



Tree Diversity And Economic Importance Of Forest Trees Of Kashmir (Jammu And Kashmir), INDIA

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Abstract

Aim The paper throws light on diversity of trees of forests of Kashmir of Jammu And Kashmir State. **Methodology:** Present study is based on the extensive and intensive field surveys made during 2007-2008. Various forest areas were visited for the identification of tree species and their economic importance. Various forest areas were visited for the identification of tree species and their economic importance. The areas including Drang Tangmerg, Gulmarg, Dachigam, Lolab and Karanah valley. Information on the utilization of trees for curing common ailments was obtained from people of the above forest areas. Conversation regarding the economic importance of plants was especially done with the elderly men, hakims and tribals. Repeated queries were made to get the data verified and confirmed. The plant specimens were dried using the standard herbarium techniques. The specimens were identified using Hooker method. Wherever necessary, comparisons were made with herbarium specimens in the herbarium of Forest Research Institute, Dehradun. **Survey Results:** Botanical names, English/common/local/Vernacular names, family, fruiting and flowering period, distribution and uses (wherever known) of 53 species belonging to 33 genera and 21 families are provided. **Conclusion:** Present study has revealed the occurrence of 53 species belonging to 33 genera under 21 families. The most dominant family as per the number of genera is Pinaceae family followed by Betulaceae. And the most dominant genera is Prunus which is having 6 species. The study reveals that there are 10 gymnosperms and 43 angiosperms in the forests of Kashmir. The present work gives a detailed account of economic importance of forest trees of Kashmir. The work shows the relevance of plants to the problems of health care, food, agriculture improvements, conservation of genetic resources and to economic welfare of the tribal is emphasized. The work should rightly be applied to the natural and direct relationship of people with plants at any level of antiquity.

Keywords: Jammu & Kashmir, Biodiversity, Prunus, Pinaceae

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1. Introduction

Forest is referred to as an area occupied by different kinds of trees, shrubs, herbs and grasses and maintained for the production of wood products. Technically forest is an area set aside for the production of timber and other forest produce or maintained under woody vegetation for certain indirect benefits which it provides¹. Nature has endowed India with rich forests, which cover about 20% of the geography area of the country. Over 40,000 species of plants are found in these forests of which over 7,000 are endemic. India has about 3,000 species of trees.

In their extent, distribution and potential the forest of Jammu and Kashmir constitute of the biggest industry and being so they are the mainstay of the economy of the state. Kashmir Himalaya range of India is pre-eminently a land of forests, which among other things are the mainstay of the economy. The valley is rich in forest wealth and 51% of its total geographic area is under forests². The forests of Kashmir

valley are distinguishable into Deodar, Kail, Fir, Chir, and mixed broad leaved zones in the region.

The forests of Kashmir valley have been classified by Champion and Seth (1968)³ under groups 12, 13, 14 and 15 in the revised classification of Forest Types of India⁴. The forest, thrive better between 2500-2900 m. Beyond 3000 m, the arboreal forests fade into high level fir forest up to 3200 m, the upper timber forest are less dense and poor in quality, which ultimately gives way to bush-land vegetation beyond 3200 m⁵. The valley is located in the northern part of India in the Karakoram and western mountain ranges. It lies in between the Himalayan range in the north and of the Pir panjal range⁵ in the south comprehended between latitude 33° 55'' to 34° 50'' and longitude 74° 34'' to 75° 35''. The average elevation of the valley is 5,300 feet above sea level. (Figure)

2. Methodology

This study is a part of the research carried out on the Seed collection and Identification of forest trees of Kashmir^{6,7} (Jammu and Kashmir) by the senior author. It is chiefly based on the exploration – cum-collection of tree species from the study area and plant material has been deposited in the herbarium of Forest Research Institute, Dehradun. The

