



MSA UNIVERSITY  
معة أكتوبر للعلوم الحديثة والآداب

# *Pharmacognosy*

PHG 112

Spring 2026

# Pharmacognosy

PHG 112



potato tubers



ginger rhizome

Spring 2026

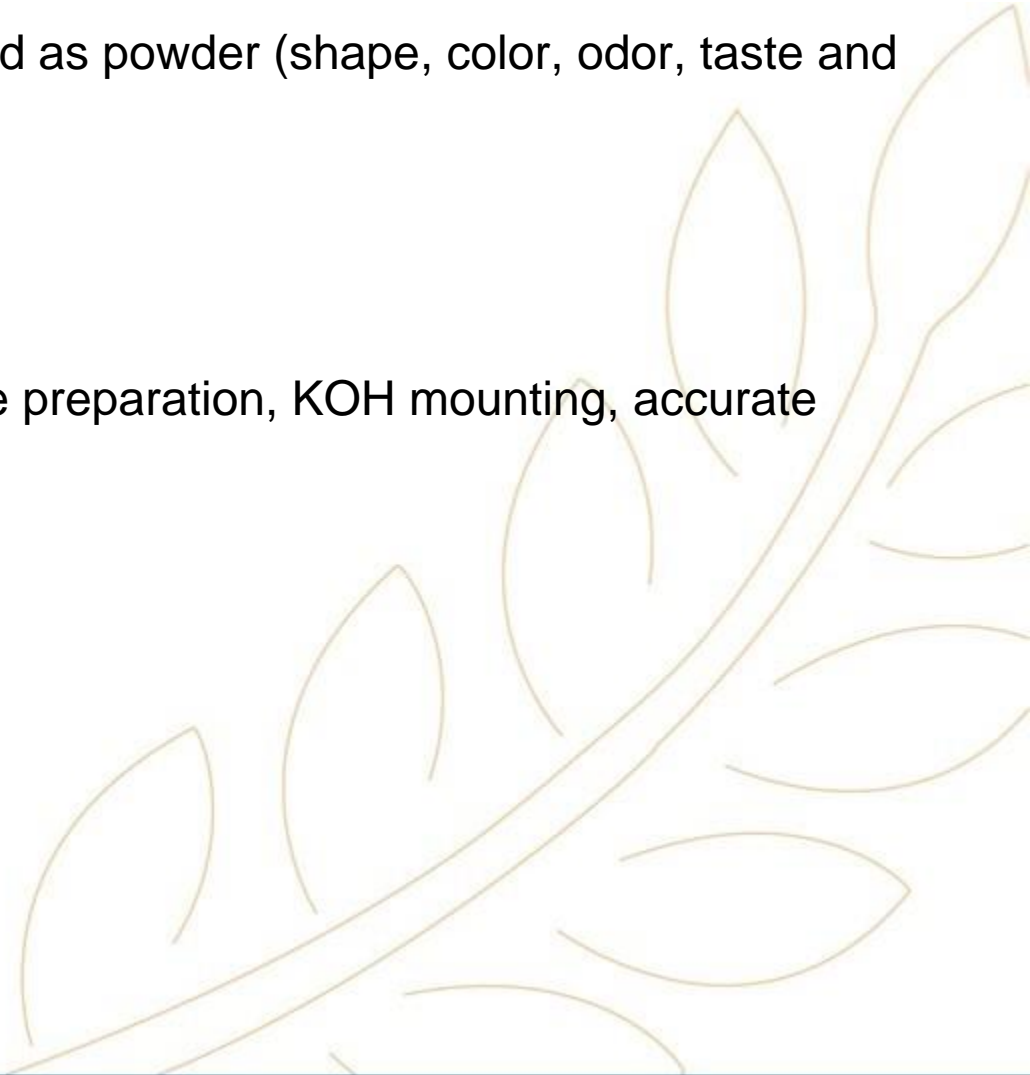
# Lab 9



# Intended Learning Outcomes (ILOs)

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

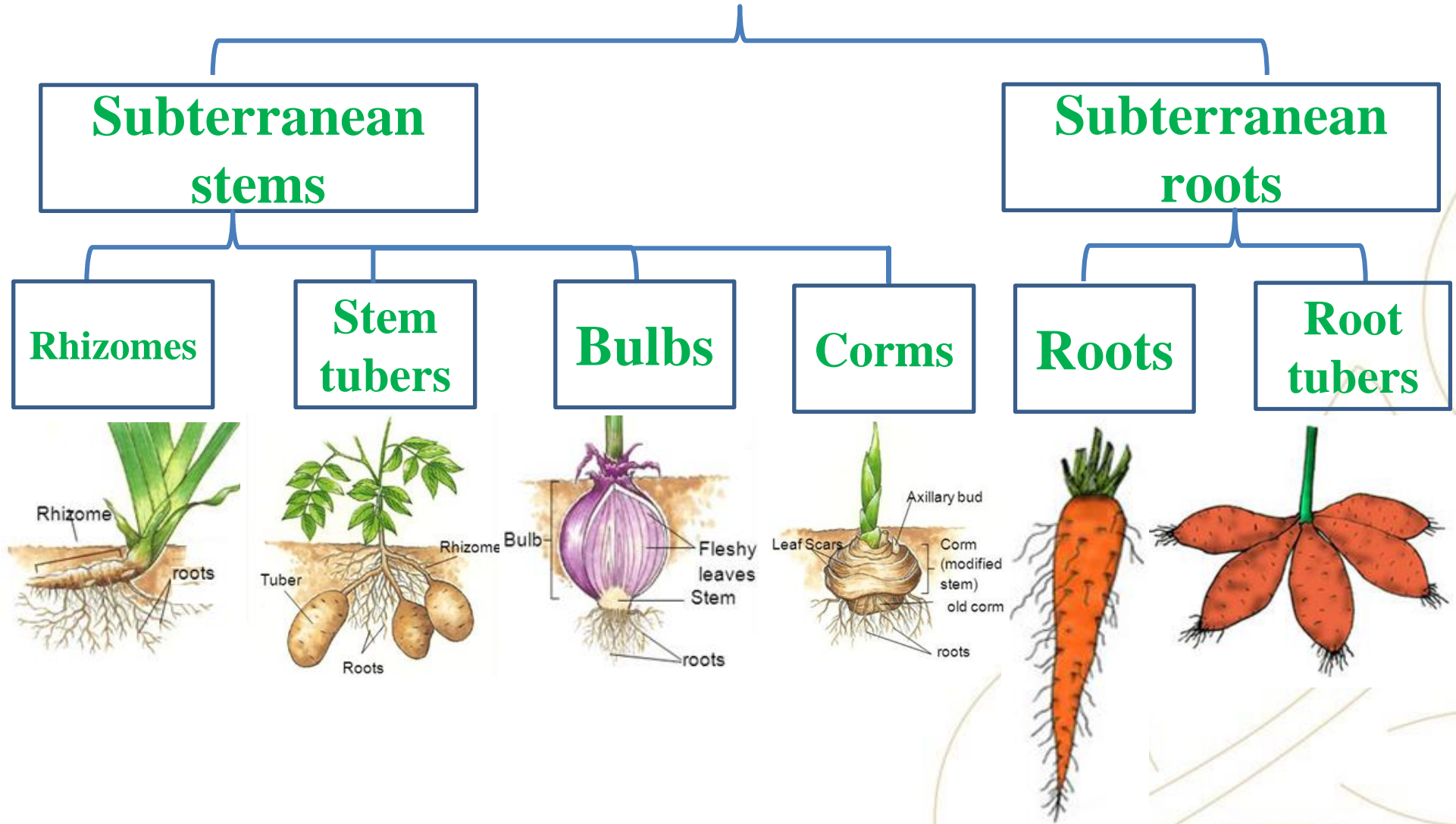
1. **Describe the macroscopic morphology of *Rhubarb*** entire and as powder (shape, color, odor, taste and surface characters).
2. **Identify the microscopic diagnostic features *Rhubarb*.**
4. **Apply proper laboratory skills and safety rules**, including slide preparation, KOH mounting, accurate drawings,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



# Subterranean Organs



# Subterranean organs



# RHUBARB

# الراوند



# Rhubarb:

## Origin:

It is dried rhizome and big roots of Rheum  
palamtum, Rheum officinale and all Rheum species  
except Rheum raponticum Family *Polygonaceae*  
deprived of cork and outer cortex.

