

Microscopical Drug Analysis

Part I

Lab No. 2


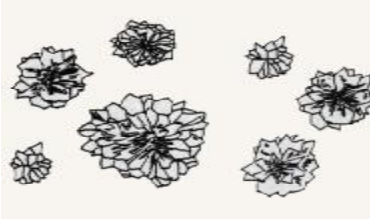
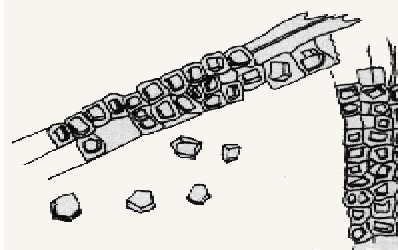
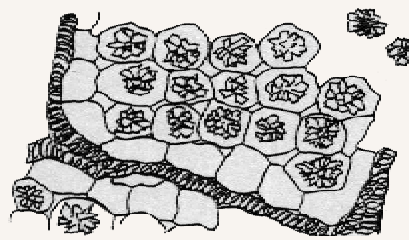

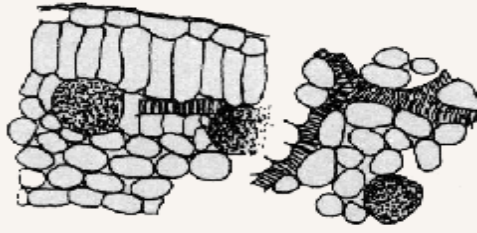




Ca⁺⁺ oxalate crystals

- § Ca⁺⁺ oxalate crystals are formed in plants to get rid of excess calcium salts, where ca⁺⁺ reacts with oxalic acid formed by metabolism of carbohydrates.
- § These crystals precipitate in different shapes and sizes.
- § They have a great importance in identification & differentiation of different plants.

Types of Ca⁺⁺ oxalate crystals:

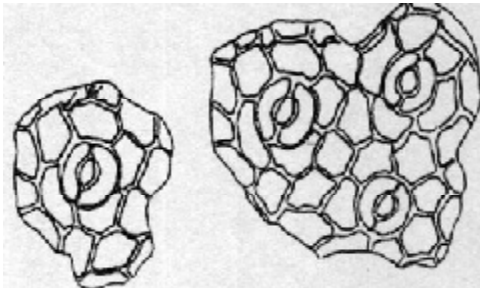
 <p>Prisms → e.g. <i>Quillaia</i></p>	 <p>Clusters → e.g. <i>Rhubarb</i></p>
 <p>Crystals sheath → e.g. <i>Senna</i></p>	 <p>Cluster layer → e.g. <i>Datura</i></p>
 <p>Raphide → e.g. <i>Squill</i></p>	
 <p>Microsphenoidal (sandy) crystals → e.g. <i>Atropa belladonna</i></p>	



Stomata

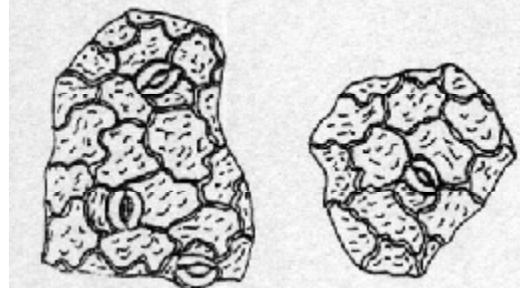
- § Each stoma consists of two **guard cells** which guards the (**osteo**)
- § Stomata are classified according to the epidermal cells surrounding these guard cells (**subsidiary cells**)

Types of Stomata:



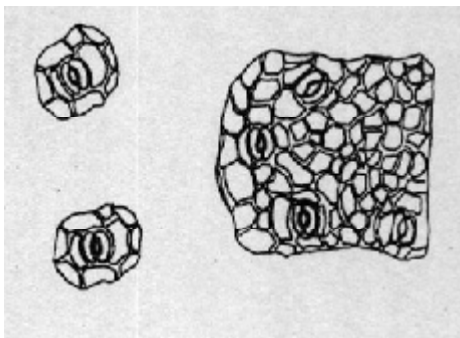
Anomocytic Stomata

- § Stomata are surrounded by 3-7 cells with no special arrangement
- § e.g. *Digitalis* leaf



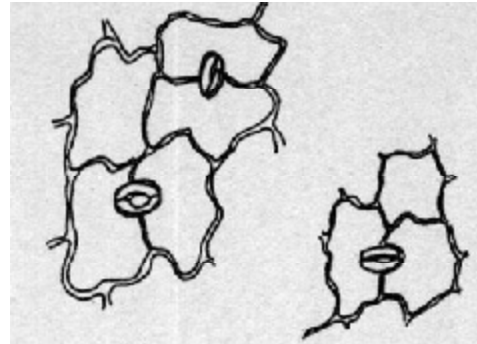
Anisocytic Stomata

- § Stomata are surrounded by 3 subsidiary cells one of them is distinctly smaller than the others
- § e.g.: *Datura*, *Belladonna* & *Hyoscyamos*



Paracytic Stomata

- § The stomata are surrounded by 2 long cells, their axis are parallel to the ostiole
- § e.g.: *senna*



Diacytic Stomata

- § The stomata are surrounded by two cells their axis are perpendicular to the ostiole
- § e.g.: *mentha*