

Economic value of Gymnosperms

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Gymnosperms are very poorly represented in the Indian flora. In vast peninsular India they are represented only by a few species of *Cycas*, *Podocarpus* and *Gnetum*. However in the extra peninsular Himalayas and to some extent in the connected



ranges of Kashmir, Assam and Arunachal Pradesh, gymnosperms are essentially represented by conifers covering extensive tracts forest land. A total of 16 genera and 53 species of Gymnosperms occur in India.

Economic importance of Gymnosperms: Gymnosperms are of great economic importance. Vast forest of conifers in many parts of the world are effective in checking soil erosion, forms major forest wealth and gives shelter to wild life. The coniferales are the most important order of forest trees in the economy of civilized man. Besides conifers the other orders of Gymnosperms also contain plants of economic importance.

A brief description of economic use of gymnosperms are:

Wood:

– *Conifers* are the most important as a source of wood. Their wood is light weight, light coloured with straight grains. It takes good finish and bears good nail taking properties. This types of wood is used for making furniture and for interior decoration.

– *Cedrus* wood- Railway sleepers, doors, electric poles, carriage and for boat making.

– *Pine* wood – Cheap furniture, agricultural implements, fencing poles, doors, frames and packing cases.

– *Abies* wood - Cheap jeweler boxes, packing cases and slanting roofs in hill houses.

– *Juniperous* wood- soft yellowish red in colour for making high quality pencils.

– *Larix* wood – hard, heavy and strong, used for railway sleepers posts, boat making

– *Podocarpus* wood- fine texture, used for making plywood

– *Taxus* wood- heaviest and most durable, used as decorative, poles and for making bows.

– *Thuja* wood – possess certain antibiotics, resistant to variations in weathers is of commercial value.

Resins : Resins are plant exudates which are secreted in specialized ducts, derived from conifers by tapping and are soluble in organic solvents.

– *Copal* – an important varnish resin is obtained from *Agathis*, used in spirit varnishes and preparation of polishes etc.

– *Rosin* – another type of resin obtained as a residue after the distillation of pine oleoresin or turpentine. It is used in paper sizing, varnish making, enamels, preparation of plasters and ointments. Inferior quality of rosin is used in making grease, sealing wax, oil cloth, plastics, shoe polish etc.

– *Canada Balsam* – *Abies balsamea* is the source of Canada balsam, this resin does not crystallize on drying and it has a high refractive index as that of glass and therefore it is used as a mounting medium for microscopic objects and as a cement for lenses in a optical work.

– *Venice turpentine* - is obtained from *Larix decidua*, used in making special type of varnish and veterinary medicines.

Essential oils : Many types of essential oils are obtained from many coniferous species

– *Abies sachaliensis* – yields Japanese needle oil which is used in making scented soap.

– *Cedrus deodara* and *Cedrus atlantica* – yields oil, used in perfumery and in medicines.

– *Thuja plicata* – yields oil used in perfumery.

– *Picea glauca* – yields essential oil used in room sprays.

– Amber, a fossil resin used in making of beads and other jewelery is the fossilized resin of an extinct Baltic Pine- *Pinus succinifera*.

Fatty oils:

– Fatty oils are extracted from the seeds of *Macrozamia*, *Pinus*, *Torreya* and *Cephalotaxus* are used as food

– *Gnetum ula* seeds also yield fatty oil used for illumination

Paper : Many Indian coniferous plants like *Pinus roxburghii*, *Abies pindrow*, *Picea smithiana* – supply wood



pulp from which paper is made.

– Throughout the world paper used for newsprint is mainly from *Pinus* species.

– *Abies balsamea*, *Picea* species and *Thuja* species supply high grade wood pulp, used to make superior paper.

Food : Cycadales order is very important source of starch food called sago. It is starch rich food and is used as a constituent of poor man’s food.

– Fruits of *Cycas* are also edible

– Seeds of *Pinus gerardiana* popularly called chilgoza are edible.

– Young leaves and strobili of *Gnetum gnemon* are cooked as vegetable.

Fibre :

– Bark of *Gnetum gnemon* and *G. latifolium* yields fibres of high tensile strength, used for making ropes and fishing nets.

Poison :

– Plants of *Gnetum latifolium* and *G. contractum*, *Taxus baccata* are used as fish poison.

– Pollen Grains of *Cycas circinalis* have narcotic properties.

Medicine :

– *Cycas circinalis* – juice of young leaves can cure stomach disorder, vomiting and skin diseases.

– Bark, megasporophylls and seeds of *Cycas* are

crushed mixed with coconut oil used for sores and wounds.

– Ephedrine- a very important drug is extracted from *Ephedra*, used in the treatment of asthma, hay fever and common colds.

– Wood of *Cedrus deodara* is diuretic and carminative, used in curing pulmonary disorders, pies rheumatism etc.

– *Cupressus sempervirens* – oil has vermifuge properties.

– *Taxus baccata* – leaves used in asthma, bronchitis, epilepsy.

Fuel : All the gymnosperms are good source of firewood.

– *Ephedra* – Rhizomes of are used as fuel.

– *Pinus* – female cones are used as fuel.

Ornamentals : Gymnosperms are very expensive ornamental plants.

– Many species of *Cycas* are grown as garden plants for decorative purposes.

– *Thuja*, *Pinus*, *Araucaria*, *Cryptomeria*, *Ginkgo* are grown as ornamentals for their beautiful foliage.

– *Ginkgo biloba* which is a sole representative of group Ginkgoales is grown in the temples of China and Japan and is worshipped (Maiden hair tree)

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