# Powder:

## Physical characters:

Condition: Powder

Colour : Reddish brown

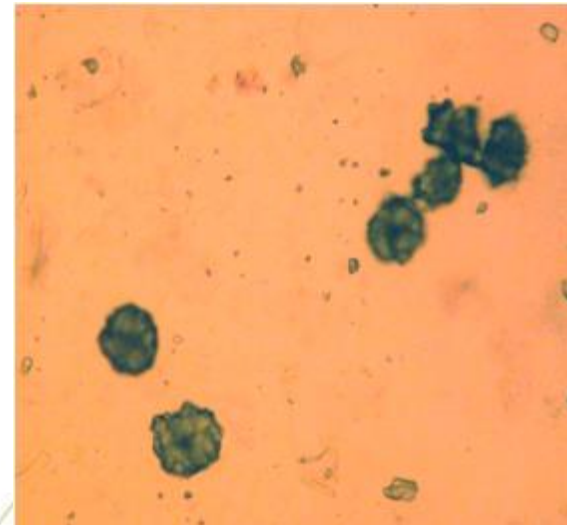
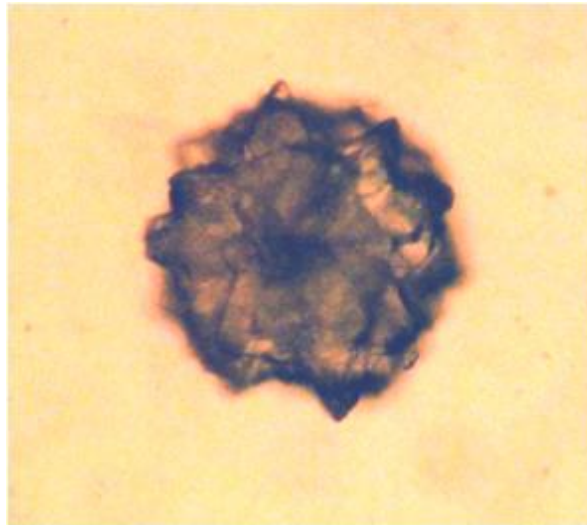
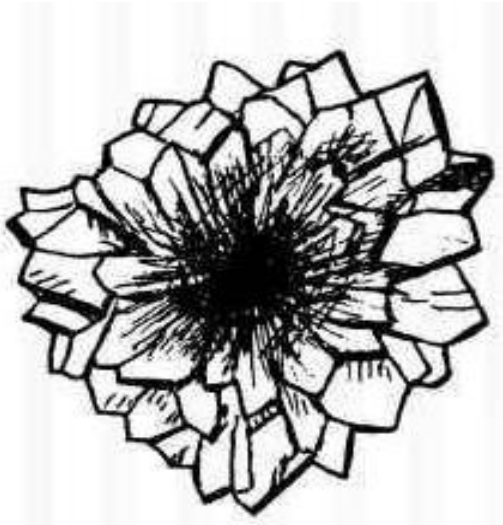
Odour: Aromatic odour