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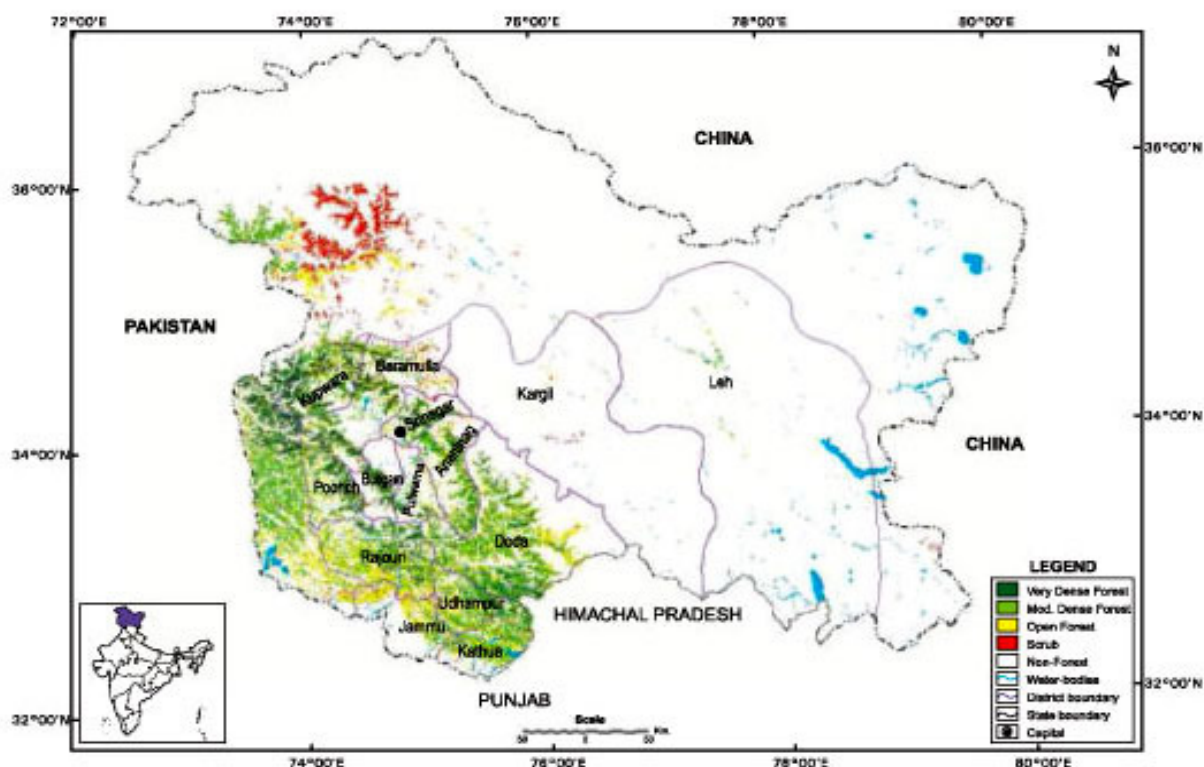


Figure : Forest Cover Map of Jammu and Kashmir

ethnobotanical information has been collected from the knowledgeable/older people of the area. The species here have been arranged alphabetically giving correct name, important synonyms, family, vernacular/common/local names, English name, short description, phenology, distribution and ethnobotanical importance.

2. Survey Results

2.1 Enumeration:

Abies pindrow Royle

(Pinaceae)

Vernacular/Common/ Local name: Badul, drewar, tung.

English name: Western Himalayan Silver Fir.

Tall evergreen trees with a narrow cylindrical crown of horizontal branches or drooping branches; bark dark grey or greyish-brown become more or less furrowed with maturity. Leaves linear, flattened, spirally arranged, 2-4 cm long. Cones erect or cylindric.

Fl-April, cones ripen in Sep-Oct.

Distribution: Jhellum, Lolab Valley and Sindh Valley

Ethnobotanical importance: Wood used for packing cases, building construction and for furniture. Branches are used as fuel. Fresh leaves ground and mixed with equal quantity of honey and is given to patients in doses of one teaspoonful twice a day for curing cough and cold. Bark is used as a tea substitute by nomads. Leaves are also used in asthma.

Abies spectabilis (D.Don) Spach.

(Pinaceae)

Pinus spectabilis D.Don.

Abies webbiana Lindl.

Vernacular/Common/ Local name: Badul, kauch-badul.

English name: Himalayan Silver Fir.

Tall evergreen tree with dense cylindric crown of pendulous branches; bark blackish and less deep fissured than *Abies*

pindrow. Shoots hairy. Leaves 1-2 by .1 in., flat, narrow- linear. Cones always erect or cylindrical and are shorter and thicker than *Abies pindrow*.

Fl.-April cones ripen in Sep-Oct.

Distribution: Hills

Ethnobotanical importance: Wood used for packing cases and also used for ceilings and floor boards. The dried leaves are used to stop bleeding and to improve digestion. The powdered leaves alongwith Juice of *Adhatoda zeylanica* and honey is used in asthma. The juice of fresh leaves is antiperiodic and is given to infants suffering from fever and chest affection. The gum mixed with oil of roses is rubbed to get relief from headache.

Acer caesium Wall ex. Brandis.

(Aceraceae)

Vernacular/Common/Local name: Trikan, tilpatra, kanal.

English name: Maple.

Large deciduous tree; bark pale grey sometimes dark with silvery patches. Leaves serrate pale-beneath. Flowers yellowish green, appearing with the young leaves.

Fl. March-April; Fr. Oct.-Nov.

Distribution: Gulmarg, Gurais, Phelgam, Pir Panjal

Ethnobotanical importance: Wood is used for carving and for bowls, plates and ladles. Branches used by women as love medicine. Wood extracted is applied on wounds and also used to cure skin disease.

Acer pentaponicum Stewart.

(Aceraceae)

Vernacular/Common/Local name: Trikan, kanal.

Deciduous tree; bark grey. Leaves broader than long, sometimes 3-5 lobed, with truncate base, and 3 prominent pinnate nerves. Fruit short corymbs, wing erect or divergent, and semi ovate.

Fl. April-May; Fr. Aug-Sep.

Distribution: Lower Jehllum.

Ethnobotanical importance: Wood used for ploughs and branches used as fuel. Bark used for cold and cough

Acer pictum Thunb

(Aceraceae)

Acer cappadocicum Gleditsch

Vernacular/Common/Local name: Trikan.

English name: Maple. Fl. April- May; Fr. June-July

Small medium sized deciduous tree; bark pale grey or silvery-brown, fairly smooth, with shallow cracks. Leaves acuminate. Flowers greenish yellow, pentamerous. Fruit glabrous; nuts thin. Fl. April- May; Fr. June-July

Distribution: Lolab valley, Gulmarg, Singh Valley, Phelgam.

