



MSA UNIVERSITY
معة أكتوبر للعلوم الحديثة والآداب

Pharmacognosy

PHG 112

Spring 2026

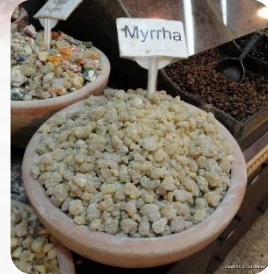
Pharmacognosy

PHG 112



potato tubers

βοτάνοι κνίβη



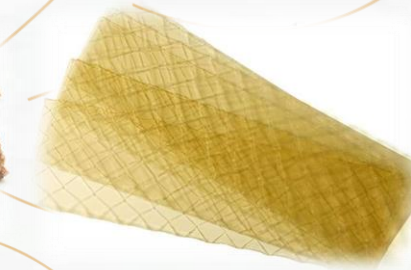
ginger rhizome

βιζοει κνίβη

Spring 2026

Lab 12

Pharmacognosy II Scheme



Intended Learning Outcomes (ILOs)

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

- 1. Differentiate powdered crude drugs** based on macroscopic characteristics (color, odor, taste, and physical condition) with justified classification criteria.
- 2. Perform systematic microscopic examination** of plant powders using appropriate mounting media (water, KOH, and phloroglucinol–HCl) and interpret observed structures.
- 3. Identify diagnostic anatomical elements** (e.g., trichomes, starch granules, calcium oxalate crystals, fibers, cork cells) and relate them to specific plant sources.
- 4. Apply analytical schemes for powder identification**, distinguishing between closely related drugs (e.g., *Mentha* vs. *Lobelia*; *Ginger* vs. *Liquorice* vs. *Rhubarb*) using logical decision pathways.
- 5. Accurately determine the origin and pharmacological uses** of selected crude drugs based on observed morphological and microscopic features.
- 6. Recognize and identify common pharmacognostic spot samples**, integrating visual recognition with knowledge of their botanical origin and therapeutic applications.

Practical exam II

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graph TD; A[Practical exam II] --- B[Powder identification]; A --- C[Spots]
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Powder identification

Spots

I. Powder Identificationc

Physical characters:

Condition:....

Color:...

Odor:...

Taste:.....

Microscopically examination:

Mount in water.....

Mount in KOH.....

Mount in phlouroguinol +HCL

Comment.....

Diagnostic element (3 key elements):

Name.....

Origin

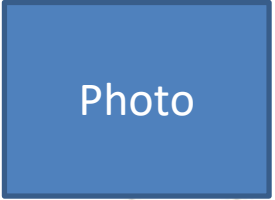
Uses.....

Spot 1

Name.....

Origin.....

Use:.....

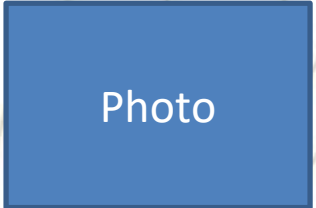


Spot 2

Name.....

Origin.....

Use:.....

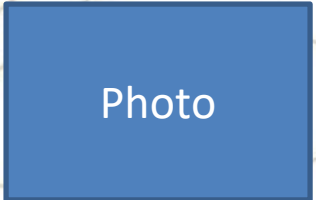


Spot 3

Name.....

Origin.....

Use:.....



