

Topic: Cycadeoidea; Morphology & Anatomy
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Systematic Position

Class - Cycadopsida

Order - Cycadeoideales

Family - Cycadeoideaceae

Genus - Cycadeoidea

Cycadeoidea, a genus of extinct seed plants that was common worldwide during the Early Cretaceous Epoch (145 million to 100 million years ago). It was one member in a larger group, the order Bennettitales (known as the order Cycadeoidales in some classifications), which has been evolutionarily linked to angiosperms (flowering plants).



Morphological features

In *Cycadeoidea* the stem was unbranched with a single crown of pinnate leaves at the tops, but some species had branched stem with a multiple crown. In some the stem was tuberous. In all cases the stem was covered up by persistent leaf bases as find in *Cycas*.

Anatomical Features

In structure the stem usually had large pith and thin vascular cylinder in which the protoxylem was endarch, thick cortex with a number of gum canals in it. There was small amount of secondary growth. Growth rings were only in few cases where the cambium persisted and was more active, so on the whole the stem anatomy was like those of present day cycads i.e., with large pith, broad cortex and narrow vascular cylinder.

In some few cases, however, the vascular cylinder was sufficiently broad. In the stem there were no traces of mesarch vascular bundles which are a common feature of leaf traces of present day cycads.

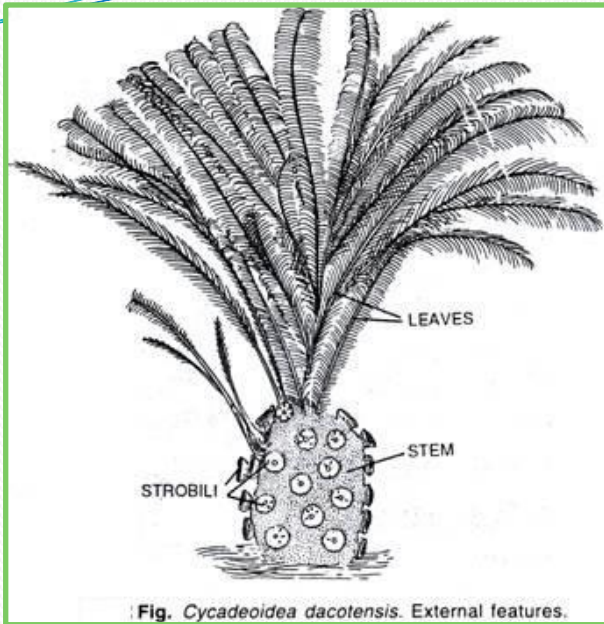


Fig. *Cycadeoidea dacotensis*. External features.

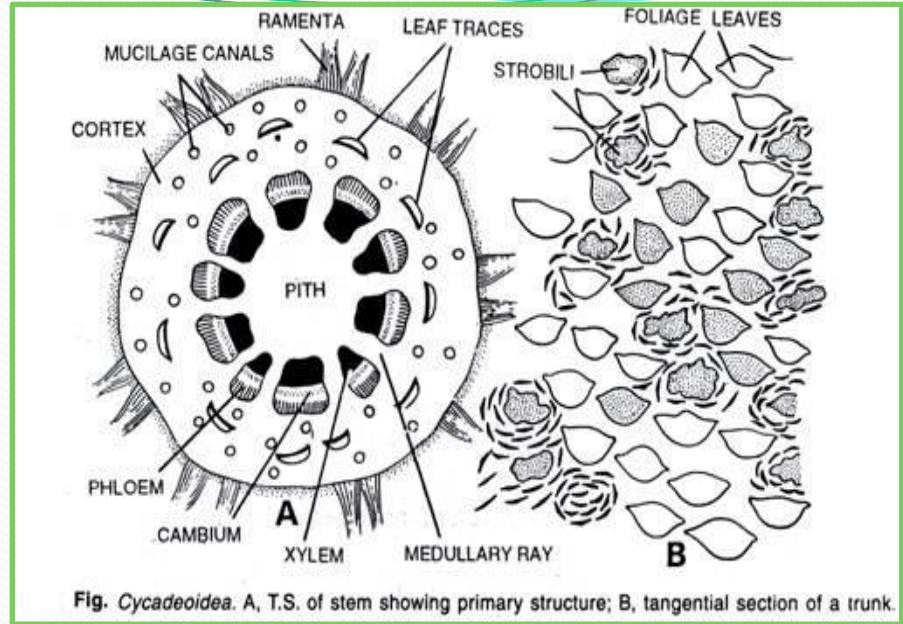


Fig. *Cycadeoidea*. A, T.S. of stem showing primary structure; B, tangential section of a trunk.

