

Topic: Pinus; External Morphology

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External morphology of Pinus

The plant body represents the sporophyte. The sporophytes are evergreen and tall tree (10 -80 m in height). The body has three parts: root, stem and leaves. The plants bear well developed tap root system. The stem is stout, branched and pyramidal in shape with recemose branches.

Root: A strong tap root system is present in young plant which may persist or roots develop and become stronger adventitious roots with increasing age. The roots can grow on rocks or hard ground and spread over a large area. The lateral roots are well developed with insufficient root hairs. Often a branch roots are infested with mycorrhizal fungus and hence it is called the mycorrhizal root.

Stem: The stem is erect, stout, cylindrical and pyramidal shape with dimorphic branches. The branches are restricted in the apical region. The stem is covered with bark. There are two types of branches:

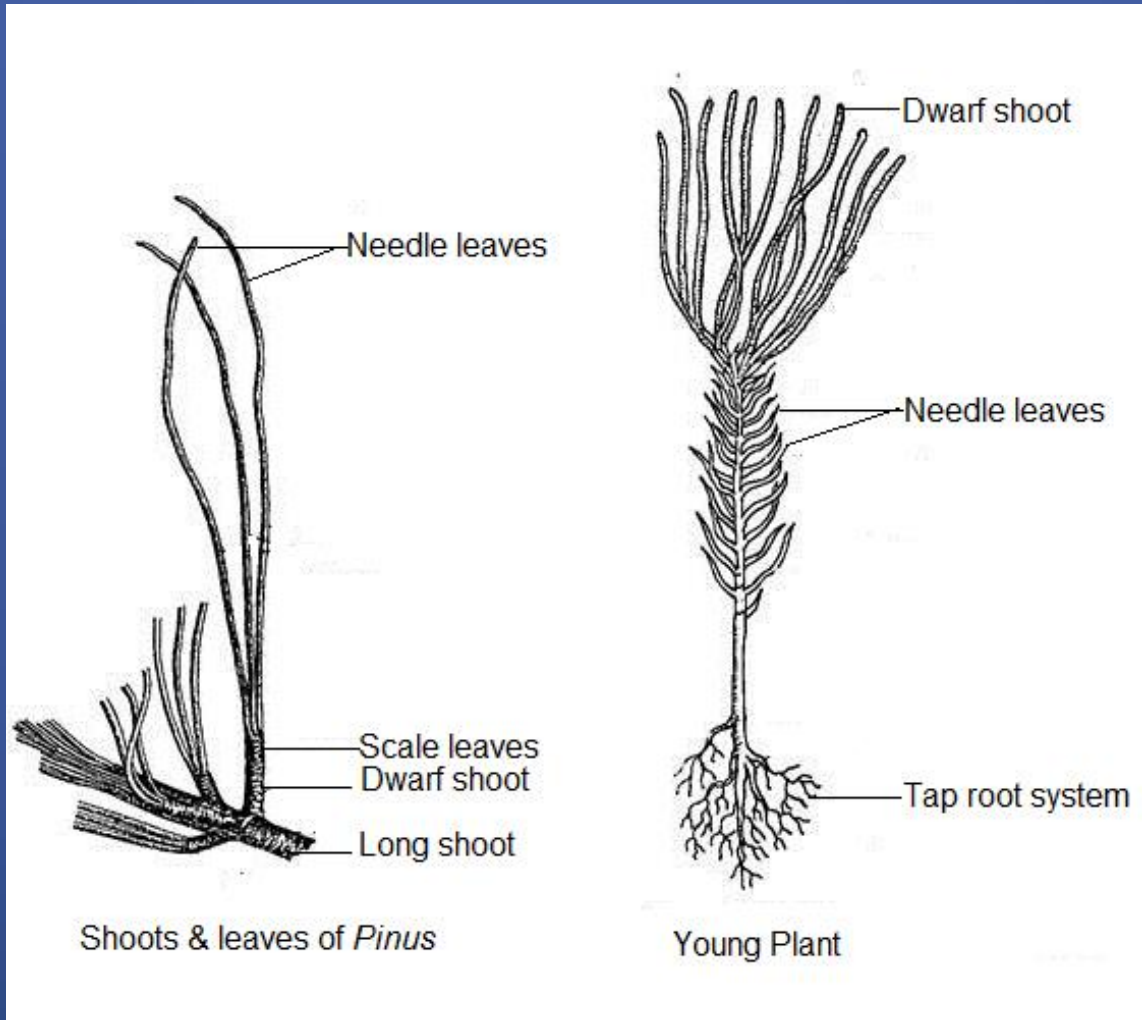
The long shoot of unlimited growth: The main branches or long shoots have an unlimited growth with scale leaves which are found below the dwarf shoots and the needle like foliage leaves are present exclusively at their terminal ends.

The dwarf shoot of limited growth: The dwarf shoots develop in the axils of scale leaves on the main branches, which are without apical buds. It is about 1 -2 cm long with one or two scale leaves. The dwarf shoot also contains foliage leaves. In this case, a dwarf shoot with its foliage leaves is known as spur.

Leaf: The pine tree bears two types of leaves:

The scale leaves: Both long and dwarf shoots bear scale-leaves and fall off as the branches attain maturity. These leaves are small, brownish in color and membranous with protective structures.

The foliage leaves: The dwarf shoots bear foliage leaves. The leaves are long, green, simple, needle-like with photosynthetic structures. They develop in clusters at the apex of the dwarf shoots and can form the spur. Their number varies from 1-5 in different species.



Shoots & leaves of *Pinus*

Young Plant