I. Powder Identification



Exam requirements

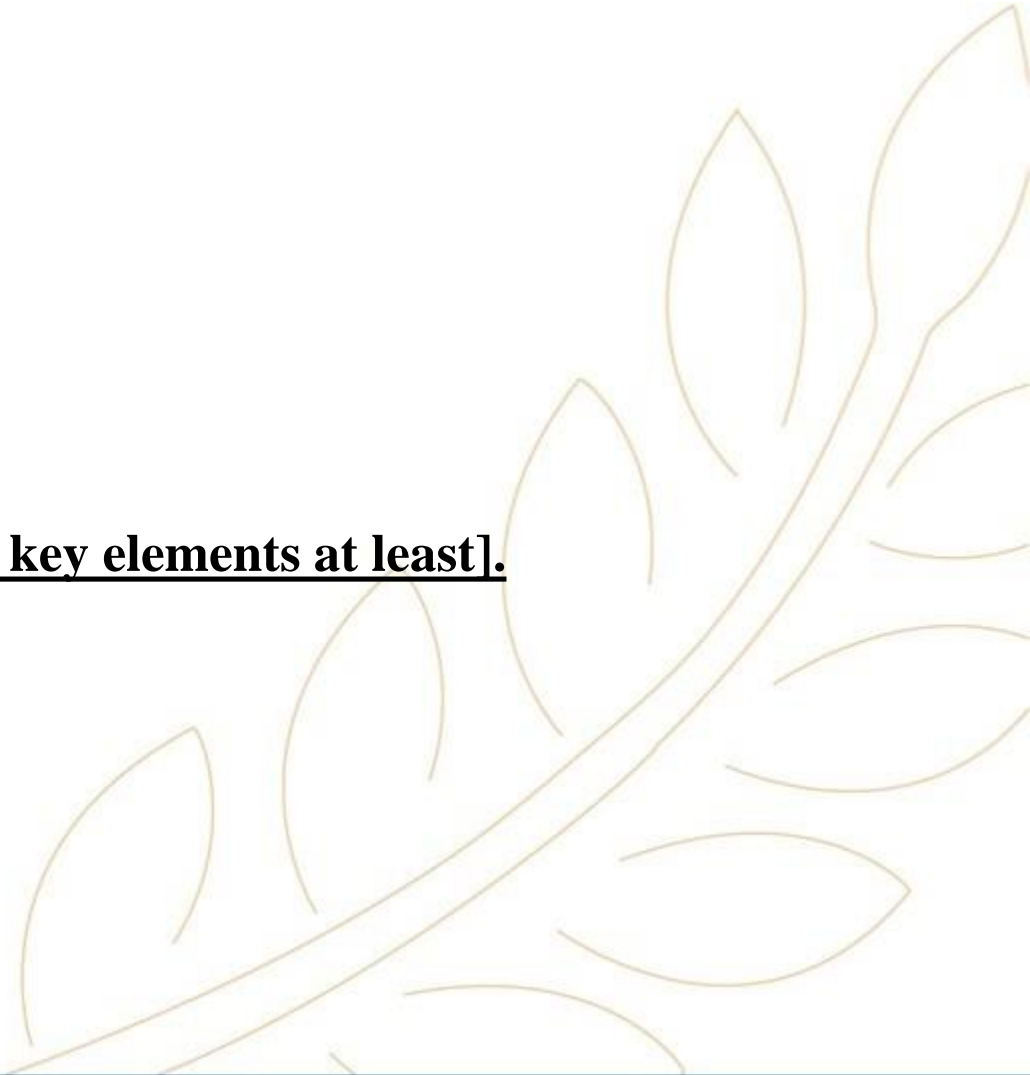
A. Exam sheet:

Physical characters.

- Origin.

- Microscopical characters [Diagnostic element (3 key elements at least)].

