

Girdle system of *Cycas*:

The anatomical characteristic feature of *Cycas* is the presence of girdle traces in the stem. Leaf traces are the strands of vasculature that enter the leaves. In *Cycas*, each leaf is supplied by two types of traces both arising from the primary vascular bundles. These are girdle traces and the radial or direct traces. Each leaf receives two normal and one girdle shaped leaf trace. Direct leaf traces arise from the same side of vascular bundle and enter into the leaf. The girdle traces arise on the side of the stele opposite the leaf which they will ultimately enter. In their course through the cortex, they girdle the stele on two sides just like the curved prongs in a pair of tongs, and become completely reversed while passing through the cortex. In simpler language, a girdle shaped vascular bundle arises at opposite side of the insertion of leaf, dichotomously branched in the cortex; both branches encircle the stem in the form of girdle in opposite direction and come closer before entering into the leaf base. These girdle traces are characteristic of Cycadales. The radial or direct traces do not girdle the stele but take a straight path through the cortex, before entering the leaf. In the leaf the leaf traces divide and redivide to form large number of bundles before entering into the rachis.

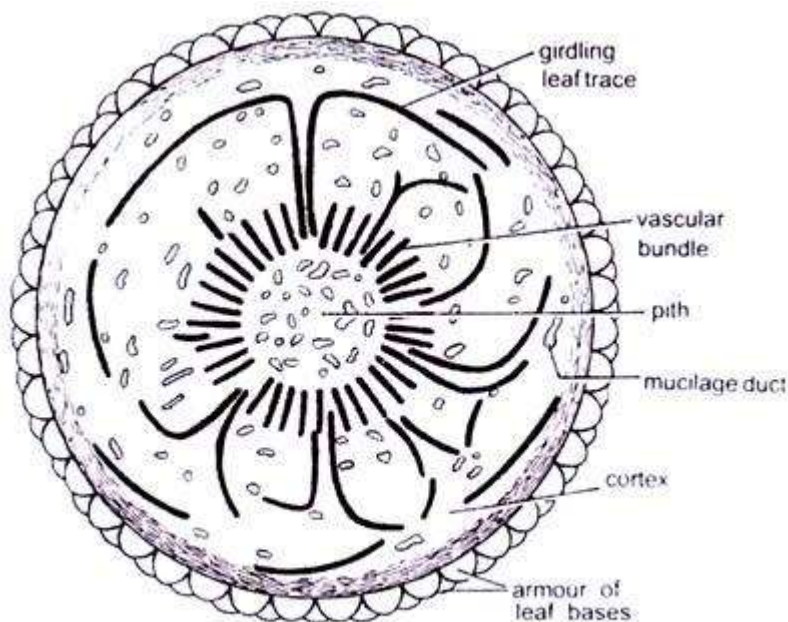


Fig. 8.20. *Cycas*. Diagrammatic representation of T.S. young stem