Taste: Bitter astringent with gritty taste



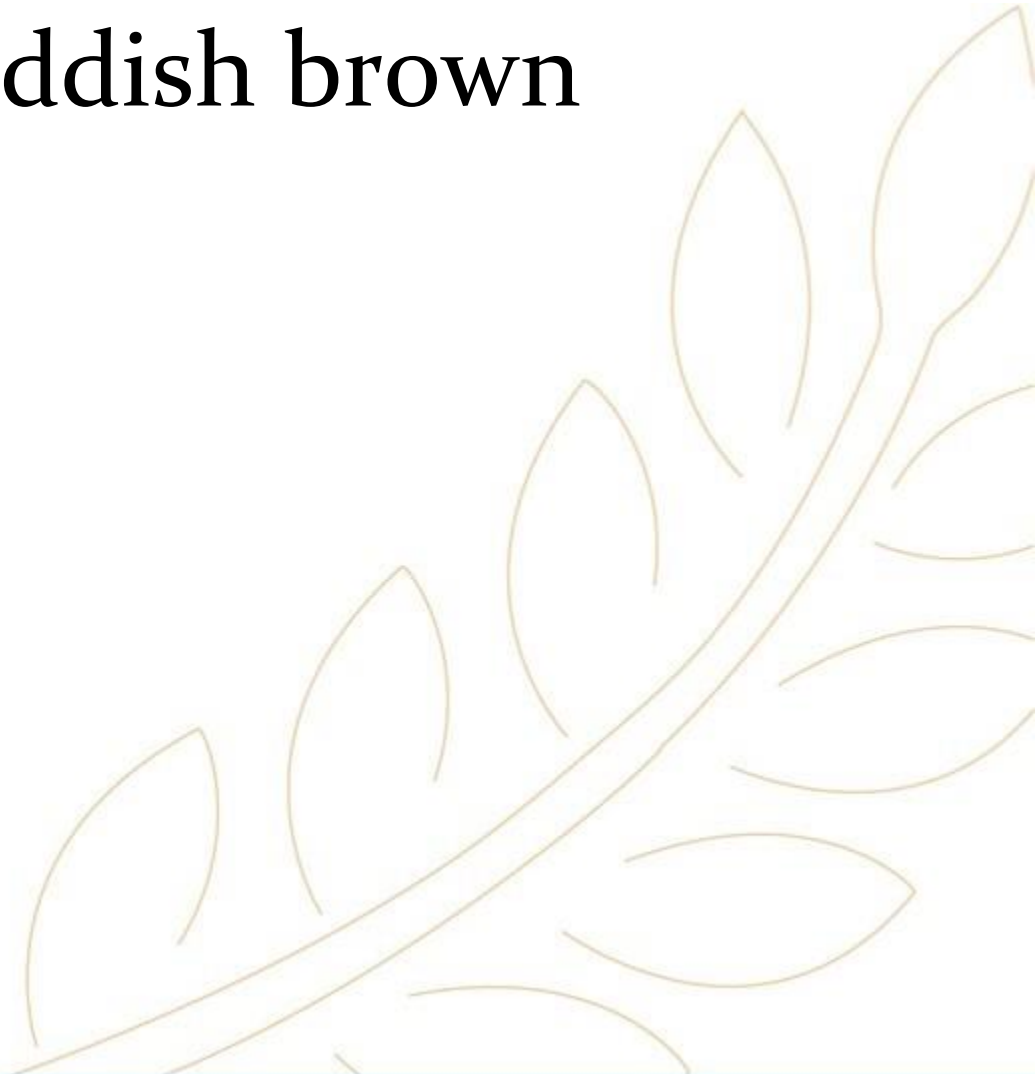
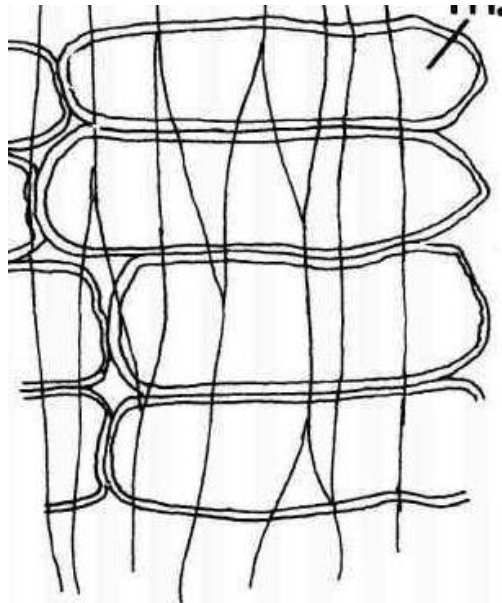
# Key elements:

- 1) Cluster crystals of CaOX coming from phelloderm



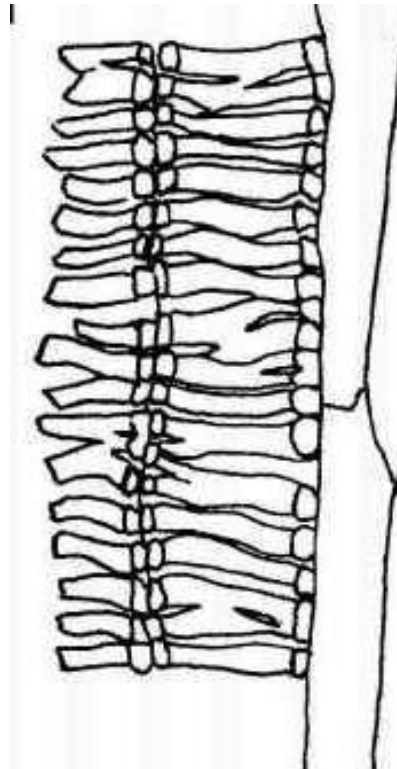
# Key elements:

2) Medullary rays with reddish brown content



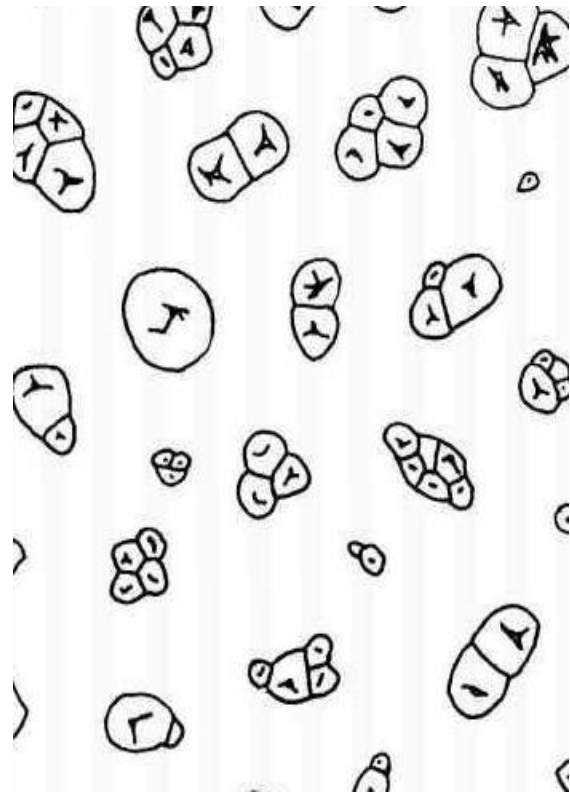
# Key elements:

3) Broad non lignified reticulate xylem vessels



## Key elements:

4) Mullar shaped starch granules with fissured hilum.