Ethnobotanical importance: Wood is used for plough-shafts and is used for black board. Branches looped for fodder and fuel.

Bark is used to stop bleeding.

Aesculus indica Hook.f

(Hippocastanaceae)

Pavia indica Wall.

Vernacular/Common/Local name: Handun.

English name: Indian horse-chestnut.

Deciduous tree; with scaly buds; the old bark peeling off upwards in long thick bands. Leaves opposite, digitate, exstipulate, deciduous. Flowers white-yellowish streaked. Fruit depressed dark brown.

Fl. April-May; Fr. Aug.-Sept.

Distribution: Through out Kashmir forests.

Ethnobotanical importance: Wood is used for house boats, buildings, construction of huts, water troughs and supports article. The seed oil is used in rheumatism and also applied to wound. The bark is made into paste for the application on painful dislocated joints. The root is used as a cure for leucorrhoea; fruits are used as colic for application of fistules in dysentery and pneumonia.

***Ailanthus altissima* (Mill) Swingle.**

(Simaroubaceae)

Toricadendron altissimum Mill.

Ailanthus glandulosa Desf.

Vernacular/Common name/Local name: Alamthar, almtrees.

English name: Tree of haven.

Deciduous tree; bark bitter, grey. Primitive leaves with out stipules and sample hairs. Flowers yellowish, white. Fruit capsule, one seeded.

Fl. April-May; Fr. Sep-Oct

Distribution: Through out valley (self regenerating).

Ethnobotanical importance: Wood used for fuel. Decoction of bark is useful in diarrhoea and dysentery. Fruits used in eye troubles and as an. Leaves used for skin disease like scabies.

***Alnus nitida* Endl.**

(Betulaceae)

Vernacular/Common/Local name: Champ-Kul, kanza/ Sarul.

English name: Alder.

Large tree; branch-lets pubescent; bark dark brown, deeply furrowed. Leaves elliptic or elliptic-ovate, acuminate, entire or obscurely crenate, glabrous. Fruit spikes.

Fl. Sep-Oct; Fr. Ripen in winter but remains long on the tree.

Distribution: Jehllum valley, Keran; Lolab valley.

Ethnobotanical importance: Wood used for house construction, boxes and carpentry. Bark is used to treat diphtheria; also for rheumatism.

***Betula utilis* D.Don.**

(Betulaceae)

Betula bhojpatra Wall.

Vernacular/Common name/Local name: Burz-kul, bhojpatra.

English name: White birch, Himalayan silver birch.

Small deciduous tree; bark white, peeling off in papery layers. Leaves ovate, acute, serrate, base broadly cuneate or rounded.

Fl. May-June; Fr. Sept.-Oct.

Distribution: Common at high altitudes in all forest divisions of Kashmir

Ethnobotanical importance: Bark was used to perform the ceremony of lustration after a mother was bathed on the sixth day after a child birth in which wisps of birch bark were lightened and waved over the heads of the mother and the child, and then extinguished in a jar of water. The decoction of bark is used for washing the ulcerating sores.

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

(Pinaceae)

Pinus deodara Roxb.

Cedrus libani Barr.

Vernacular/Common/Local name: deodar

English name: Deodar, Himalayan Cedar.

Large evergreen tree with horizontal branches; bark brown often reddish or greyish. Leaves needle like, glaucous-green, many in clusters, 2.5-3.7 cm. Flowers monoecious; catkins solitary. Cones solitary, erect, ovoid, dark brown.

Fl.-April; Fr-Sep-Nov.

Distribution: Lolab Valley, Kralpora forests.

Ethnobotanical importance: Wood used for building construction, furniture, packing cases, bridges and fuel. Reddish brown oil extracted from its wood is applied locally for treating piles, ulcers, skin disorders and rheumatic pain. It is also rubbed on body to repel insects, ticks and mites. Decoction of bark in doses of 50ml is given orally once a day for 3-4 days against dysentery and fever. The wood is used as antidote of snake bite. Bark is also used in urinary disorders

***Celtis australis* Linn.**

(Ulmaceae)

Celtis caucasica Wild.

Vernacular/Common/Local name: Brimji.

Deciduous tree; bark pale ashy or grey, smooth with numerous small circular lenticels. Leaves ovate or elliptic, caudate, acuminate, serrate. Flowers small, greenish.

Fl. April-May; Fr. Sept.-Oct.

Distribution: Lolab valley, Gulmarg, Pirpanjal, Pahelgam

Ethnobotanical importance: Seeds are eaten against rhatism, brain tonic. Seeds are used in Paralysis and leprosy. Seeds made into paste with cow's urine, are applied to cure scabies.

***Corylus colurna* Linn.**

(Betulaceae)

Corylus jacuemonitii Dcne.

Vernacular/Common/Local name: Virni, urni.

English name: Hazel.

Deciduous tree; bark dark-grey, thin, sometimes exfoliating upwards. Leaves ovate or obovate, acuminate, often slightly lobed. Flowers inconspicuous; nut one seeded, hard, deep brown.

Fl. March-April; Fr. July-Aug.

Distribution: Lolab, Gurais, Keran, Gulmarg, Pahelgam

Ethnobotanical importance: Wood used for plough making, boxes, and axe handles. Excocarp is used to clean dirty hands.