- Uses



Exam requirements

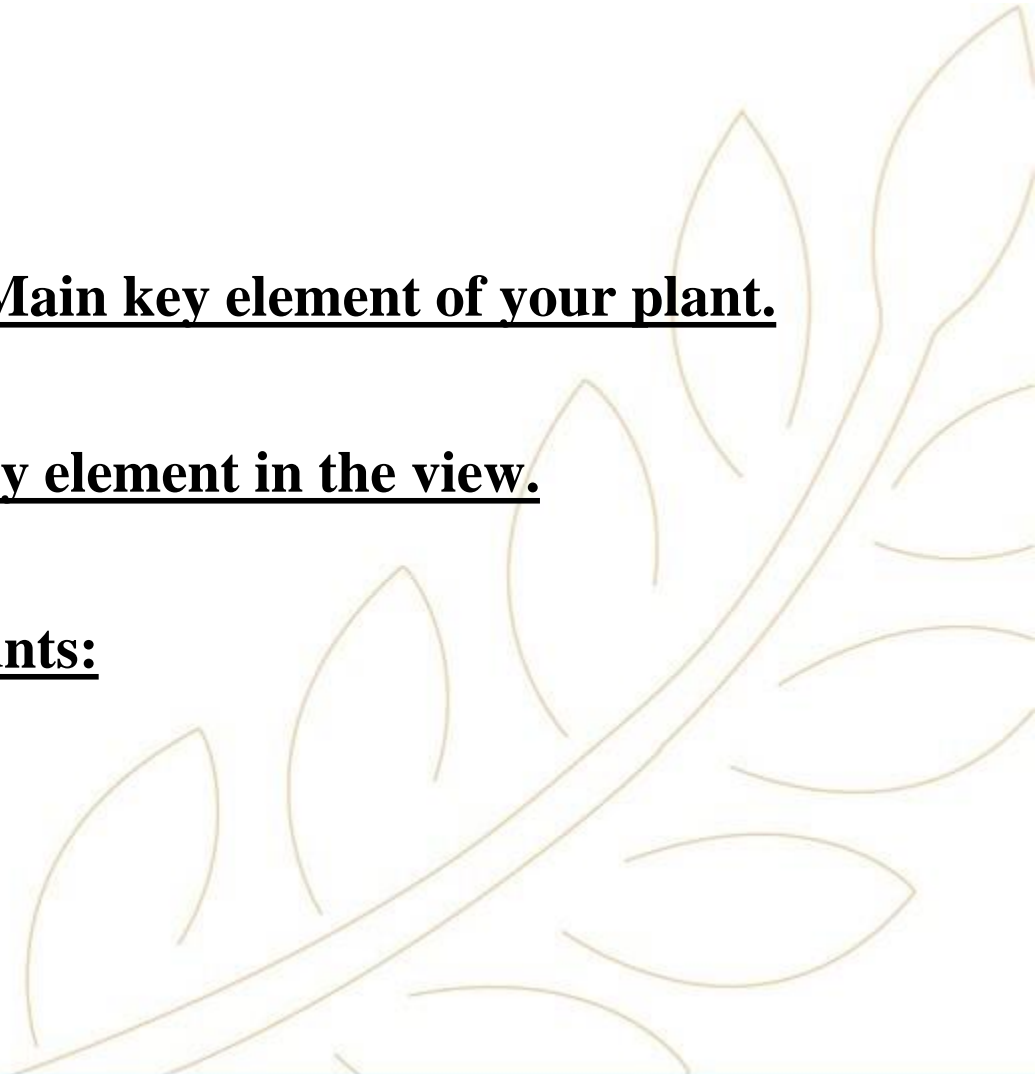
B. Microscope:

You have to fix your microscope on a view showing the Main key element of your plant.

The slide have to be clean and not crowded with clear key element in the view.

Write down the key elements shown in the different mounts:

Water- Phloroglucinol -KOH



Powder

Herbs



Mentha

Lobelia



Subterranean

Liquorice



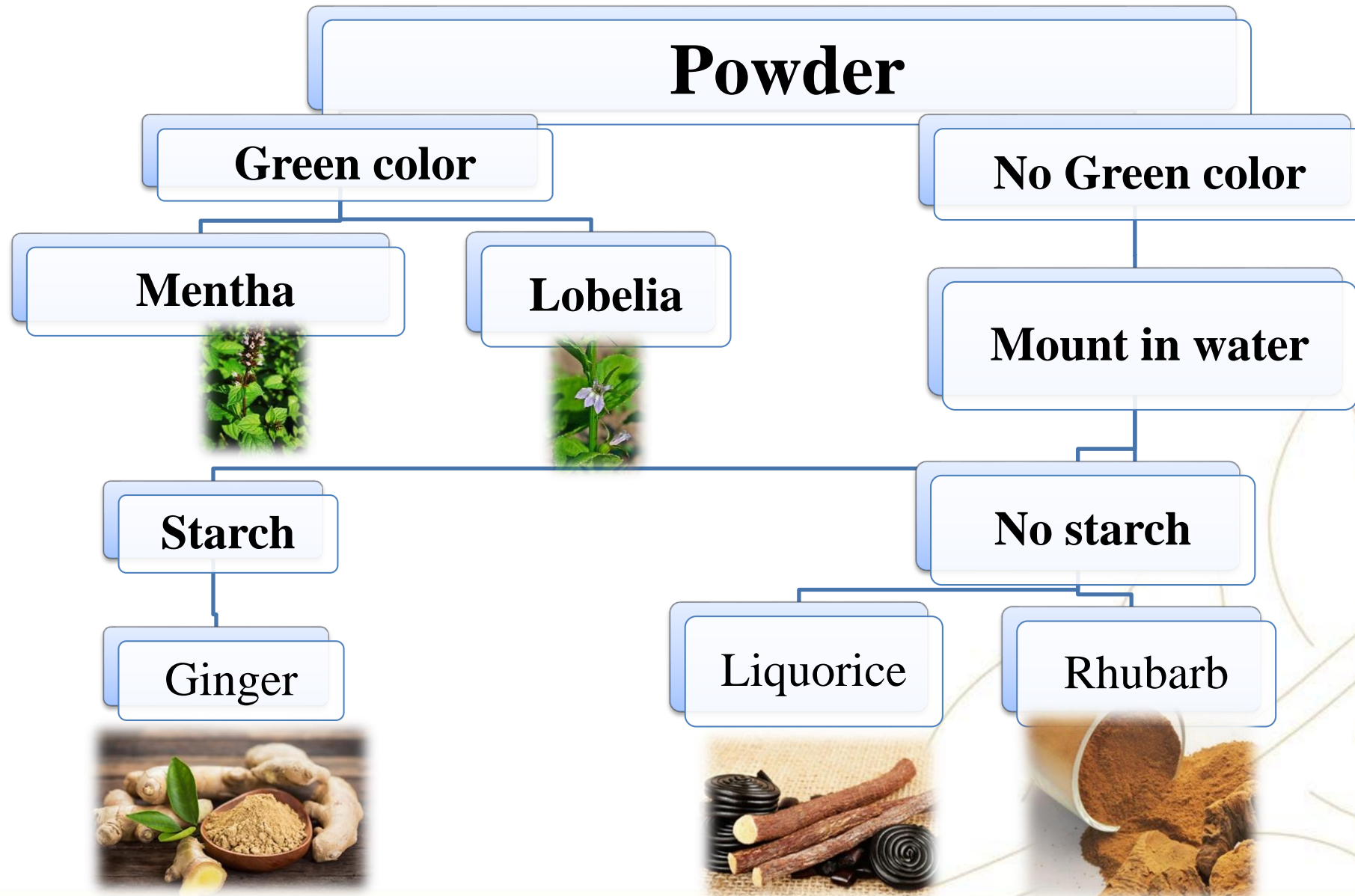
Rhubarb



Ginger



I. SCHEME FOR POWDER



Green Powder

Mentha

Condition: Fine powder.

Colour: Olive Green.

Odor: Aromatic.

Taste: Aromatic followed by cold sensation



Lobelia

Condition: Fine powder.

Colour: Light Green.

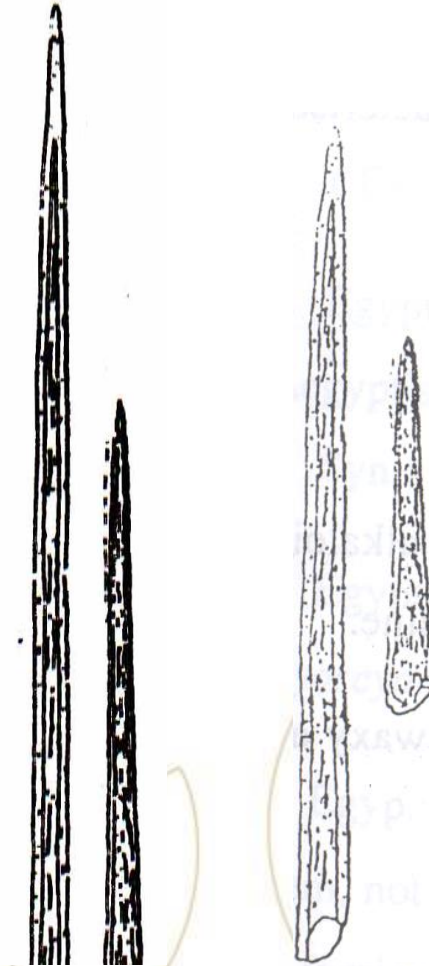
Odor: Irritant odor.

Taste: Burning acrid.



If lobelia you will see under the microscope:

Non glandular trichome

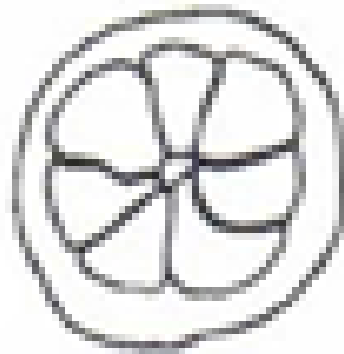


Powder + KOH (boil)

Mentha

If Mentha you will see under the microscope:

Labiaceous hair



Red color with KOH solution

Rhubarb

Condition: Powder

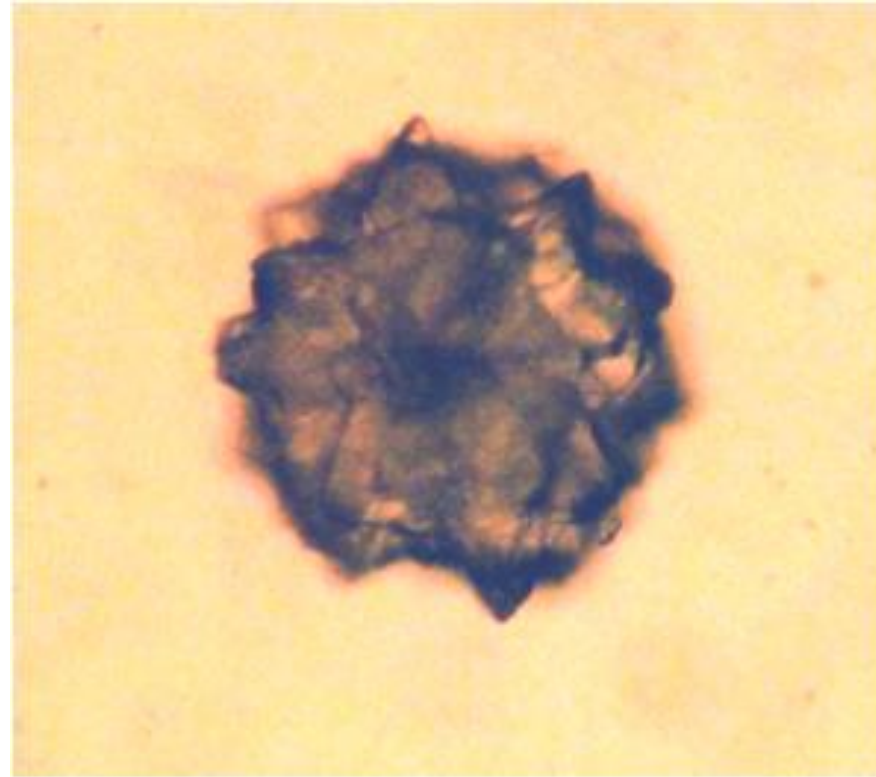
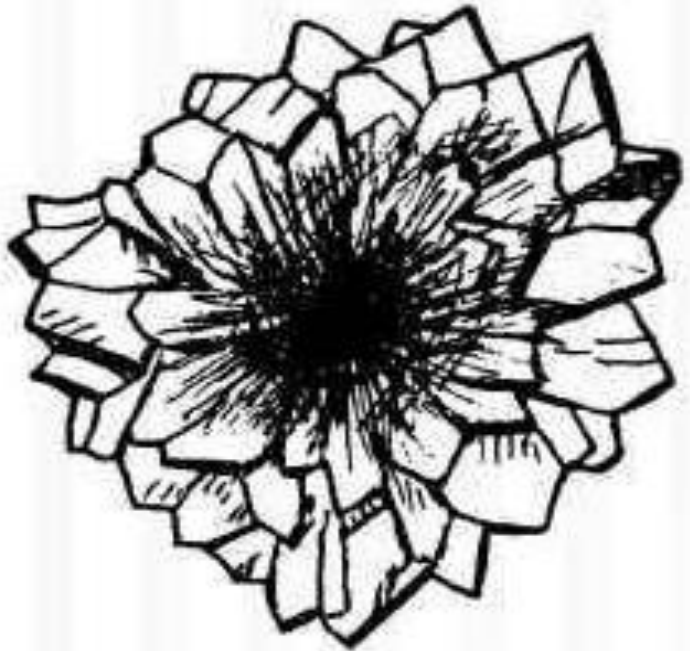
Colour: Reddish brown

Odour: Aromatic odour

Taste: Bitter astringent with gritty taste.



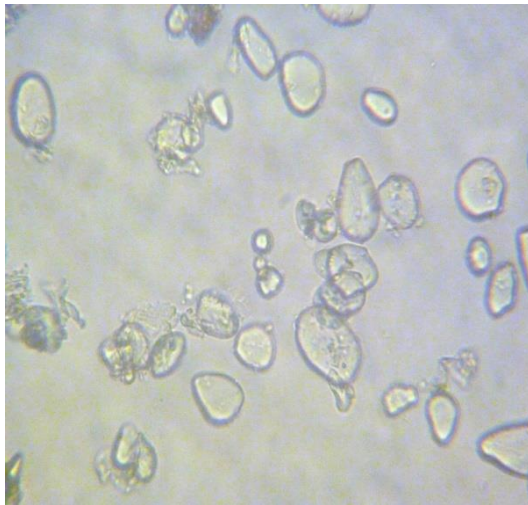
**If Rhubarb you will see under the
microscope:
Cluster crystals of CaOX**