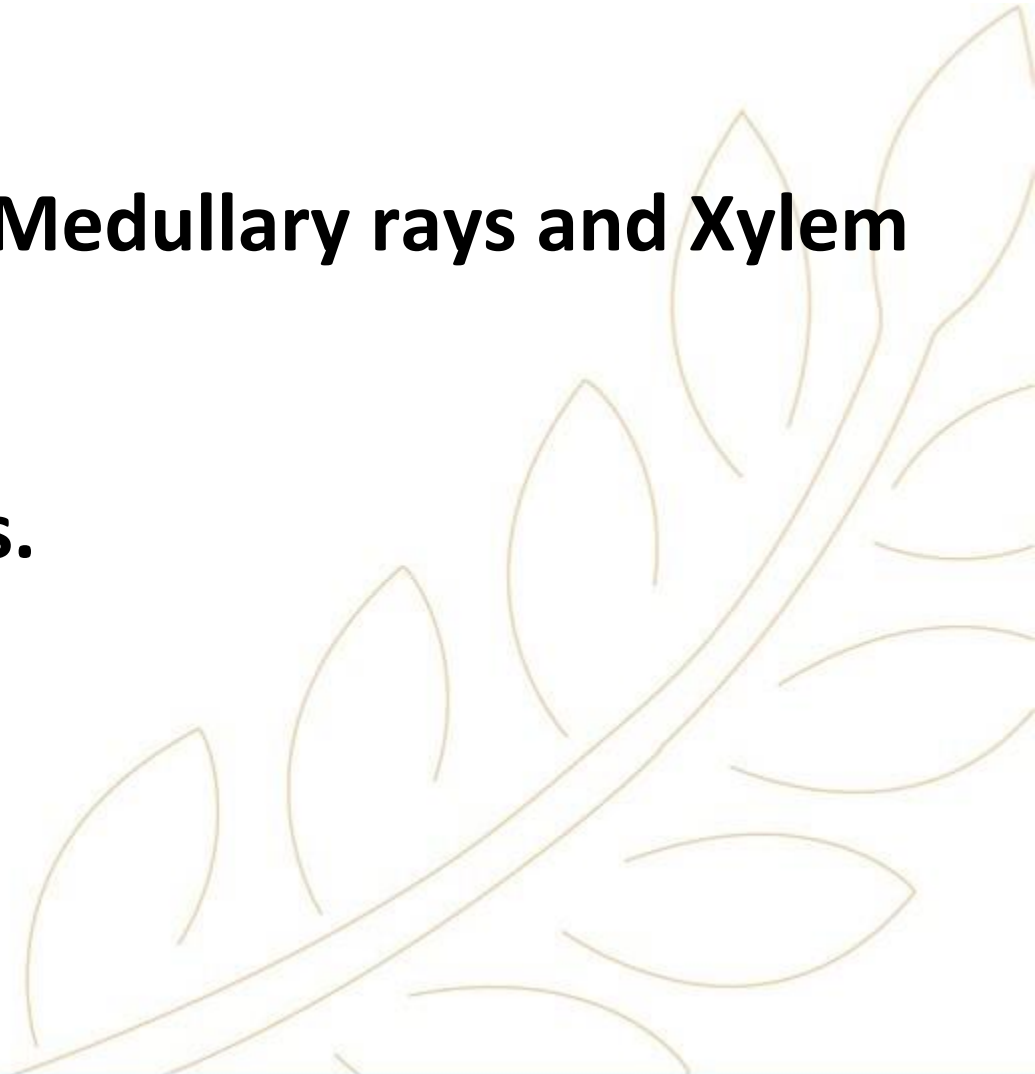


# Microscopical Character:

**Mount in KOH:** Cluster crystals of CaOX, Medullary rays and Xylem vessels.

**Mount in phloroglucinol :** Xylem vessels.

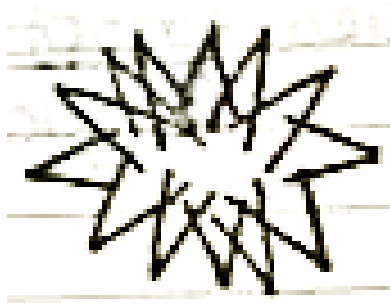
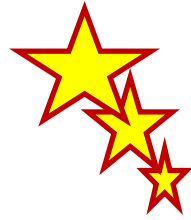
**Mount in Water:** Starch granules.



# Main Key Elements Drawings:

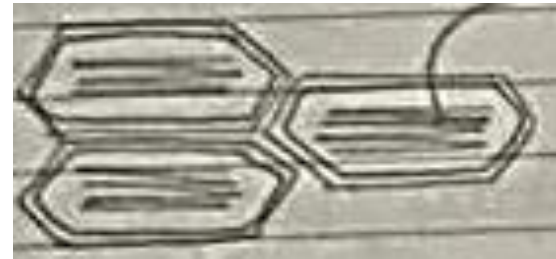
1

Cluster crystals of CaOX.



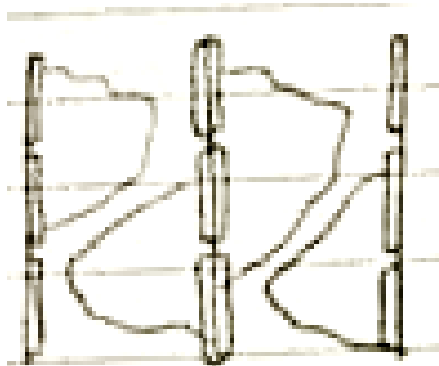
2

Medullary rays.



