



MSA UNIVERSITY
معة أكتوبر للعلوم الحديثة والآداب

Pharmacognosy

PHG 112

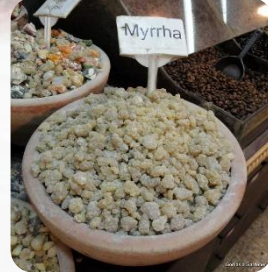
Spring 2026

Pharmacognosy

PHG 112



potato tubers



ginger rhizome

Spring 2026

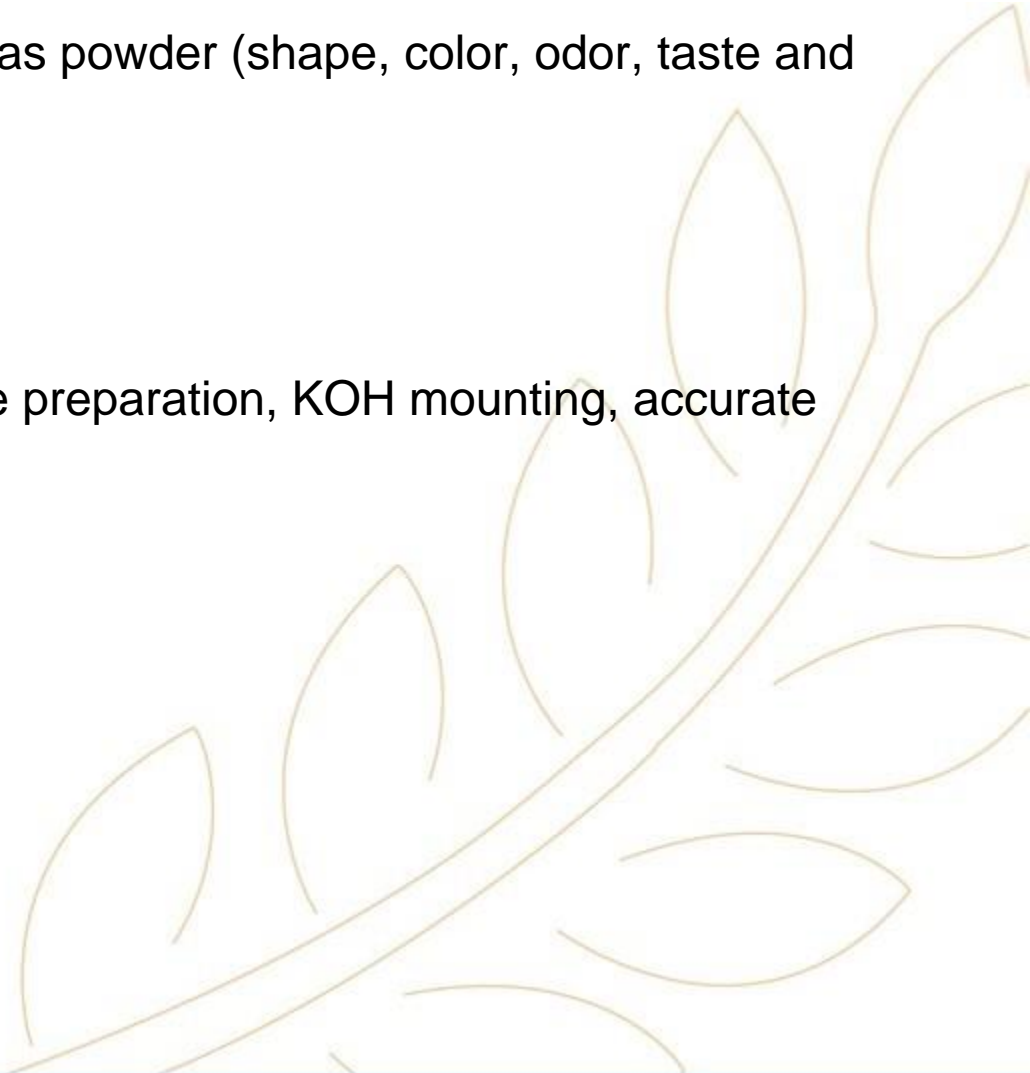
Lab 11



Intended Learning Outcomes (ILOs)

By the end of this laboratory session, students will be able to:

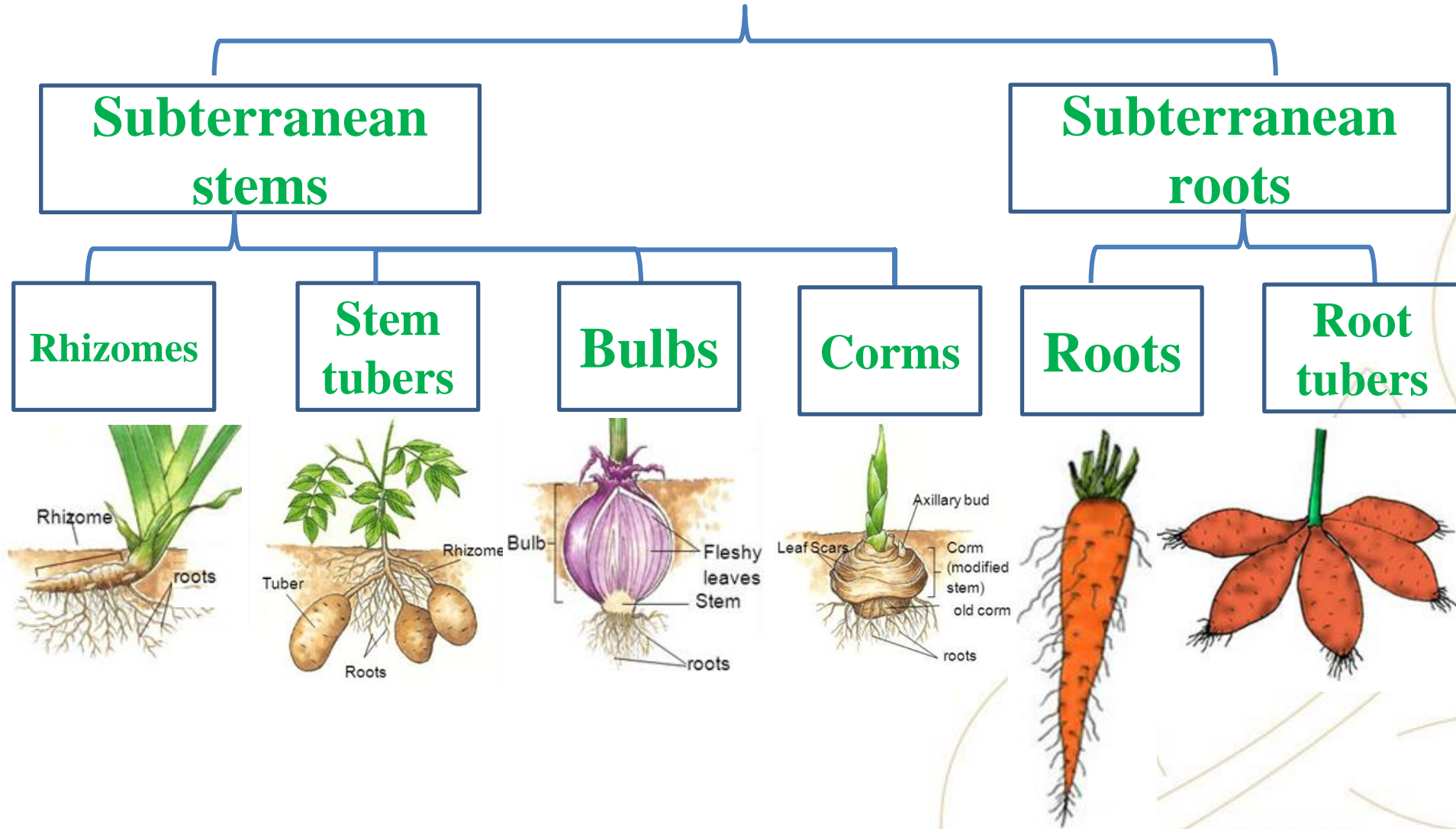
1. **Describe the macroscopic morphology of *Ginger*** entire and as powder (shape, color, odor, taste and surface characters).
2. **Identify the microscopic diagnostic features of *Ginger*.**
4. **Apply proper laboratory skills and safety rules**, including slide preparation, KOH mounting, accurate drawings, waste disposal, and lab conduct.



Subterranean Organs



Subterranean organs



GINGER

الزنجبيل



Ginger

Origin:

It is the fresh or dried rhizome of *Zingiber officinale*, family Zingiberaceae.

It is deprived from the dark outer surface and collected as peeled ginger.



Liming:

It is coating with very thin protective layer of CaCO_3 to protect against insect attacks.



