

Topic: Anomalous Secondary

Growth in Tecoma

B.Sc. (Hons.) II

Paper:IV Group: A

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In *Tecoma sp.*, a secondary cambium arises on the inner side of the normal woody cylinder. This internal cambium cuts off both xylem and phloem, but in reverse order. So phloem is here intraxylary and secondary in origin.

The T.S. of *Tecoma* stem shows following features-

- **Epidermis:** It is uniseriate, cuticularised and parenchymatous.
- **Cortex:** It is parenchymatous and 2-3 layers in thickness. The inner layer is represented by starch sheath layer.
- **Vascular Bundles:** Primary bundles are arranged in a ring. They are conjoint, collateral and open type. During secondary growth they form a cambial ring and produce secondary xylem inwardly and secondary phloem outwardly. After a period of secondary growth these bundles form a concentric ring around the parenchymatous pith.
- There is a distinct pericycle region where scattered sclerenchymatous patches are seen. In the meanwhile, secondary cambium develops in the inner part of stele, i.e., within the pith region instead of pericycle zone.

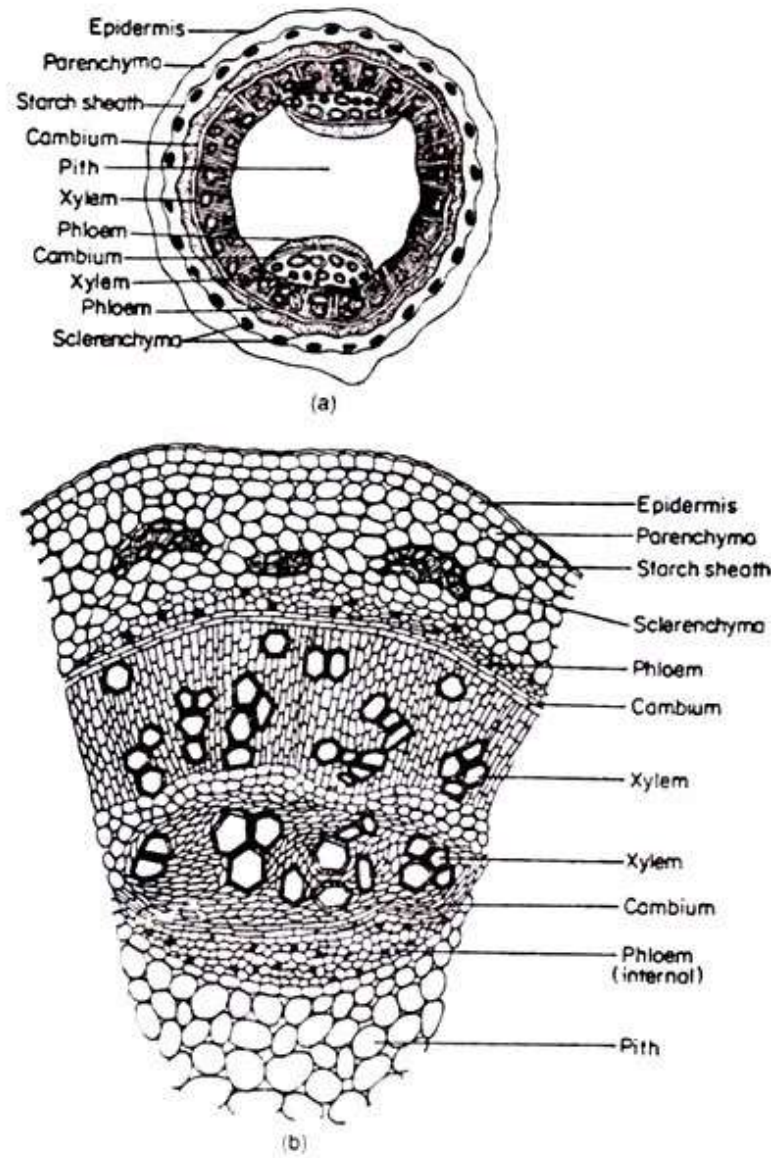


Fig. T.S. of Tecoma (a) diagrammatic (b) A magnified portion in T.S. view

- The internal cambium produces inverted bundles (i.e. internal phloem and external xylem). Thus, this internal phloem is secondary in origin.
- **Pith:** It is distinct and parenchymatous with intercellular spaces.

Anatomical Features:

The *Tecoma* shows the features of a typical dicotyledonous stem with anomalous secondary vascular bundles at the central region.

- i. Presence of parenchymatous cortex with starch sheath layer.
- ii. Presence of conjoint, collateral, open and endarch vascular bundles with distinct pith.
- iii. In addition, secondary cambium development in abnormal position (i.e. in the inner core of stem) and abnormal activity (i.e. outward production of xylem and inward production of phloem) resulting in the formation of secondary inverted vascular bundles, are very interesting features.