Powder with mount in water

Starch of Ginger

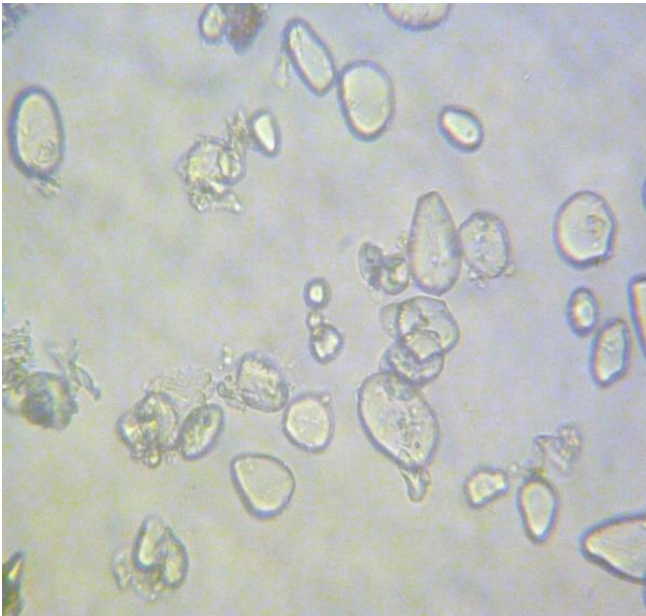
Condition: Powder
Colour: Yellowish brown
Taste: Pungent taste
Odour: Aromatic



If Ginger you will see under the microscope:

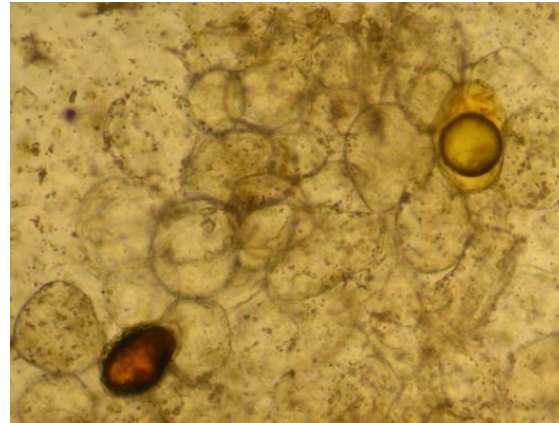
Water mount

Staminecious starch

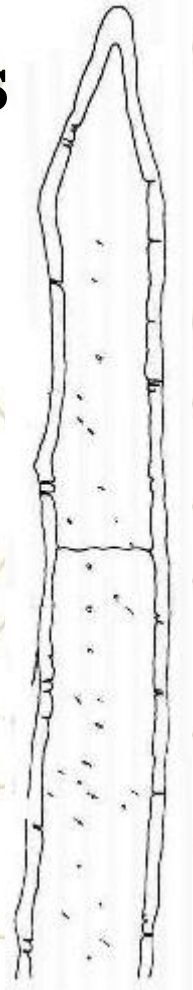
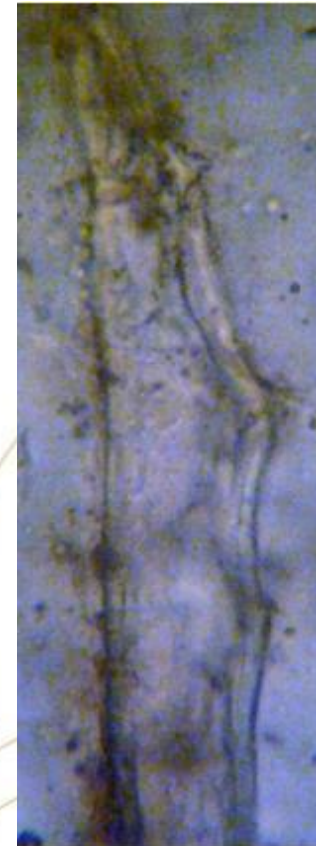