Nuts of the plant area taken as tonic.

***Crataegus songarica* Kock.**

(Rosaceae)

Crataegus monogyne Auct.

Vernacular/Common/Local name: Rhing

English name: Hawthorn.

Small tree; bark dark grey or peeling off in long flakes. Leaves broader than long, pinnately irregular. Flowers white. Fruit red, ovoid.

Fl. April-May; Fr. Aug-Sept.

Distribution: Jehllum, Lolab and Sindh valley; Gulmarg; Pahelgam, Pirpanjal Range.

Ethnobotanical importance: Wood used for axe-handles, walking sticks and as box-wood. Fruit extracted is used in heart disease, such as blood pressure

***Cupressus torulosa* D. Don.**

(Cupressaceae)

Vernacular/Common/Local name: Sarva

English name: Cypress.

Large evergreen tree; bark pale brown or reddish; leaves opposite, amplexicaul scale like, imbricated, thick. Cones 1.2-2 cm in diameter, bluish.

Fl. Jan.-Feb; Fr. Oct- Nov.

Distribution: Srinagar.

***Fraxinus hookeri* Wenzig.**

(Oleaceae)

Fraxinus excelsior Linn.

Vernacular/Common/Local name: Hgom, ash, hum, kum, sum, sinum.

English name: Ash.

Small deciduous tree; bark grey. Leaves pinnate, leaflets elliptic, acuminate, serrate, and sub-sessile. Flowers in short racemes. Calyx and corolla absent.

Fl. April- May; Fr. Aug-Sep.

Distribution: Lolab, Gurais, Gulmarg, Pahelgam

Ethnobotanical importance: Wood is in house boats, building construction, axe handles and furniture. The bark has tonic febrifugal actions, and the leaves are almost cathartic, producing unequivocal action up on the kidneys.

***Fraxinus xanthoxyloides* (G.Don) DC**

(Oleaceae)

Ornus xanthoxyloides G.Don.

Vernacular/Common/Local name: Hgom, ash.

English name: Ash.

Small deciduous tree; bark pale grey or whitish with reticulate cracks. Bark pale, yellowish brown. Branches stiff. Leaves 3-6 in long. Flowers panicle.

Fl. April- May; Fr. Aug-Sep

Distribution: Jehllum valley, Kishanganga valley

Ethnobotanical importance: Wood is used for agricultural implements-tool handles and for walking sticks. Bark is chiefly used in fractures and dislocation both of men and animal. The leaves are purgative.

***Juglans regia* Linn.**

(Juglandaceae)

Vernacular/Common/Local name: Doon, Akhrot.

English name: Walnut.

Large deciduous tree; bark grey, vertically fissured. Leaves large elliptic to oblong-lanceolate. Flowers small green. Drupe ovoid, 5 cm long, green.

Fl. April.-May; Fr. Sept.-Oct.

Distribution: - Found in whole of the valley

Ethnobotanical importance: Wood is used in agricultural implements, furniture, musical instruments. The bark is used for cleaning teeth and is thought of having medicinal value. Exocarp is vermifugal and paste in warm water is used for frostbite. The leaves are to stop bleeding and are toxic.

***Juniperus communis* Linn.**

(Pinaceae)

Vernacular/ Local name: Betar, pethri, pama, chui.

English name: Common juniper, red cedar.

Small tree; stem procumbent. Leaves in whorls of 3, linear sharply pointed. Flowers axillary, yellow. Fruit oblong, sub-glabrous, blue black berry.

Fl. May-June; Fr. Aug-Oct, of Second year

Distribution: Lolab Valley, Dachigam, Jehllum and Sindh Valley.

Ethnobotanical importance: Wood used as fuel. Wood and young twigs burnt as incense. Plant is used in piles, diarrhoea, dysentery, rheumatoid arthritis. Infusion of berries is diuretic. Berries, wood and oil reported to be used in remedies for cancer, indurations, polyps, swellings, tumor's and warts. Plant is reported to improve digestive

***Juniperus recurva* Buch-Ham.**

(Pinaceae)

Juniperus squamata Buch-Ham.

Vernacular/Common/Local name: Haulber, chui, pama.

English name: Weeping blue juniper.

Small evergreen tree. Leaves awl shaped, overlapping in whorls of three, curved, linear, sharply, pointed, flat and bluish green above and curved beneath. Flowers monoecious or dioecious. Fruit blue black berry.

Fl. June- July; Fr. Aug-Oct. of the second year

Distribution: Lolab Valley, Dachigam, Keran

Ethnobotanical importance: Wood used as fuel. The smoke from the green wood is known as powerful emetic, producing long vomiting.

***Lonicera quinqueloculus* Hardwich**

(Caprifoliaceae)

Small tree; bark pale brown or whitish. Leaves ovate or broadly lanceolate. Flowers white. Berries 3 in. long, ovoid red.

Fl. April-May; Fr. Nov-Dec.

Distribution: Gulmarg, Pahelgam.

Ethnobotanical importance: Seeds given to horse for severe abdominal pain.

***Morus alba* Linn.**

(Moraceae)

Vernacular/ Local name: Tul.

English name: White mulberry.

