**Gymnosperm: Distribution in India**

 **1. Cycadales:**

Indian Cycadales are represented by only 5 species of Cycas and occur mainly in South India. These are Cycas beddomei (Madras and dry hills of Cudapah in Andhra Pradesh), C. circinalis (Andaman and Nicobar Islands and some dry deciduous forests of South India), C. rumphii (Andaman and Nicobar Islands), C griffithi (Manipur and Nega Hills) and C. pectinata (Assam, Bihar, Sikkim and several parts or Eastern India). C. revoluta, a Japanese species, is cultivated commonly in Indian gardens. It does not occur in wild state.

 **2. Gnetales:**

Indian Gnetales include species of Gnetum and Ephedra. Welwitschia, the third genus of the order, has not been reported from India. Five species of Gnetum (viz. G. ula, G. contractum, G. gnemon, G. montanum and G. latifolium) occur in various parts of the country. Various Indian species of Gnetum along with their places of distribution in parenthesis include G. ula (Western Ghats near Khandala, forests of Kerala, Nilgiris, Andhra Pradesh and Orissa), G. contractum (Nilgiri Hills, Conoor and hills of Kerala), G. gnemon (eastern parts of the country, particularly Assam), G. montanum (Assam, Sikkim and parts of Orissa) and G. latifolium (Andaman and Nicobar Islands).

Ephedra, in India, is represented by only 6 species. These are Ephedra foliata, E. gerardiana, E. intermedia, E. nebrodensis, E. regeliana and E. saxatilis. These are distributed widely in dry parts of Haryana, Punjab, Rajasthan, and parts of Sikkim, Kashmir, and also at high altitudes in Himalayas

 **3. Coniferales:**

Coniferales are the dominant forest-makers of the world. Out of 54 living genera of Coniferales in the world, ten have been reported from different parts of India. These are Abies, Cedrus, Cephalotaxus, Cupressus, Juniperus, Larix, Picea, Pinus, Podocarpus and Tsuga. The distribution of the majority of these members is restricted mainly in the Himalayas, and governed chiefly by altitudes.

Abies is represented in the country by only 4 species, of which A. delavayi and A. densa grow in eastern Himalayas, whereas A. pindrow and A. spectabilis are restricted to western Himalayas. A. pindrow grows luxuriantly at about 2500 metres above sea level, whereas A. delavayi occurs commonly at an altitude of about 2750-3350 metres above sea level. A. densa grows luxuriantly in Darjeeling and adjacent hills.

Cedrus, in India, is represented by only one species i.e. Cedrus deodara (vern. Deodar). This beautiful tree is famous for its wood, and grows in western Himalayas between 1200-3300 metres. Cephalotaxus grows in eastern Himalayas, and is represented by only two species (C. griffithi and C. mannii). Cupressus tortulosa grows throughout in the outer and middle ranges of Himalayas from Chamba hills in Himachal Pradesh to Hills in Assam at an altitudes from 1800 to 2800 metres C. funiberus and C. sempervirens are cultivated as ornamental plants in Indian gardens.

Six species of Juniperus have been reported from higher altitudes of eastern as well as western Himalayan regions of India and Bhutan. J. communis occurs between 2900-4250 metres in Garhwal Himalayas, whereas J. coxii grows both in eastern as well as Western Himalayas. J. macropoda grows between 2500-4300 metres in Laddakh, Kanawar and Alaknanda valley, whereas J. recurva and J. squamalata grow between 3000-5000 metres in the eastern Himalayas. J. wallichiana grows at an altitude between 3000 to 4200 metres in the Himalayan ranges.

Larix griffithiana occurs generally mixed with Abies, Pinus and Tsuga in Sikkim, Chumbi valley of Tibet, Bhutan and Mishmi Hills in Assam. Picea smithiana grows in western Himalayas and attains a height of about 60 metres. It grows from Afghanistan to Kumaon.

Pinus is represented by 6 species in India. These are P. roxburghii, P. wallichiana, P. insular is, P. gerardiana, P.armandi and P.merkusii. They are distributed throughout in Himalayas. Pinus roxburghii (vern. Chir) grows at lower altitudes between 2000-5000 feet, whereas P. wallichiana grows in north-west Himalayas ranging from an elevation of 5000-12000 feet. Pinus gerardiana (vern. Chilgoza) occurs on the Himalayan flanks extending from Punjab to Afghanistan and Baluchistan ranging within the altitudes of 5000 to 12000 feet. Pinus insularis grows in Khasia and Chittagong hills.

Two species of Podocarpus (P.neerifolia and P. wallichianus) occur in India. The former grows in Andaman Islands and eastern Himalayas, whereas latter grows in Nilgiri hills and Assam. Tsuga dumosa grows luxuriently in Darjeeling and adjacent regions, along with Abies densa, above an altitude of 2700 metres.

Besides the above-mentioned 10 genera, which grow naturally in different parts of India, some Coniferales are cultivated as ornamentals in Indian gardens.

There include Araucaria cooki and A. cunninghamii of Araucariaceae, Thuja occidentalis and Cupressus cashmeriana of Cupressaceae. Callitris cupressi of Cupressaceae is grown as a hedge plant in Nilgiris, whereas Cryptomeria japonica of Taxodiaceae is grown in Darjeeling and other areas.

**4. Ginkoales:**

Ginkgo biloba is the single species represented from this group is found in ornamental and cultivated conditions only in some botanical gardens and parks. In natural conditions their growth is not observed in India.