KOH mount

Oleo-resin cells

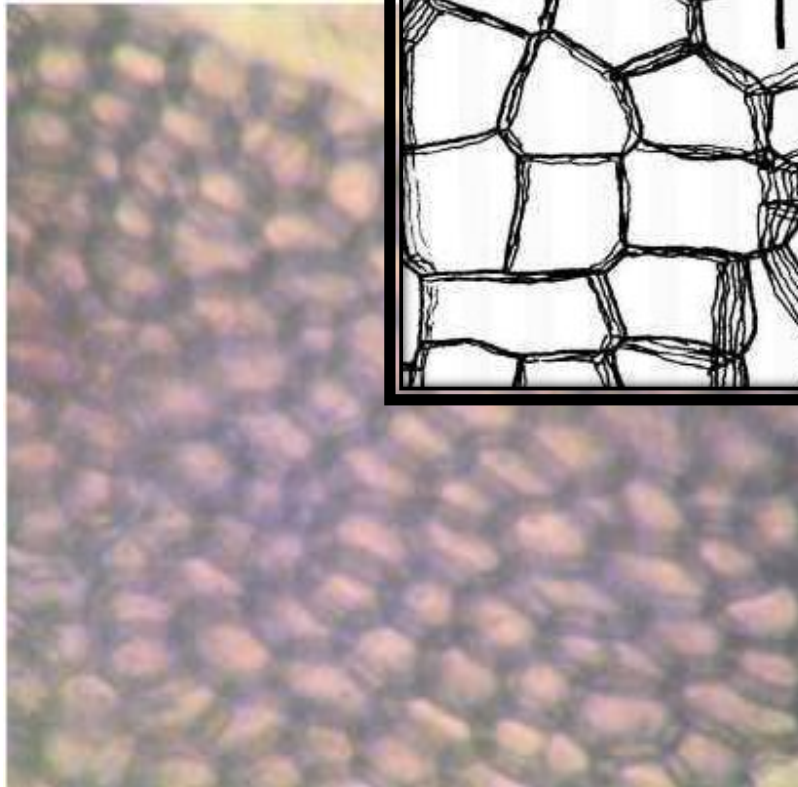


Septate fibers

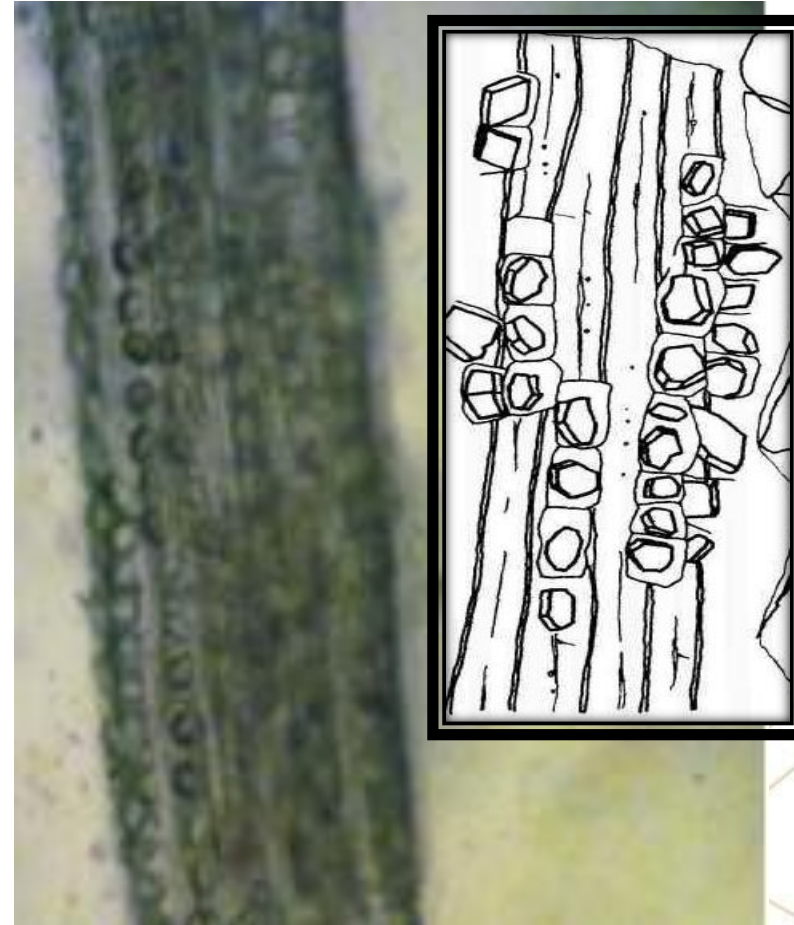


If Licorice you will see under the microscope:

KOH mount



Cork cells



Crystal sheath

C. Spots exam:



Aloe



Lobelia



Rosemary



Ginger



Rhubarb



Myrrh



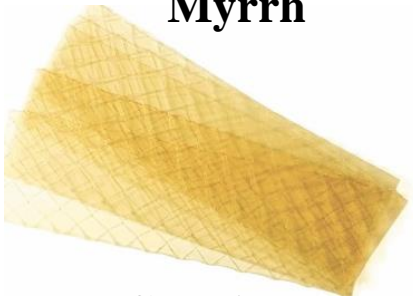
Thyme



Ashwangda



Liquorice



Gelatin



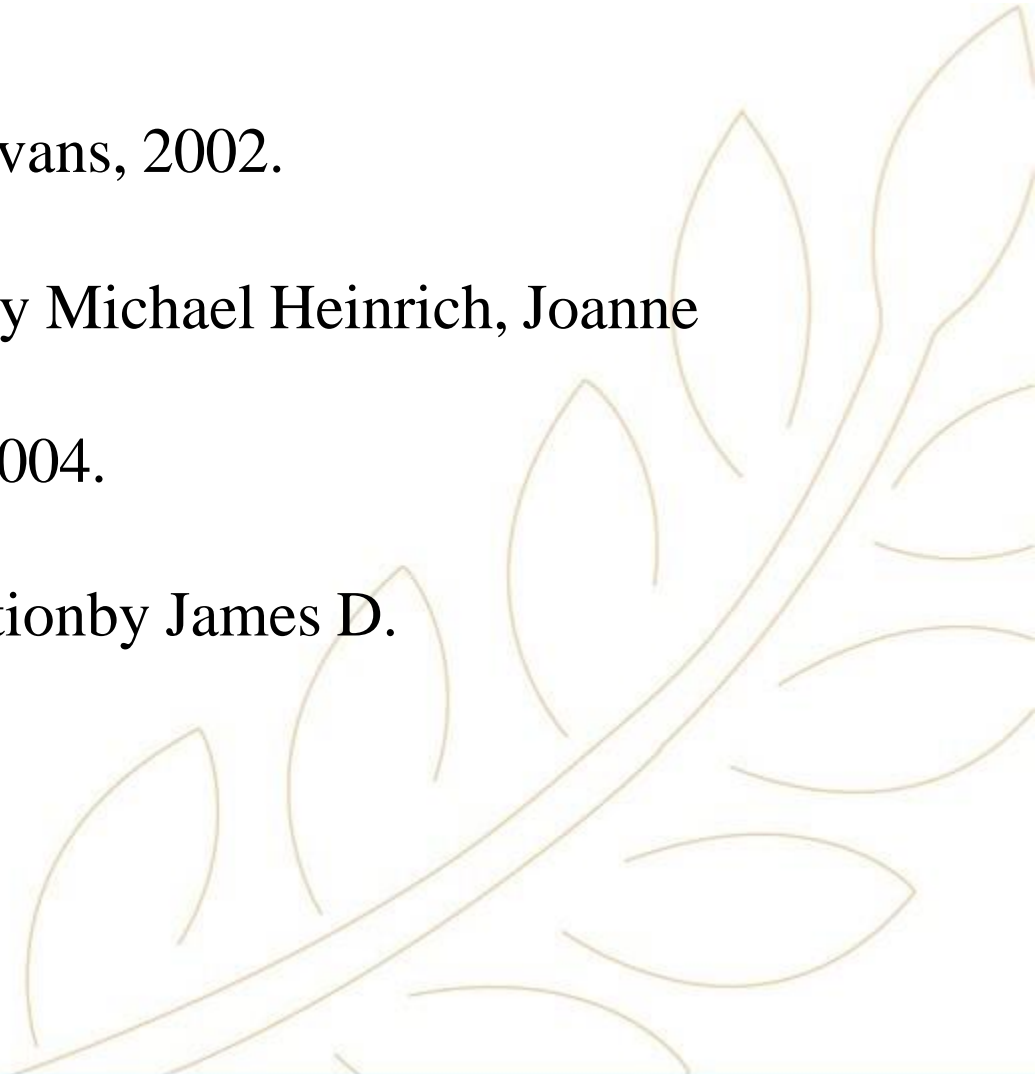
Mentha



**Turmeric
(Curcuma)**

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.



THANK YOU!