Large deciduous tree; bark dark brown. Leaves broadly ovate, long pointed. Flowers greenish. Fruit purple.

Fl. April; Fr. May-June

Distribution: Lolab valley, Kralpora forests, also cultivated in valley.

Ethnobotanical importance: Wood is used for sport goods, building construction, agricultural implements, and furniture. Leaves are used as fodder for cattle; mainly used for rearing silk worms. The ripe fruits are eaten and are considered to increase blood contents. The bark is considered purgative and anthelmintic.

***Parrotiopsis jacquemontiana* (Dcne), Rehder.
(Hamamliaceae)**

Parrotia jacquemontiana Dcne.

Vernacular/ Local name: Pohu, sha, pishor.

Deciduous small tree; bark silvery grey. Young shoots, petioles and stipules stellary hairy. Leaves crenate, serrate, suborbicular. Flowers greenish.

Fl. April-May; Fr. Aug.-Sept.

Distribution: Jehllum Valley, Lider valley, Gulmarg, Kralpora forests.

Ethnobotanical importance: Wood is used for agricultural implements. Branches are used to make 'Kangri'. Leaves are rarely consumed as vegetable.

***Picea smithiana* (Wall) Boiss. (Pinaceae)**

Piceae morinda Link.

Pinus smithiana Wall.

Vernacular/Common/Local name: Kachul, Rayal.

English name: Western Himalayan Spruce.

Large evergreen tree with drooping branches; bark reddish-brown or pale grey, rough, exfoliating in thin woody plates. Leaves needle like single, spirally arranged around the branches. Cones cylindric, dark brown.

Fl. April; Fr. Sept-Oct.

Distribution: Jehllum, Lolab, Sindh valley.

Ethnobotanical importance: Wood is used for building construction and for boxes. Oleoresin is applied on cracks of heels and also on wounds. . Leaves used as bath salts; leaf oil is used as deodorants and room sprays. Leaves also used as manure and litter for cattle.

***Pinus roxburghii* Sargent. (Pinaceae)**

Pinus longifolia Roxb.

Vernacular/Common/Local name: Kair, yari.

English name: Chir pine.

Large evergreen tree; bark grey or pinkish brown deeply furrowed. Leaves in bundles of 3, bright green. Cones solitary or 2-5 together. Scales woody with pointed or recurved tips.

Fl. April. Fr. Sep-Oct next year.

Distribution: Shankaracharya hill, Kashmir University.

Ethnobotanical importance: Wood is resinous and heavy. It is used in buildings, huts, for making of boxes and also used as firewood. Resin called 'Jeegan' is applied on cracked heels. The carbon obtained from burning of resinous wood is mixed with few drops of mustard oil to make black paste called 'Kajal'. This is applied by the young girls to make their eyes attractive. Resin is also used for skin diseases and in inflammation.

***Pinus wallichiana* Jacks. (Pinaceae)**

Pinus excelsa Wall.

Vernacular/Common/Local name: Kair, yari.

English name: Himalayan blue pine.

Large evergreen tree; bark of poles quite smooth and greenish-grey- pinkish brown. Leaves in bundles of 5. Cones solitary 2-5 together; scales woody slightly with obtuse tips.

Fl. Feb-Apr; Fr. Sep-Oct of next year.

Distribution: Lolab valley, Gulmarg, Lidder valley.

Ethnobotanical importance: Wood is used in building construction, bridges and also used as fire wood. Cones are also

used as fire wood. Oleoresin is applied on cracked heels. The yellow dye made from decoction of its bark is used to dye wool. The leaves when ground with soil (peeli mitti) form a paste, which is applied to treat internal injuries of cattle.

***Pistacia integerrima* Stewart. (Anacardiaceae)**

Pistacia khinjuk Stock.

Vernacular/Common/Local name: Kakra, kakri, kangar.

Medium sized deciduous tree; bark dark grey or blackish, rough with shallow cracks. Leaves pari or impari-pinnate. Flowers reddish.

Fl. March-April; Fr. June-July

Distribution: Srinagar.

Ethnobotanical importance: Galls found on the plant are useful in dysentery, asthma and respiratory troubles

***Platanus orientalis* Linn. (Platanaceae)**

Vernacular/Common/Local name: Boin, chinar, buna.

English name: Orientale plane.

Large deciduous tree; with spreading branches; bark slightly white in old stem. Leaves palmately lobed and nerved. Flowers greenish brown in globose pendulous heads.

Fl. March-April; Fr. Sept.-Oct.

Distribution: Dachigam, Lolab valley, also other parts of the valley.

Ethnobotanical importance: Wood is used for small boxes, trays and furniture. Leaves are mixed with mud to make the floor of rooms. Fresh leaves-brushed and applied to the eyes in ophthalmic. Bark boiled in vinegar, is given in diarrhoea and dysentery.

***Populus ciliata* Wall. ex Royle. (Salicaceae)**

Vernacular/Common/Local name: Panjeeb/ Parim phras.

English name: Himalayan poplar.

Large deciduous tree; bark brown, vertically deep-fissured, smooth on young trees. Leaves alternate broadly acute, cordate. Capsule ovoid, 0.8-1 cm, long. Seeds very minute.

Fl. and Fr. March-May

Distribution: Jehllum, Lolab valley, Sindh valley.

