



MSA UNIVERSITY
معة أكتوبر للعلوم الحديثة والآداب

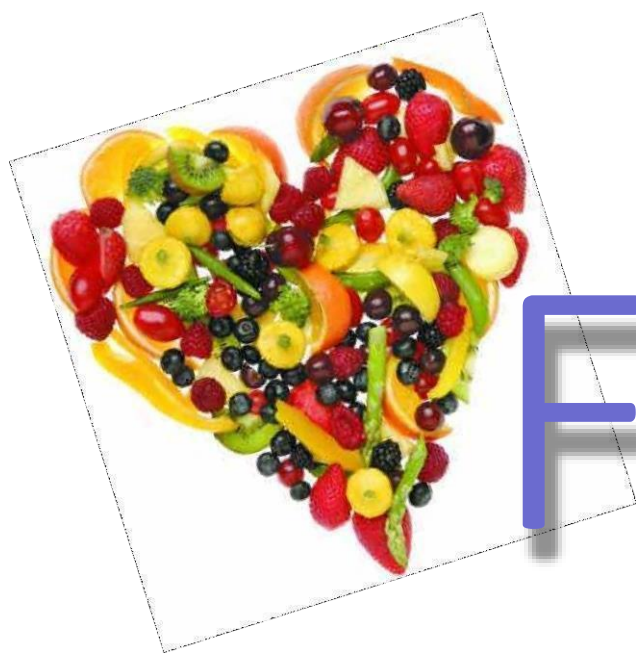
pharmacognosy

PHG 112

Fall 2026

Lab 3





Fruits



Intended Learning Outcomes (ILOs)

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

1. Performing formative quiz on previous labs (Seeds):

<https://wayground.com/admin/activity/classic/6999d7fee5804a6bb63b>

2. Describe the macroscopic morphology of *Fennel* entire and as powder (shape, color, odor, taste, surface characters, and scars).

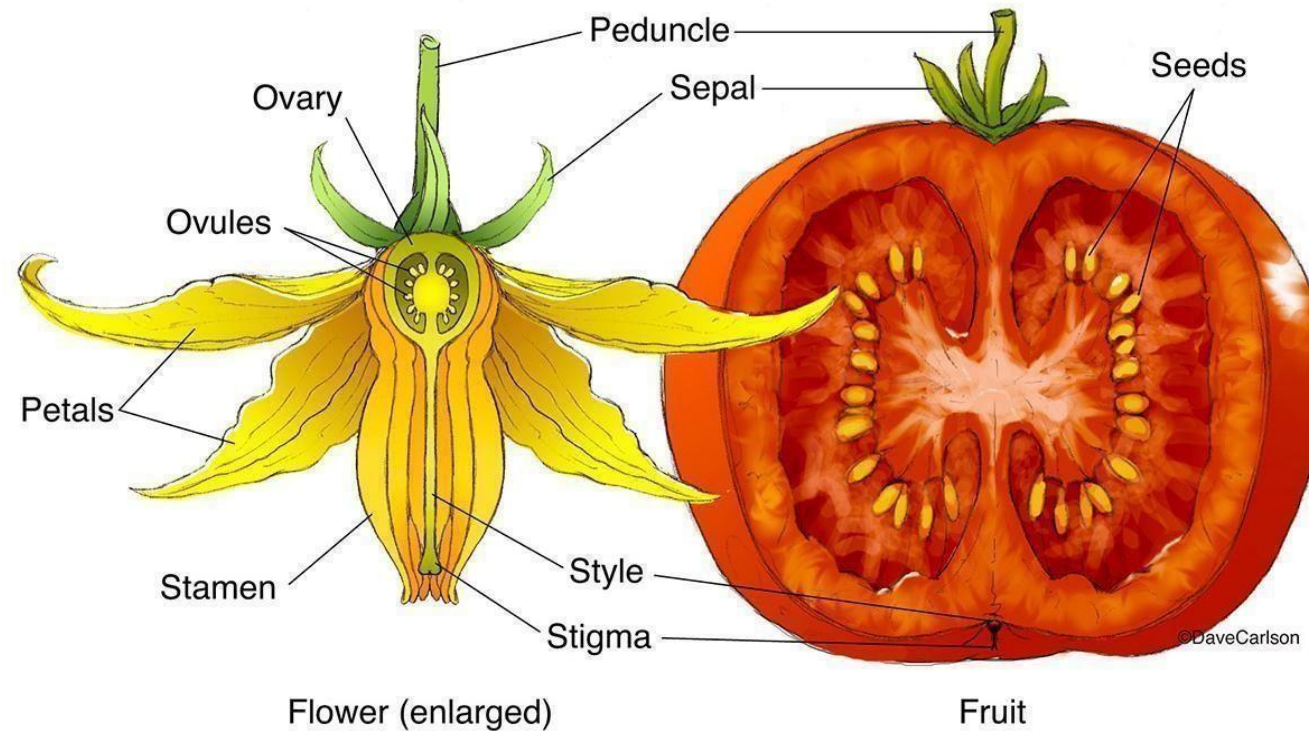
3. Identify the microscopic diagnostic features of *Fennel*, including epidermis, and hypodermis.