Powder:

Physical properties:

Condition: Powder

Colour: Yellowish brown

Taste: Pungent taste

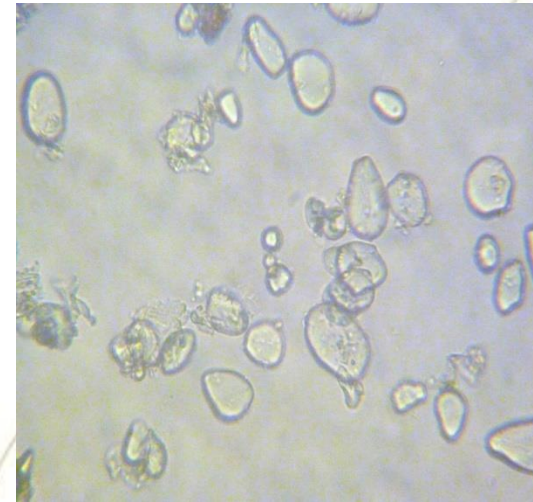
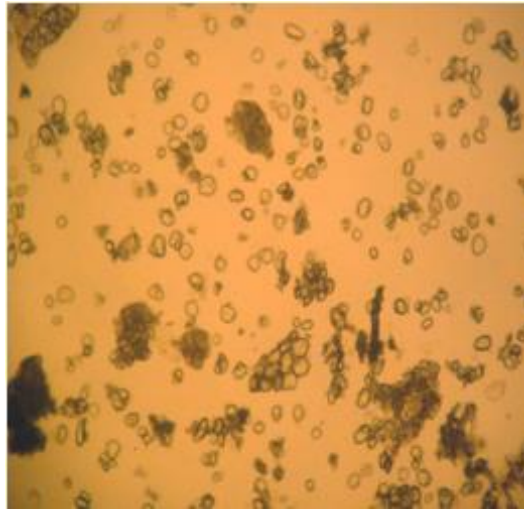
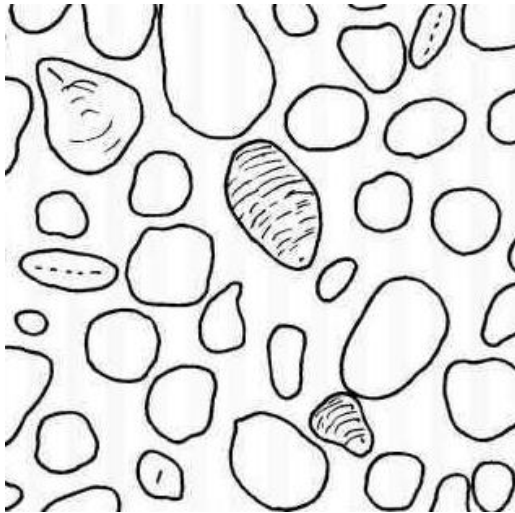
Odour: Aromatic



Key elements:

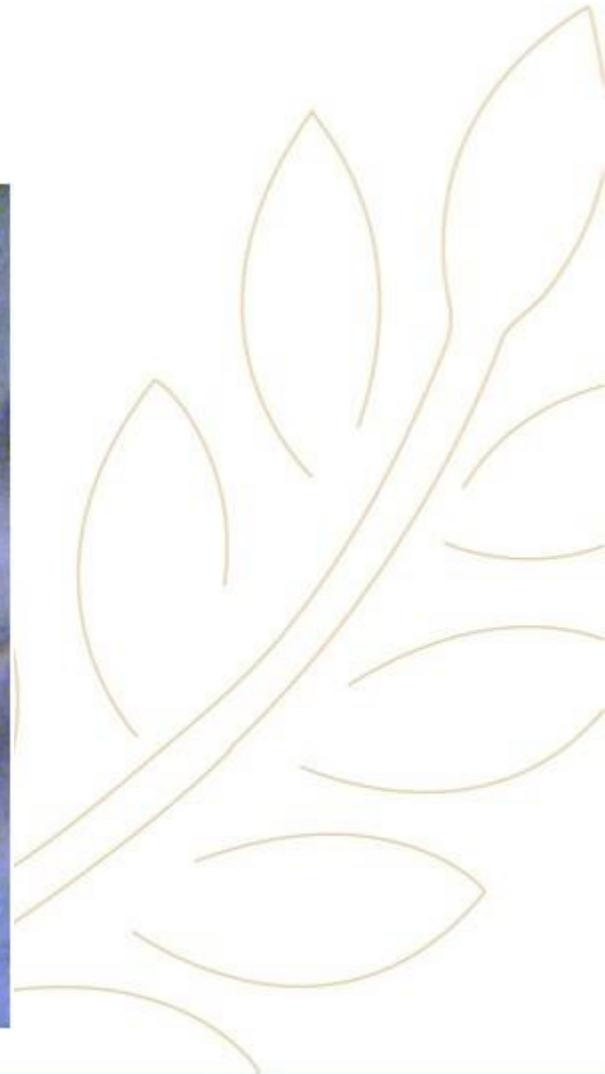
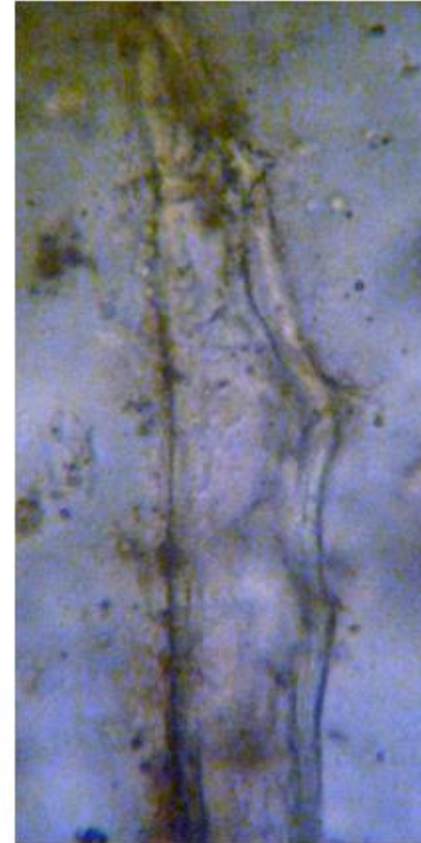
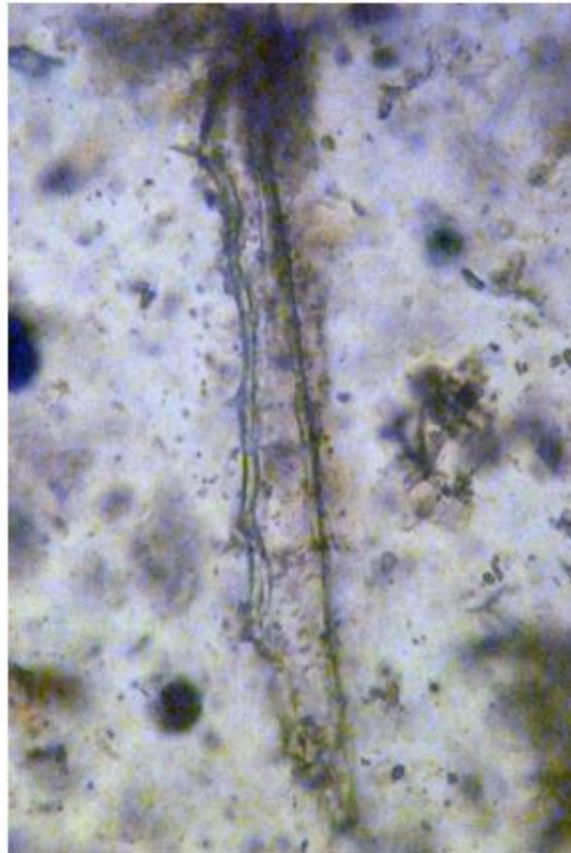
1) Scitamineous starch granules with transverse striation.

Mount in Water



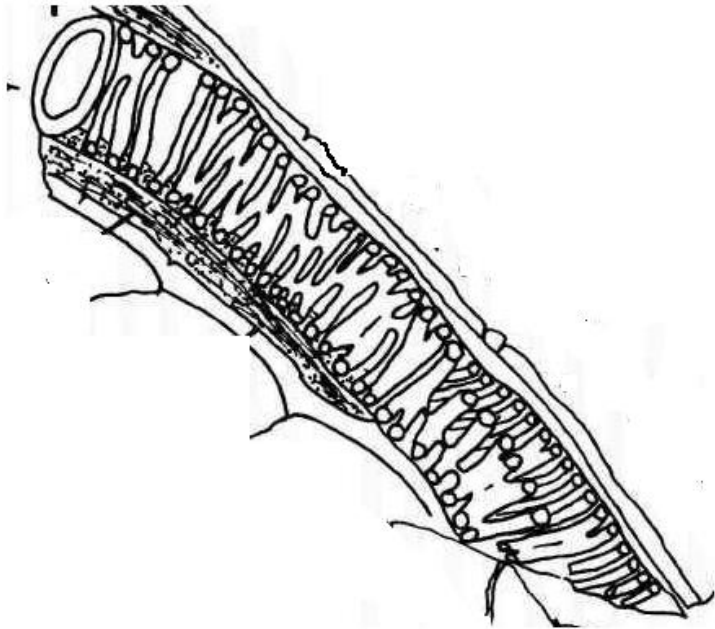
Key elements:

2) Septate fibers with tortuous margin and transverse pectosic septa (pectin)(non lignified except middle lamella).