Ethnobotanical importance: Wood is used for building construction, sports goods, and boxes. Leaves used as fodder for cattle. Decoction of bark acts as stimulant and purified of the blood.

***Populus nigra* Linn. (Salicaceae)**

Vernacular/Common/Local name: Kashur phras.

English name: Italian poplar

Large deciduous tree with narrow pyramidal crown and viscid buds; bark grey, rough, deeply furrowed in old trees. Leaves ovate-rhomboid. Flowers greenish.

Fl. and fr. April.-May

Distribution: Kamraj forest, Dachigam

Ethnobotanical importance: Wood is used for building construction, sport goods and boxes. An ointment prepared from leaves-bud balsam is used for curing cold. Resin obtained from buds is used as salve and to promote hair growth.

***Prunus armeniaca* Linn. (Rosaceae)**

Vernacular/ Local name: Tser, khubani, zardaula.

English name: Apricot.

Small deciduous tree; leaves broad-ovate; flowers pinkish or white; fruit smooth yellow about 1 in long; stone smooth.

Fl. April; Fr. July-Aug.

Distribution: Lolab valley, Kralpora forest division.

Ethnobotanical importance: Fruits are eaten; oil extracted from seeds is used for massage. Dried fruits used as laxative and refrigerant in fevers. Seed oil is used on skin to make it smooth. Seeds are also taken as nervous tonic.

***Prunus cerasus* Linn.**

(Rosaceae)

Vernacular/Common/Local name: Aulch

English name: Sour cherry.

Deciduous tree. Leaves 2-3, ovate, elliptic, abruptly acuminate, crenate, serrate. Flowers white, on long slender peduncles. Fruit drupe, globose, smooth shining.

Fl. April-May; Fr. Aug.-Sept.

Distribution: Cherare-Sherief, Trehagam and other parts of valley

Ethnobotanical importance: Wood used for high class furniture. Bark used for allaying heart palpitation, also used in diarrhoea and as a febrifuge, infusion of leaves given to children's to cure convulsions. Kernels used as nerve tonic. Fruit stalk used as diuretic.

***Prunus cerasifera* Ehrh.**

(Rosaceae)

Vernacular/ Local name: Gurdol, ash-aulch.

English name: Myroblan plum.

Small deciduous tree; bark dark grey. Leaves purple, more or less rounded. Flower pink-white. Fruit red or yellow coloured.

Fl. April-May; Fr. Sep-Oct.

Distribution: Through out valley self regenerating.

Ethnobotanical importance: Prunes are demulcent, laxative, and refrigerant, often added to cathartic decoctions for improvement of flavour.

***Prunus communis* Hudson.**

(Rosaceae)

Vernacular/ Local name: Aar

English name: Common plum

Deciduous tree. Leaves 3-4 in. long, ovate-lanceolate, serrate. Flowers white or pink, on long cylindrical peduncles. Drupe smooth, globose or oblong.

Fl. April; Fr. June-July.

Distribution: Through valley

Ethnobotanical importance: Plums used for digestion and asperities; useful in biliousness and heart of body

***Prunus cornuta* (Wall ex Royle) Steud.**

(Rosaceae)

Prunus Padus Hook.f.

Cerasus cornuta Wall ex Royle

Vernacular/Common/Local name: Wotil, zomb, zombchule.

English name: Bird cherry.

Deciduous tree; bark rough brown or blackish. Leaves oblong, lanceolate or ovate, acuminate. Flowers white in racemes. Fruit blackish red.

Fl. April-May; Fr. Sep-Oct

Distribution: Jehllum, Lolab, Gulmarg, Pahlgam.

Ethnobotanical importance: Wood used for axe handles, and as fuel. The oil from the kernels is good substitute for oil of bitter almond. Smaller branches crushed and soaked in water, taken internally to stop abortion.

***Prunus tomentosa* Thunb**

(Rosaceae)

Small deciduous tree with spreading branches, pubescent tomentose when young. Leaves simple lanceolate, unlobed and toothed along the margins. Fruits small, light red, hairy, globular.

Fl. April; Fr. July-Oct

Distribution: Singh valley; Srinagar, Gulmarg.

Ethnobotanical importance: Seeds are used in respiration, digestion and some of well being.

***Pyrus communis* Linn.**

(Rosaceae)

Vernacular/ Local name: Tang, farash tang.

English name: Common plum.

Deciduous tree; bark dark grey. Leaves variable in size, oblong or ovate, acute, entire or slightly crenulate. Flowers white. Pome pyriiform or sub-globose.

Fl. April; Fr. July-Aug.

Distribution: Laderwan forests, commonly grows in valley.

Ethnobotanical importance: Wood smooth and even, excellent for engraving and is used for drawing instruments. The fruit is indigestible and is taken to stimulate sexual desire; useful in "Vata" and "Iridosha"; improves taste.

***Pyrus lanata* D. Don.**

(Rosaceae)

Pyrus aria Ehrh.

Vernacular/Common/Local name: Moni tang.

Moderate deciduous tree; bark rough, dark brown and white-floccose young twigs. Leaves simple, lobulate and serrate; white tomentose beneath. Flowers pinkish white. Fruit globose orange yellow, spackled with dots.

Fl. April; Fr. Oct-Nov.

Distribution: Gulmarg, Trehgam forest division.