3

Xylem vessels

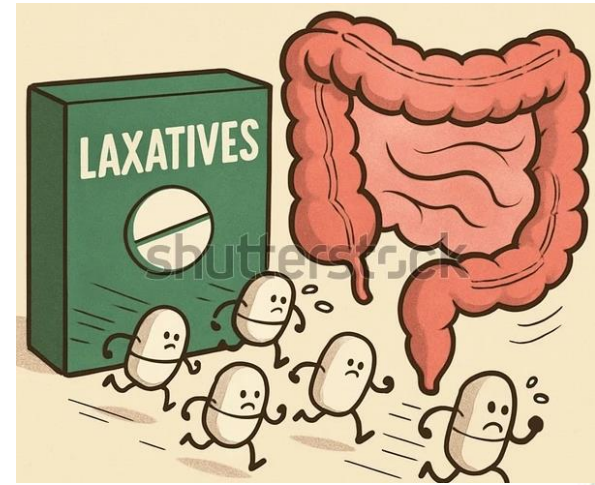


4

Starch granules



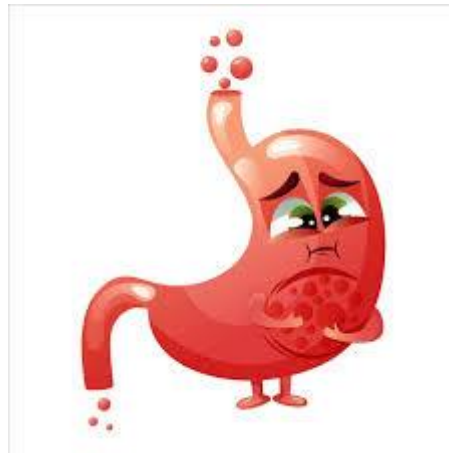
# Uses



**1- Laxative (in small dose).**

**2- In large dose purgation followed by astringent effect due to tannins.**

**3- Bitter stomachic.**



## Practical work:

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



**Boil**

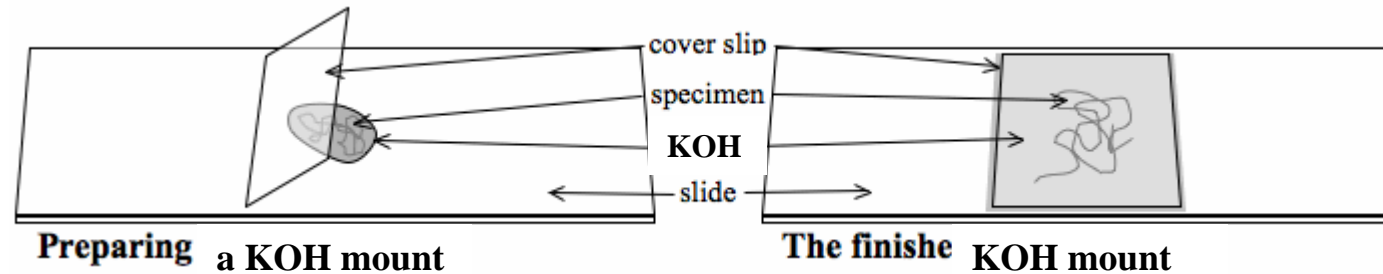


**5 ml of KOH**

**1/4 spatula of powder**

## Practical work:

**2- Prepare your slide and check the key elements.**



**3- Complete your drawings.**

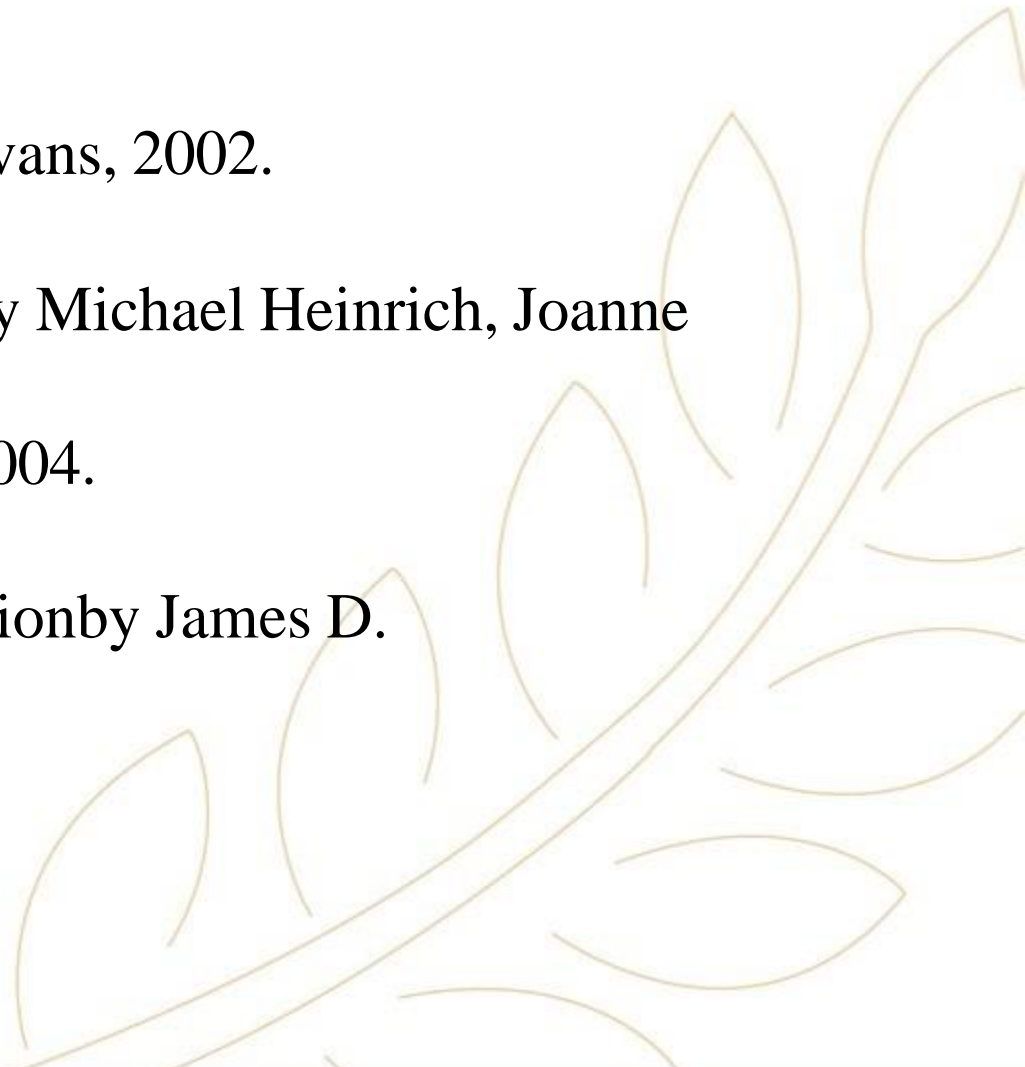
**P.S.**



**Keep your work place and tools clean.**

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