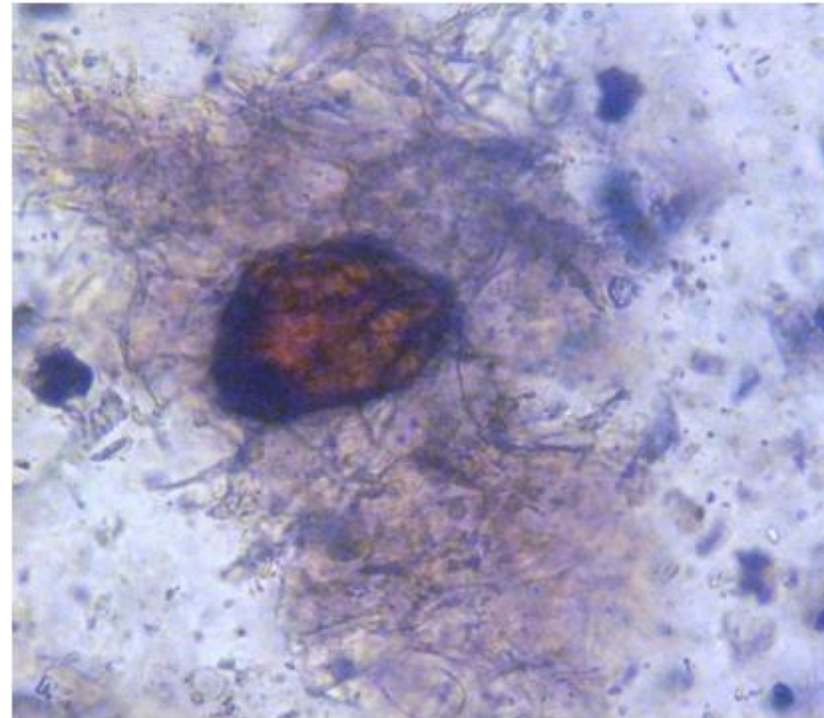
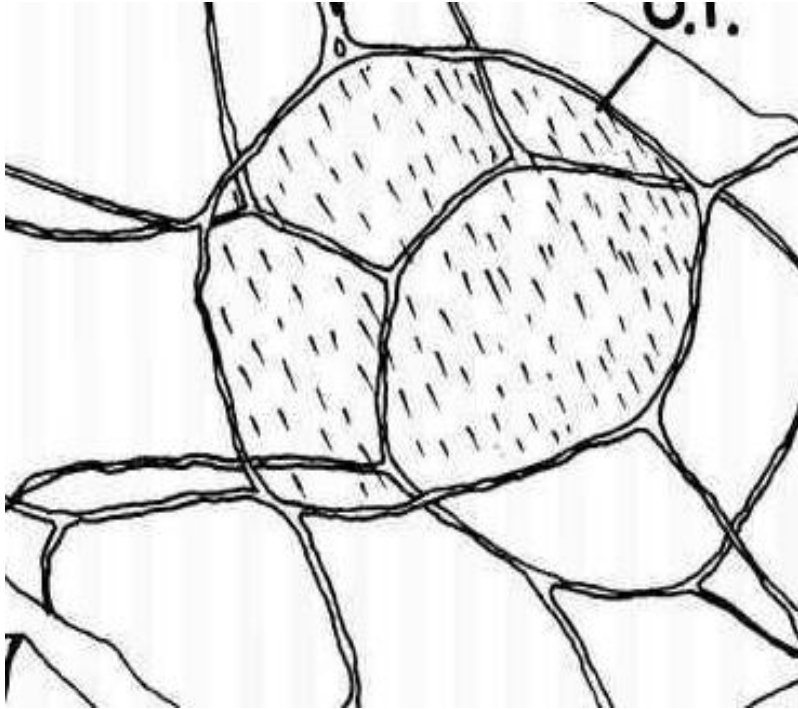
Key elements:

3) Reticulate, non lignified xylem vessels.



Key elements:

4) Oleoresin cells with yellowish orange content



Uses

- 1- Powerful anti-emetic in motion sickness.
- 2- Carminative & flavoring agent.
- 3- Reduce high cholesterol level in blood.
- 4- Improve circulation and antihypertensive.
- 5- Anti-inflammatory and in rheumatic pain.
- 6- Antioxidant.
- 7- Cough mixtures.

