to extreme north-east of Pakistan with 14850 sq. km area. It lies between 35° 15' 06" to 36° 55' 32" North latitude and 71° 11' 32" to 73° 51' 34" East longitude and have population of about 3, 20, 000 peoples [1]. The district is bordered in east by district Ghizer of Gilgit-Baltistan, on the south by districts of Dir and Swat. Nooristan province of Afghanistan lies to the West and Wakhan corridor to the north-west [2]. Chitral is the land of great linguistic contrast and has been inhabited by peoples for at least 4,000 years belonging to over a dozen of different cultures and more than 14 indigenous languages. Due to its unique location and historical background Chitral has influences of Greek, Iranian, Mongolian, Tatars and Turk cultures. Different ethnic groups with distinct cultures and life styles inhabit the district with their own way of use of plant natural resources.

The present study was conducted in the Kalash valley having inhabitants with indigenous and unique religion called "Kalasha". The peoples are still enjoying their religion, believes, culture and language peacefully within the valley surrounded by the Muslims.

The Kalasha peoples have ruled Chitral for about five centuries (332-712 AD) but now confined to three valleys only viz: Birir, Bumburet and Rumbor with population of about 3000 individuals. They are considered to be the descendants of Alexander the Great living in these mountainous series for thousands of years. The three Kalash areas viz: Bumburet, Rumbor and Birir are located parallel to each other in the Hindu-Kush Mountain ranges, about 36 Km from Chitral town. The peoples are mostly dependant on Plant Biodiversity for their domestic and economic needs. The most common crops of the area are wheat, maize, potato, bean and various vegetables. The natural forests mainly composed of *Cedrus deodara*, *Pinus wallichiana*, *Pinus gerardiana*, *Quercus baloot* and *Quercus incana*.

Various workers have done taxonomic and ethnobotanical studies on different areas of Pakistan e.g. [1-20]. Most of these works are on angiosperms only and very few authors have contributed about the importance of gymnosperms of an area. The flora of Kalash valley is still unexplored therefore, the present study is the 1st ever attempt to enlist the Gymnospermic flora of Kalash valley and also to highlight their ethnobotanical uses. The botanical names, families, local names, distribution, Habitat and part used are given with each species.

MATERIALS AND METHODS

Field studies were carried out from September 2013 to May 2014 for collecting plant specimens. The plants were documented, preserved and identified with the help of different volumes of Flora of Pakistan [1, 18, 10]. The indigenous knowledge regarding the traditional uses of the Gymnospermic plants was collected from the local peoples.

RESULTS AND DISCUSSIONS

Nine species belonging to seven genera and three families of gymnosperms were collected from Bumburet, Birir and Rumbor areas of Kalash valley, Chitral, Hindu Kush range, Pakistan. Pinaceae was a leading family represented by five species followed by Cupressaceae with three and Ephedraceae with two species. *Ephedra gerardiana* and *Ephedra intermedia* were presented at low altitude along the road sides while thick forests of *Cedrus deodara*, *Juniperus excelsa*, *Pinus gerardiana* and *Pinus wallichiana* were presented at higher altitude and *Juniperus communis* and *Picea smithiana* are scattered within these forests. *Thuja orientalis* was cultivated as ornamental plant in some hotels of Bumburet valley and it is 1st ever report from district Chitral. Each species is explained with botanical names, families, vernacular names, distribution, Habitat, part used and ethnobotanical uses.

Family Cupressaceae

Juniperus communis L.

Local name: Sarooz

Distribution: Higher altitudes of arctic Europe and Asia up to 4200 m. Chitral, Kashmir, Swat-Kohistan

Habitat: small sized densely branched shrub.

Part used: Wood

Local uses: It is locally used as a common fire wood.

Juniperus excelsa M. Bieb.

Local name: Sarooz

Distribution: Common from eastern Chitral to Baluchistan from 2000 to 4000 meters forming open forests. Kashmir, East Afghanistan, North Burma and West China.

Habitat: Medium sized evergreen tree

Part used: Wood, Fruits and leaves

Local uses: It is more durable and commonly used wood in construction works for making beams, pole and door

fixtures. It is also used as best firewood of the area due to its smokeless flames. Bark is used for thatching purpose. Local products “Naghlacho and Bethalo” are made from its trunk used locally for pressing and leveling the bread.

Thuja orientalis L.