# References:

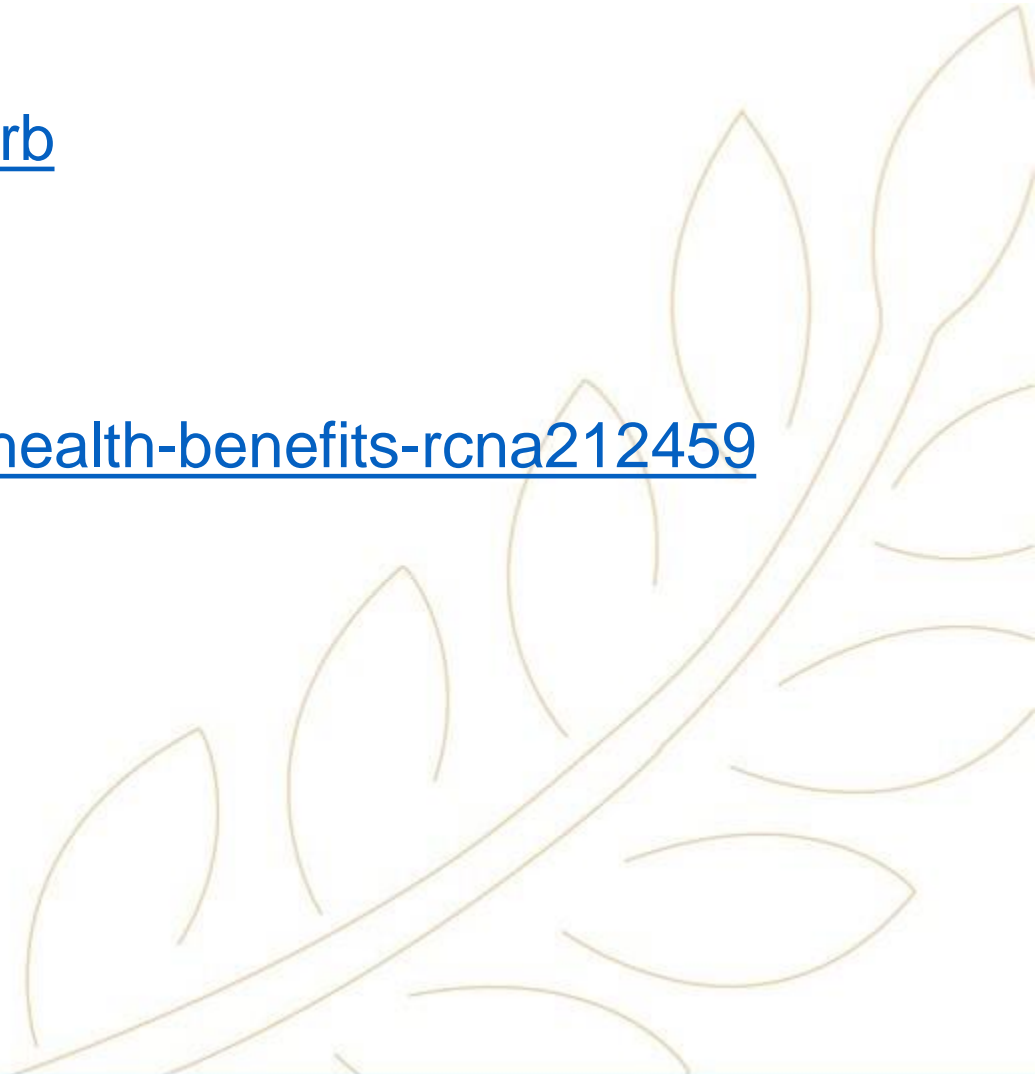
1. Trease & Evans' Pharmacognosy by William Charles Evans, 2002.
  2. Fundamentals of Pharmacognosy and Phytotherapy by Michael Heinrich, Joanne Barnes, Simon Gibbons, and Elizabeth M. Williamson, 2004.
  3. Botany :An introduction to Plant Biology, Third edition by James D. Mauseth, 2008.
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##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

<https://www.webmd.com/diet/health-benefits-rhubarb>

<https://www.healthline.com/nutrition/rhubarb>

<https://www.today.com/health/diet-fitness/rhubarb-health-benefits-rcna212459>



# THANK YOU!