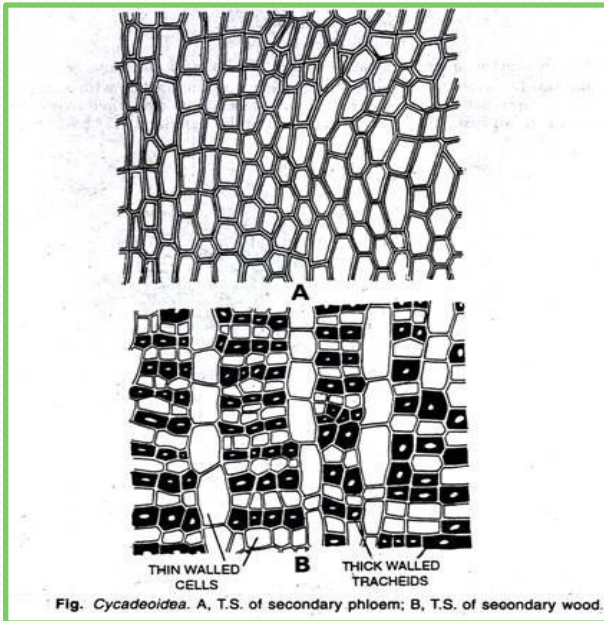


Fig. *Cycadeoidea*. A, T.S. of secondary phloem; B, T.S. of secondary wood.

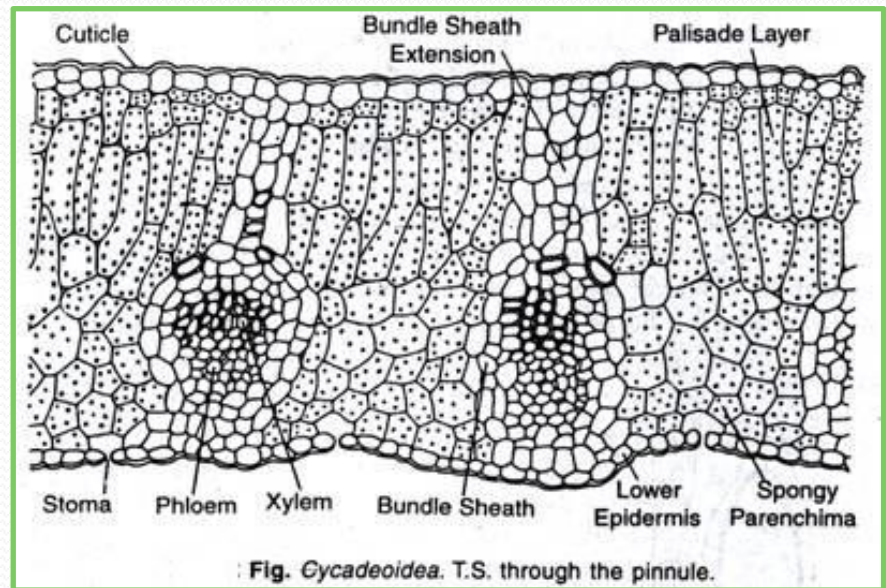


Fig. *Cycadeoidea*. T.S. through the pinnule.

Another distinction from cycads was that the leaf traces were direct and no girdles while in present day cycads the girdling of leaf traces is quite common. The xylem had scalariform thickenings; pitted thickenings rather rare. This is an unusual feature because in the xylem of Cycadofilicales pitted thickening was very common and the group is much older than Cycadeoideales (Bennettitales).

Leaves of Cycadeoideales

The leaves in *Cycadeoidea* (Bennettites) were large pinnate and showed xerophytic features. The vascular bundles in petiole and leaflets were mesarch with a strong sheath of sclerenchyma around it. Bipinnate leaves were rarely found in *Cycadeoidea* so the form and structure of leaf is practically like that of living cycads.