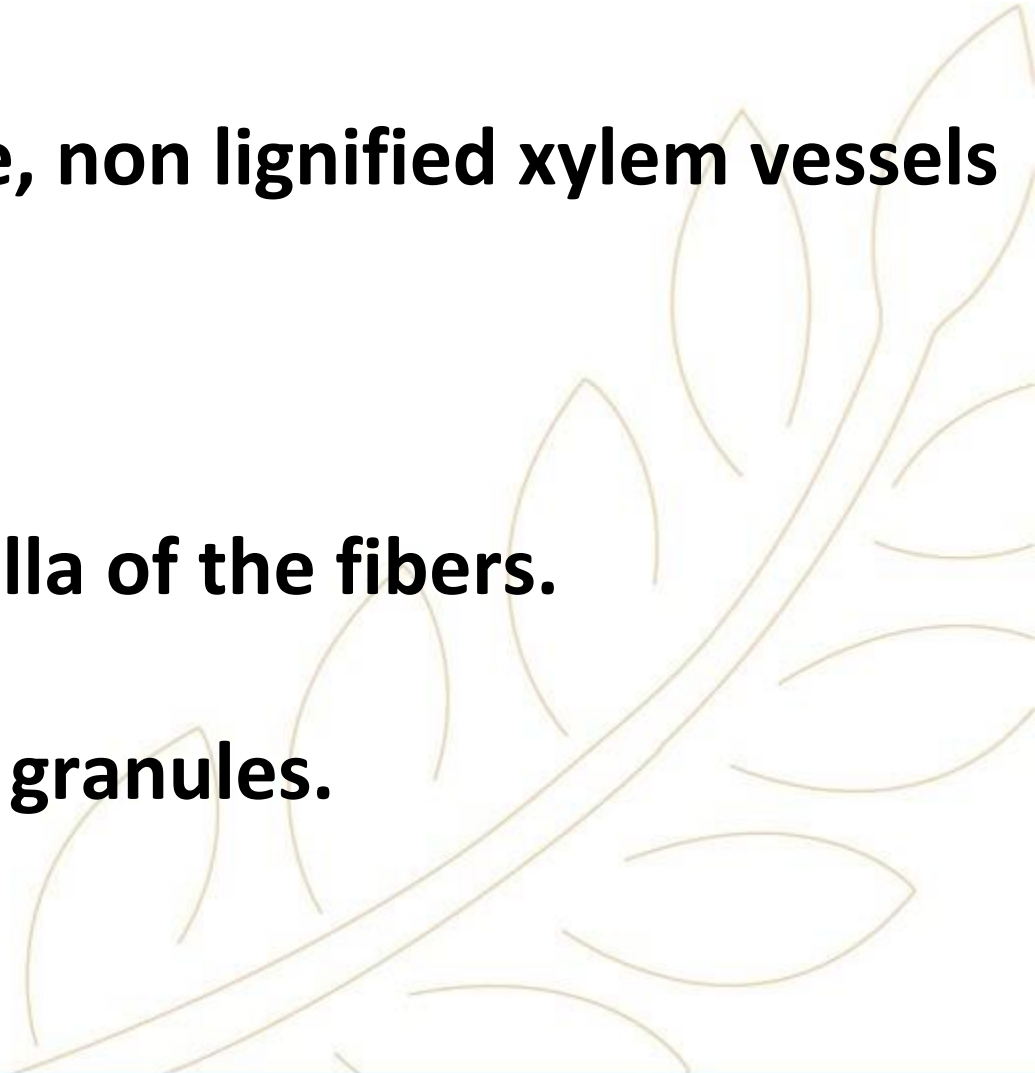


Microscopical Character:

Mount in KOH: Septate fibers, reticulate, non lignified xylem vessels and oleoresin cells.

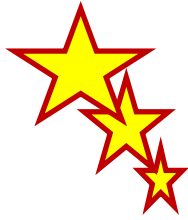
Mount in phloroglucinol : Middle lamella of the fibers.

Mount in Water: Scitamineaceous starch granules.

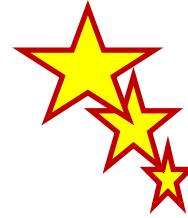


Main Key Elements Drawings:

1 Scitaminaceous starch granules.



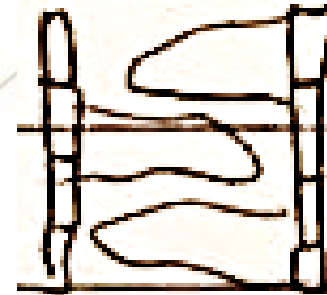
2 Oleoresin cells



3 Septate fibers.



4 Reticulate, non lignified xylem vessels.



Practical work:

1- Boil a quarter spatula of the powdered seed in a bout 5 ml of KOH.