Ethnobotanical importance: Wood used for boxes

***Pyrus pashia* Buch-Ham ex. D. Don.**

(Rosaceae)

Pyrus variolosa Wall.

Vernacular/Common/Local name: Batang.

Moderate sized deciduous tree; bark on old stem almost black transversely split into small thick rectangular scales. Leaves simple very variable in size and shape. Flowers white fragrant. Fruit brown turning black rough.

Fl. March-April; Fr. Sep-Oct.

Distribution: Dachigam, Phelgam, Trehgam

Ethnobotanical importance: Wood used for walking sticks, combs and as fuel. Leaves and twigs lopped for fuel. The ripe fruits are chewed to cure the injuries of the tongue.

***Quercus dilatata* Lindl.**

(Fagaceae)

Quercus flobribunda Rehder.

Vernacular/Common/Local name: Oak, tahal.

English name: Grenn oak, Moru oak.

Large shade-enduring tree, almost evergreen; bark dark grey or black peeling off in longitudinal scales. Leaves oblong-lanceolate, acuminate, entire, coriaceous. Acorn solitary.

Fl. April.-May; Fr. 1-18 months after flowering

Distribution: Jehllum valley, Keran

***Quercus rober* Linn.**

(Fagaceae)

Vernacular/Common/Local name: Tahal

Tree with a massive trunk and thick, wide-spreading much divided twisted branches; bark grey, deeply furrowed. Leaves numerous, alternate, spreading, shortly stalked.

Fl. April; Fr Sept.-Oct.

Distribution: Dachigam, Srinagar

Ethnobotanical importance: The decoction of bark is used in stomach troubles. Acorns are useful in diarrhoea and asthma.

***Quercus semicarpifolia* Sm. (Fagaceae)**

English name: Brown oak of Himalaya

Large evergreen tree; bark dark grey to blackish, rough, with shallow cracks, exfoliating in irregular woody scales. Leaves elliptic-oblong, entire entire or spinous toothed. Acorn Solitary.

Fl. May-June; Fr. Aug.-Sept.

Distribution: Pirpanjal range

Ethnobotanical importance: The dried leaves and fruits are crushed for applying in wounds to hasten the process of healing.

***Rhododendron campanulatum* D.Don. (Ericaceae)**

Vernacular/Common/local name: Panda nast, gaggar, vurni, nichnai.

Moderate-sized evergreen tree; bark grey. Leaves elliptic-oblong, rounded at both ends. Flowers large and showy; whitish- pink purple or lilac. Capsules cylindrical.

Fl. May-June; Fr. Oct.-Nov.

Distribution: - Sindh Valley, Pirpanjal range, Khillenmerg

Ethnobotanical importance: Wood provides excellent fuel, but the smoke is acrid and irritant. Tea prepared from leaves is used as cough expectorant. Leaves also burnt along with along with *Juniperus*. The decoction of leaves is used against rheumatism. Leaf and flower powder is used as snuff in headache. The inner parts of the pods are highly purgative and serve as good remedy for digestive disorders.

***Rhus punjabensis* Stewart. ex Brandis (Anacardiaceae)**

Medium sized tree; bark dark brown or blackish, rough, exfoliating in rounded scales. Leaves pinnate. Flowers greenish yellow, fruit drupe.

Fl. March-April; Fr. Sept.-Oct.

Distribution: Kamal forests, Kamraj, Kishangana valley.

Ethnobotanical importance: Wood used for cabinet-work. Fruit eaten, also used in the preparation of sherbets.

***Rhus succedanea* Linn. (Anacardiaceae)**

Rhus acuminatus (DC) Hook.f.

Vernacular/ Local name: Arkhol.

English name: Wax tree, Varnish tree.

Small deciduous tree; bark reddish-brown, rough, exfoliating in small irregular woody scales. Leaves pinnate. Flowers yellow green. Drupes globose flattened, wrinkled.

Fl. May-June; Fr. Sept.-Oct.

Distribution: Jehllum, Lolab valley, Gulmarg

Ethnobotanical importance: Wood used for agricultural implements. Plants with corrosive juice produce blisters when touched. Excrescences of branches are useful in diarrhoea and dysentery. The fruit is considered officinal and is used in the treatment of phthysis.

***Robinia pseudoacacia* Linn. (Papilionaceae)**

Vernacular/Common/Local name: Kikur

English name: Black locust.

Thorny deciduous tree; bark thick brown, longitudinally furrowed. Leaves imparipinnate; leaflets 7-23. Flower white.

Seeds in pods.

Fl. April-May; Fr. Sep-Oct

Distribution: Dachigam, Lolab, (almost in all parts of valley).

Ethnobotanical importance: Wood used in agriculture implements, tool handles and sports goods. Branches are used to clear teeth. Leaves are used as fodder for cattle. The infusion of leaves is used in digestive disorders.

***Salix alba* Linn. (Salicaceae)**

Vernacular/Common/Local name: Bot-Vir.

English name: White willow.

Small deciduous tree; bark grey or yellow furrowed; young shoots and buds white and sticky. Leaves numerous, alternate, stipules small, lanceolate, erect. Flower greenish.

Fl. And fr. Apr-May

Distribution: Srinagar, Kamraj

Ethnobotanical importance: Wood used for building construction and cricket bates Used in case of diarrhoea and dysentery. Bark is used for intermittent vomiting; branches are used to clean teeth.

