Topic: Pinus; Salient features
B.Sc. Botany Hons. II
Paper: III Group: A

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Systematic Position

Division - Coniferophyta

Class - Coiniferosida

Order - Coniferales

Family - Pinaceae

Genus - *Pinus*

Species: *P. wallichiana, P. insularis, P. armandi, Pinus khasya, Pinus geradiana, Pinus roxburghii*, etc.

Salient features

- They are evergreen, perennial lofty trees with spirally growing branches which give pyramidal or conical appearance.
- The body is divided into stem, roots and needle-like leaves.
- The stem is erect and cylindrical and is covered with bark.
- There are two types of branches: the long shoot of unlimited growth and dwarf shoot of limited growth.
- The long shoot bears apical bud and grows indefinitely with many scaly leaves.

- Dwarf shoot does not contain any apical bud and they arise on the long shoot in the axil of scaly leaves.
- Each dwarf shoot bear two scaly leaves which is also known as prophylls.
- Leaves are dimorphic: the long green needle shaped foliage leaves and small, brown, membranous scale leaves.
- Scale leaves are thin and brownish in color which is developed only on long as well as dwarf shoots while the foliage leaves are large, needle-like and found only at the apex of the dwarf shoots.
- The pine bears tap root system with insufficient hairs but it disappears soon. Many lateral roots also develop which play an important role to absorb the mineral containing water.
- The branch roots are infested with mycorrhizal fungus and hence it is called the mycorrhizal root.
- They have endarch vascular bundles. Individual vascular bundles are separated by means of medullary rays.
- The anatomy of leaves shows xerophytic structure: thick cuticularised epidermis with sunken stomata and sclerenchymatous hypodermis.

- Resin ducts are present in the mesophyll tissue and the cells of the mesophyll have ridges on the walls which project inside the cell cavities.
- Microsporophylls are arranged spirally on the central axis and forms male cone.
- Megasporophyll of the female cone is composed of large ovuliferous scale and lower smaller bract scale, which are the free from each other.
- Each ovuliferous scale bears two anatropous ovules or megasporangia.
- The pollen grains are winged.
- During the development of male gametophyte, two prothalial cells are formed which later on degenerates. Besides these, 2-3 archaegonia are formed with a neck of eight cells.

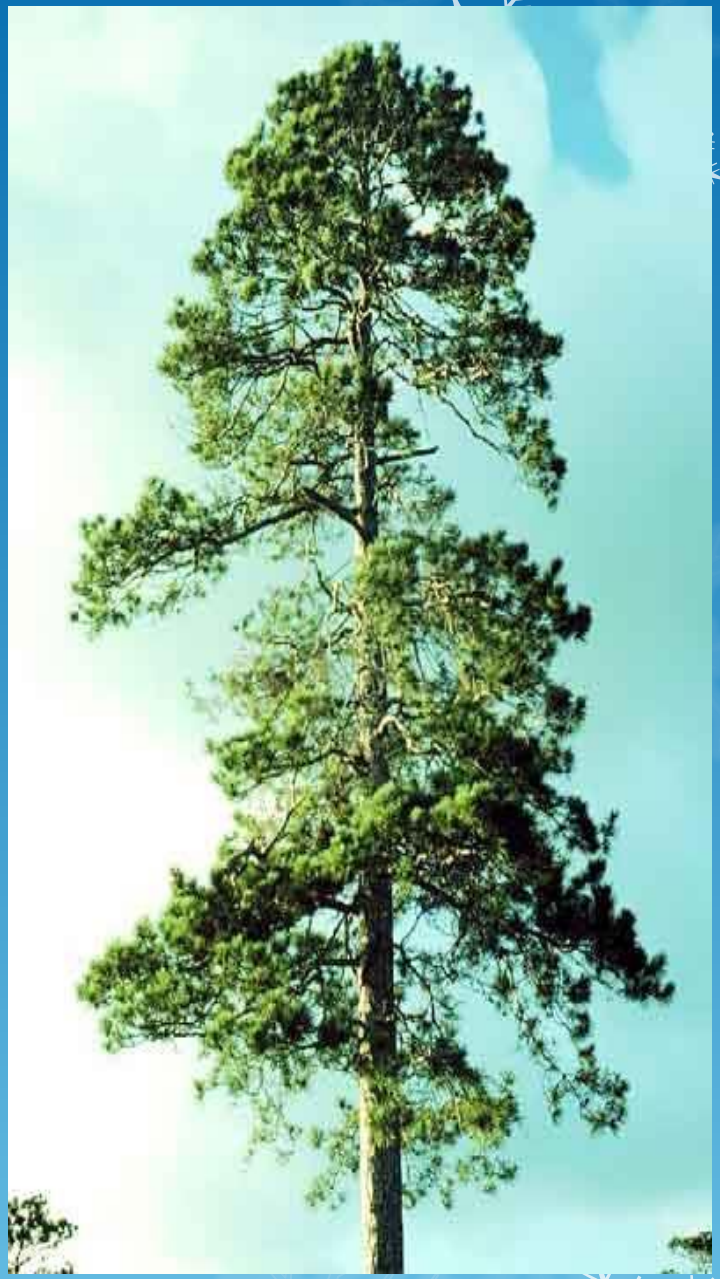

Fig. Pinus Tree