Boil

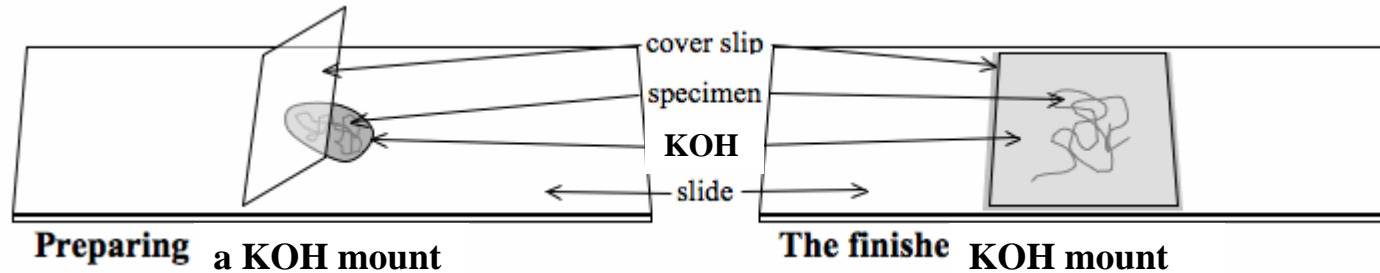


5 ml of KOH

1/4 spatula of powder

Practical work:

2- Prepare your slide and check the key elements.



3- Complete your drawings.

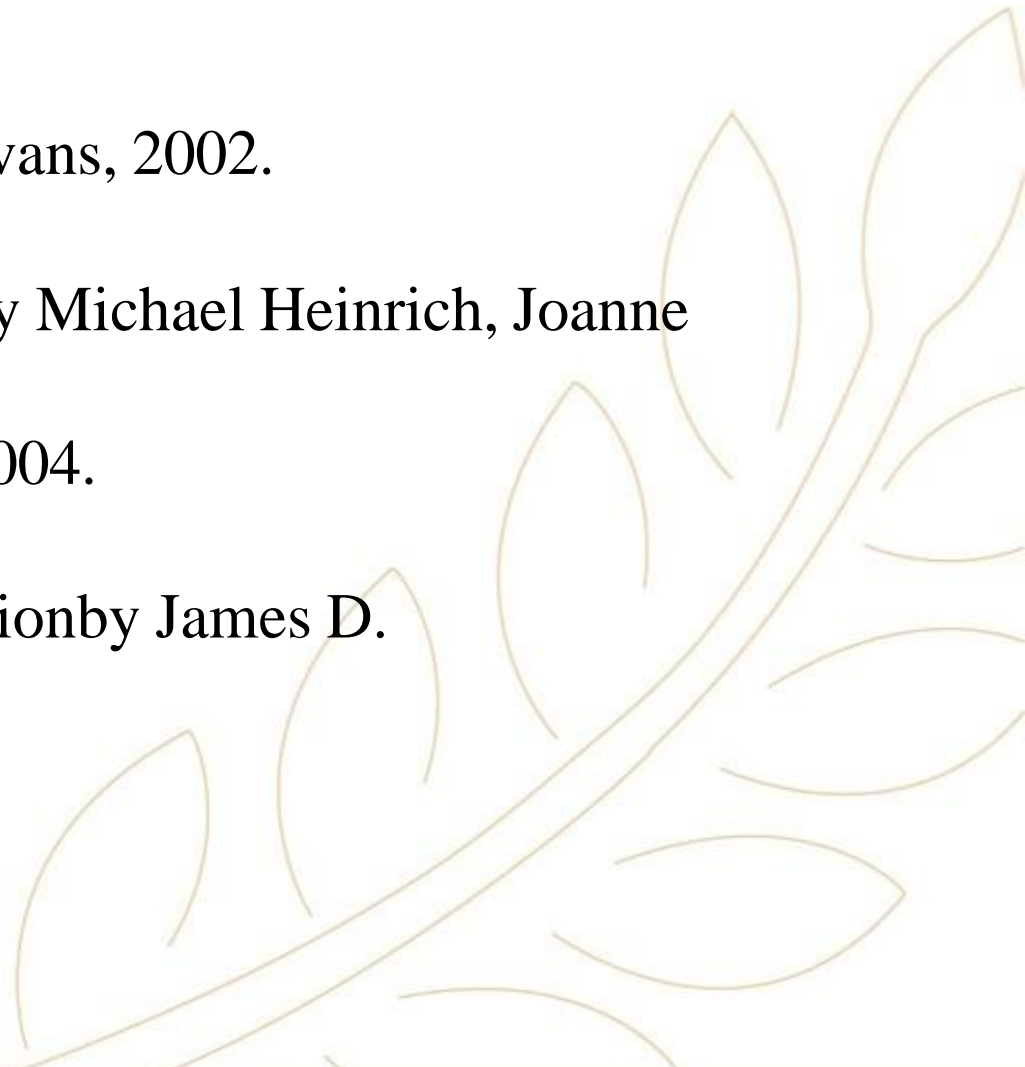
P.S.