***Salix babylonica* Linn. (Salicaceae)**

Vernacular/ Local name: Kashir vir.

English name: Weeping willow.

Small to moderate sized tree. Leaves linear-lanceolate. Flowers in short, terminal catkins; capsule narrow conic, glabrous.

Fl. and fr. March-Apr.

Distribution: Lolab valley

Ethnobotanical importance: Leaves and bark tonic, astringent used in intermittent fevers.

***Salix wallichiana* Aud. (Salicaceae)**

Salix disperma Roxb.

Vernacular/ Local name: Guir, Jangli bain

Small tree, youngest shoots and under side of leaves glossy with grey silky pubescence. Leaves lanceolate or ovate-lanceolate, smooth, not rugose. Flowers appear before leaves. Catkins densely sticky.

Fl. and fr. April-May

Distribution: Srinagar, Kamraj, Sindh valley.

Ethnobotanical importance: Wood used for construction. Leaves are used as fodder for cattle.

***Staphylea emodi* Wall ex Brandis. (Hippocastanaceae)**

Vernacular/Common/ Local name: Chal-chitter, Chitr, kurkni.

English name: Snake stick.

Deciduous small tree; bark fairly smooth, pale grey. Leaves trifoliate, opposite. Flowers white; capsule inflated bladder like.

Fl. April-May; Fr. June-Aug.

Distribution: Dachigam forests

Ethnobotanical importance: Long straight shoots with their ornamental bark are used as walking sticks.

***Taxus wallichiana* Zucc. (Taxaceae)**

Taxus bacata Linn.

Vernacular/Common/Local name: Poshtul, birmi.

Evergreen tree with horizontal branches; bark thin smooth, reddish-grey. Leaves flattened, linear, distichous, dark green and shining above, pale or rusty below. Male flowers in solitary, axillary, subglobose catkins. Fruit drupe, bright red

when ripen.

Fl. Mar-Apr; Fr. Sept.-Nov.

Distribution: Jehllum, Lolab valley; Gurais

Ethnobotanical importance: Wood is used for cabinet work and other fancy articles, such as handles of knives. It is also used for making ploughs. The tincture prepared from the young shoots is used to control headache, giddiness, diarrhoea and biliousness.

***Ulmus wallichiana* Planch.**

(Ulmaceae)

Vernacular/ Local name: Brari, breri, amroi.

English name: Elm.

Large deciduous tree; bark dark brown, rough with rather deep and regular vertical fissures. Leaves elliptic or obovate, acuminate. Flowers red-brown, ripe samara 1-1.5 cm in diameter.

Fl. March-Apr; Fr. May-June.

Distribution: Lolab valley, Gulmarg, Aachigam, Kamraj

Ethnobotanical importance: Wood is used to make agricultural implements. Young shoots of the plant were used to make strong ropes; and ashes of burnt twigs formed a dye and also fire wood. Bark is used to cure toothache.

***Ulmus villosa* Brandis.**

(Ulmaceae)

Ulmus laevis Royle.

Vernacular/ Local name: Bren.

English name: Elm.

Deciduous tree with drooping branches; bark corky brown thick. Leaves ovate-oblong, lanceolate. Flowers chocolate brown Samara (unripe) densely villous.

Fl. Feb-March; Fr. June-July

Distribution: Lolab valley, Sindh valley, Gulmarg, Kamraj

Ethnobotanical importance: Wood is used to make agricultural implements. Young shoots of the plant were used to make strong ropes; and ashes of burnt twigs formed a dye and also fire wood. Bark is used to cure toothache.

***Zizyphus mauritiana* Lamk.**

(Rhamnaceae)

Zizyphus jujuba Gard.

Vernacular/ local name: Brai

Small sub-deciduous tree; bark blackish to grey or brown, rough, regular and deeply furrowed. Leaves, oblong or ovate. Flowers greenish.

Fl. May-June; Fr. Nov-Feb.

Distribution: Dachigam, Lolab valley, Gulmarg, Pahlgam.

Ethnobotanical importance: Wood used for axe and hoe handles. Fruits are eaten. The seeds are nutritious from fruits with water and other plants-sharbat is given to women after delivery. Decoction of stem bark is used to check diarrhoea.

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References:

1. Anon A, *Digest of Forest Statistics*: 7th ed. Forest Statistics Division, Forest Department, Srinagar, (1996) 197.
2. Anonymous, Studies on seed collection, processing and standardization of storage practices in silviculture crops of economic importance. Final Report, ICAR Adhoc Scheme, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, (1996).
3. Champion H G, & Seth S K, A Revised Survey of Forest Types of India. Govt of India. New Delhi. (1968) 407.
4. Brandis D, Indian Trees. Constable and Co Limited. (1970).
5. Dar G H, Virgee P, Kachroo P, & Bhat G M, Ethnobotany of Kashmir-1 Sind valley, *J Econ Taxon Bot*, **5** (1984) 668-675.
6. Hooker J D, 1872-1897. Flora of British India, Vol 1-7, L. Reeve & Co., London.
7. Javeid. G N, Forest Flora of Kashmir. Check list-II, *Ind Forest*, **105** (1979)148-170.