4.29 EPHEDRA

Botanical source Dried young stem of *Ephedra gerardiana* (Wall). Stapf and *E. nebrodensis* Tineo or *E. sinica* and *E. equisetina* (Fam. Gnetaceae).

Morphology

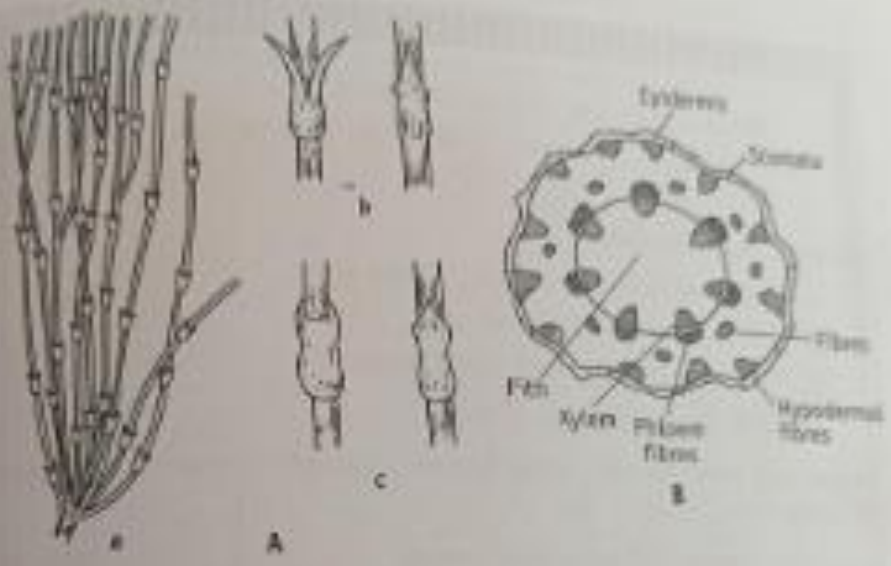
1. Cylindrical woody stems.
2. Grey to greenish, branchlets cylindrical, green.
3. Branching decussate, opposite.
4. Scaly leaves, subulate usually in whorls of two from each node.
5. Leaf bases dark brown, joined to form a sheath.
6. Heavy, aromatic, pine like odour.
7. Strong astringent taste.

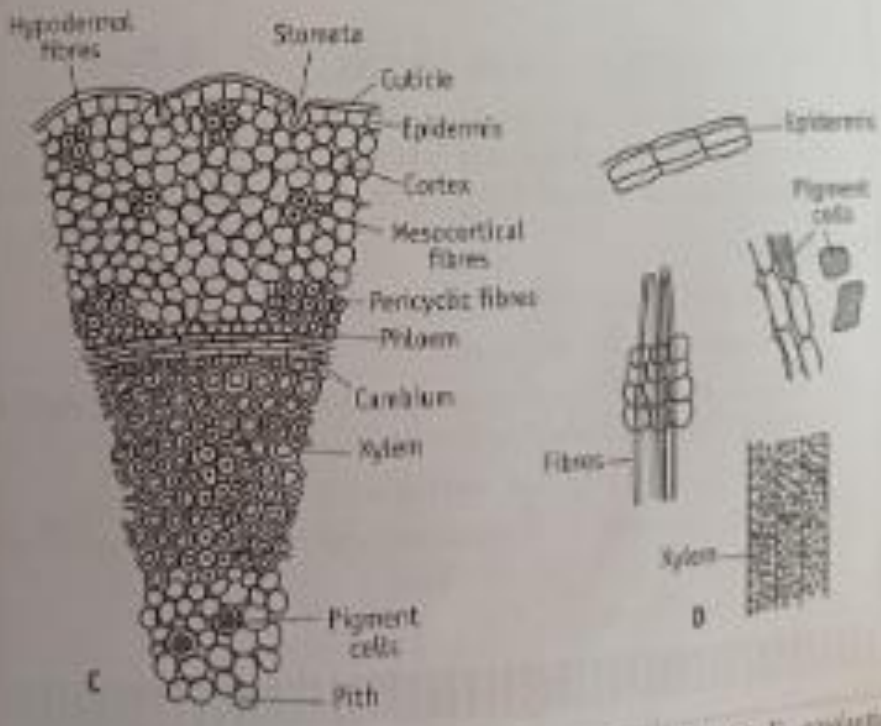
Histology

A transverse section shows:

1. Epidermis of quadrangular parenchymatous cells, highly cuticularized, papillae, and sunken stomata present.

2. Cortex—chlorenchymatous, outer zone of radially elongated cells and inner zone of spongy parenchyma.
3. Hypodermal fibres below the ridges.





4. Mesocortical fibres, present in groups, non-lignified to slightly lignified.
5. Pericycle with lignified pericyclic fibres.
6. Calcium oxalate crystals in the cortex.
7. Vascular bundles—open, collateral, about 6-10 secondary xylem forms a complete ring in old stems.
8. Pith—large rounded cells with dark brown mucilaginous substance.

Powder characteristics

1. Lignified and non-lignified fibres.
2. Tracheids with bordered pits.
3. Epidermis with ridged outer walls.
4. Dark brown pigmented cells.

Important constituents Alkylamine alkaloids : ephedrine, d-pseudo ephedrine.

Uses In asthma and whooping cough.