Keep your work place and tools clean.

Dispose the left KOH in the container not in the sink.

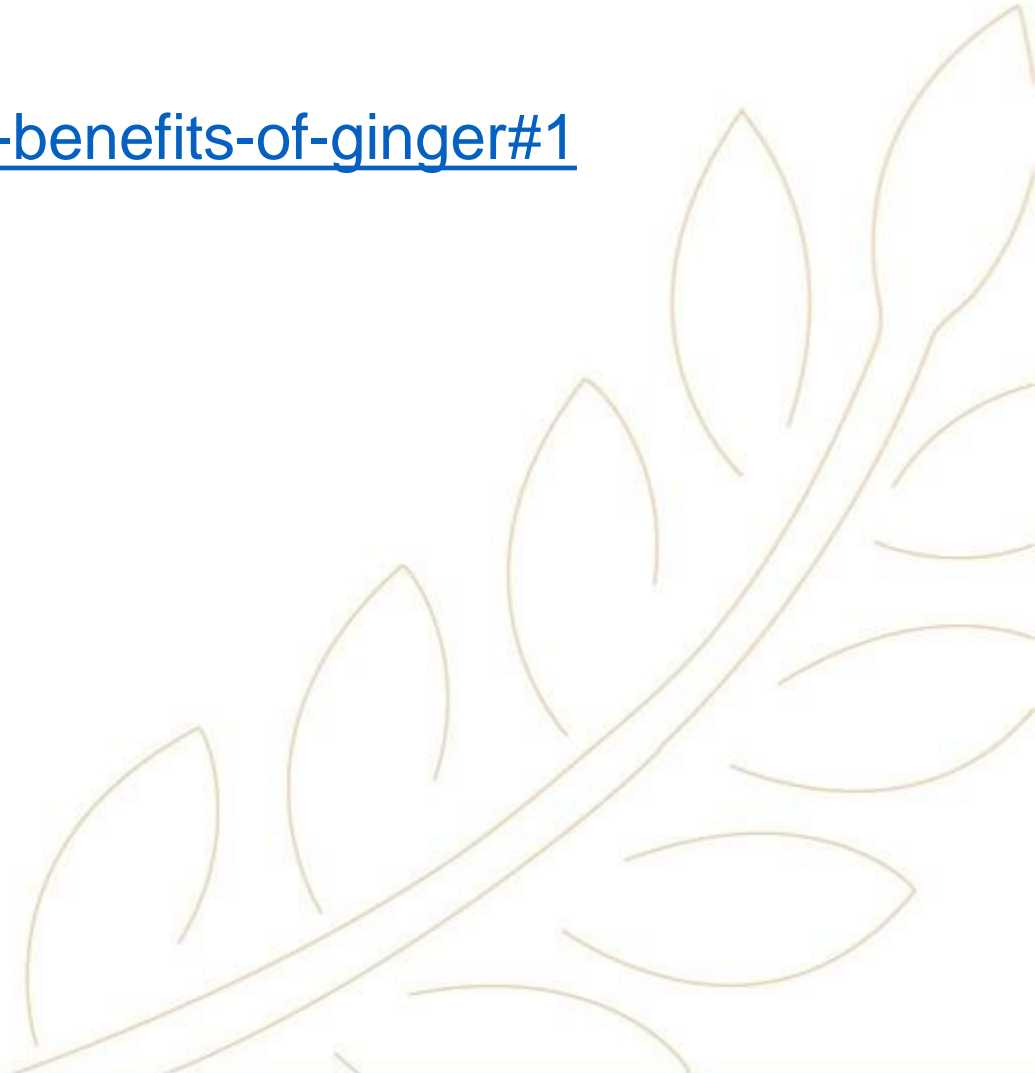
References:

1. Trease & Evans' Pharmacognosy by William Charles Evans, 2002.
 2. Fundamentals of Pharmacognosy and Phytotherapy by Michael Heinrich, Joanne Barnes, Simon Gibbons, and Elizabeth M. Williamson, 2004.
 3. Botany :An introduction to Plant Biology, Third edition by James D. Mauseth, 2008.
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Useful links:

<https://www.healthline.com/health/video/11-proven-benefits-of-ginger#1>

<https://www.youtube.com/watch?v=tFxbSs8PrZ8>



THANK YOU!