Local name: Thuja

Distribution: Native to China and Japan. Commonly cultivated in lawns and parks in Pakistan. 1st time Report from Chitral.

Habitat: Medium sized evergreen shrub.

Local use: Cultivated in local hotels as ornamental. Dry branches are used as fire wood.

Family Ephedraceae

Ephedra gerardiana Wall ex. Stapf.

Local name: Somani

Distribution: Afghanistan, China, Nepal, Chitral, Kashmir, Swat-Kohistan

Habitat: Shrub

Part used: Fruit and branches

Local uses: The young branches are crushed and boiled to get a brown colored extract which is used in asthma, cough and as sun block. The branches are also used as fire wood. Fruits are eaten as blood purifier and teeth cleaner.

Ephedra Intermedia Schrenk and Meyer

Local name: Somani

Distribution: Afghanistan, Chitral, Kashmir

Habitat: Shrub

Part used: Branches

Local uses: The branches are used locally as fire wood and in snuffs.

Family Pinaceae

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

Local name: Deodar, Rogh, Diyar

Distribution: Afghanistan, Chitral, Kaghan, Kashmir, Kurram Agency, Swat-Kohistan

Habitat: Wild large size evergreen tree up to 30 m

Part used: Branches, wood, leaves and cones

Local uses: The Wood is more durable and expensive one and used locally for furniture purpose. The Kalash community only makes coffin from this wood as religious believe and also make statues of their expired relatives.

Branches and cones are used as fire wood. Oil called “Rogh-Xholo” extracted from freshly cut wood is widely used in different skin diseases.

Picea smithiana (Wall.) Boiss.

Local name: Patupar

Distribution: Afghanistan, Chitral, Gilgit, Kaghan, Kashmir, Kurram, Swat-Kohistan

Habitat: Wild large size evergreen tree

Part used: Branches, wood and cones

Local uses: Wood is used in building of houses and as fuel. Branches are used as wooden roofing materials. Branches and cones are used as a fuel while fresh leaves are used in packing of fruits.

Pinus gerardiana Wall. ex Lamb.

Local name: Chilghoza

Distribution: Afghanistan, Bhutan, Chitral, Kurram, Swat Kohistan

Habitat: Large sized evergreen wild tree

Part used: Seeds, cones, wood, branches and leaves

Local uses: The seeds are edible called “Chilghoza” used commonly in winters as dry fruit, tonic and appetizer. It is sold with good price in market and one of the earning sources for local peoples. Some outside dealers also visit the forests and cut the baby shoots very roughly for the collection of seeds. The cones and wood are used as timber and firewood. Branches are common roof thatching materials in houses. Wood is also used as building material and making of huts and wooden boxes.

Pinus wallichiana A. B. Jackson:

Local name: Choxeen

Distribution: Afghanistan, Nepal, Chitral, Kashmir, Murree hills, Swat-Kohistan, Dir

Habitat: Large sized wild evergreen tree

Part used: Branches, cones, leaves and wood

Local uses: Wood is used as timber and fuel. Roof thatching materials and firewood are obtained from branches.

The present study provides information on the ethnobotanical uses 9 gymnosperms belonging to three families present in the Kalash valley, Chitral, Pakistan. Economically the peoples are very poor and wholly dependent on the plants and plant products to fulfill their daily life expenses. The gymnosperms are major source of timber wood, fuel wood and other needs as well and the wood and other forest products are sold by the local community to earn money. The forests are under heavy pressure of grazing, browsing, fuel wood collection,

medicinal plants collection and ecotourism. Some trees like *Cedrus deodara*, *Picea smithiana*, *Pinus gerardiana* and *Pinus wallichiana* are endangered in the area due to their extensive usage as medicinal, fuel and timber. Similarly, influential timber mafia is very active in the Kalash valley in smuggling of dozens of huge trees daily to other parts of the country. This indiscriminate cutting is destroying the forest ecosystem which provide habitat for valuable indigenous plant species. There is no check to control the destruction of these forests which not only increase the beauty of the valley but also are the natural binders of soil. It was noticed in the last 6-7 years that continues floods in the area resulted great damages to the roads, drinking water canals, infra structures, houses, livelihoods, farms and fruit gardens. From last three years the young generation is getting awareness about the importance of these forests and are now playing key role in the controlling of wood smuggling by providing volunteer services to their community.

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