4. Apply proper laboratory skills and safety rules, including slide preparation, KOH mounting, accurate drawings, waste disposal, and lab conduct.

Fruits

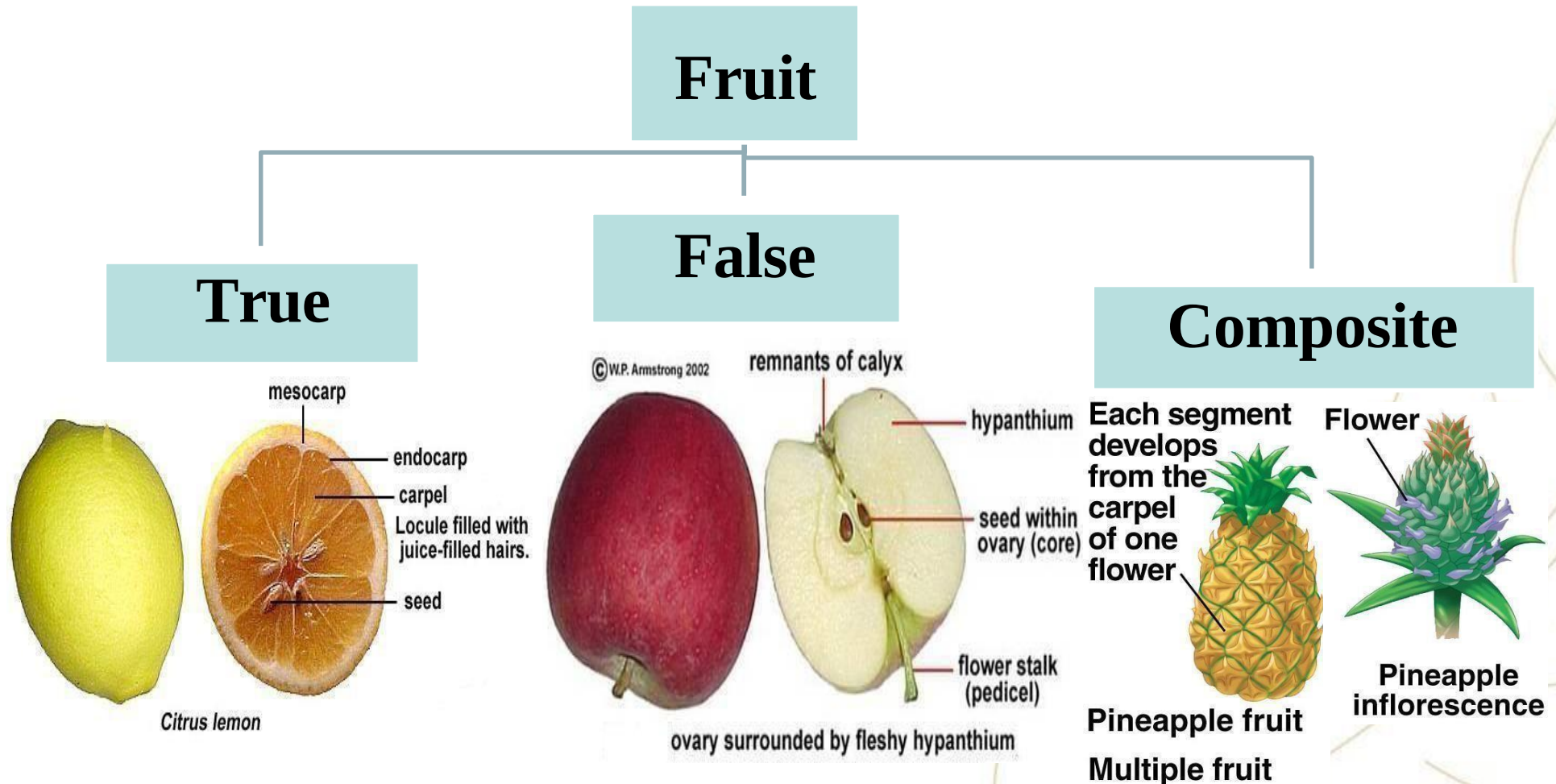
Definition:

The whole product of development of gynaecium after fertilization.



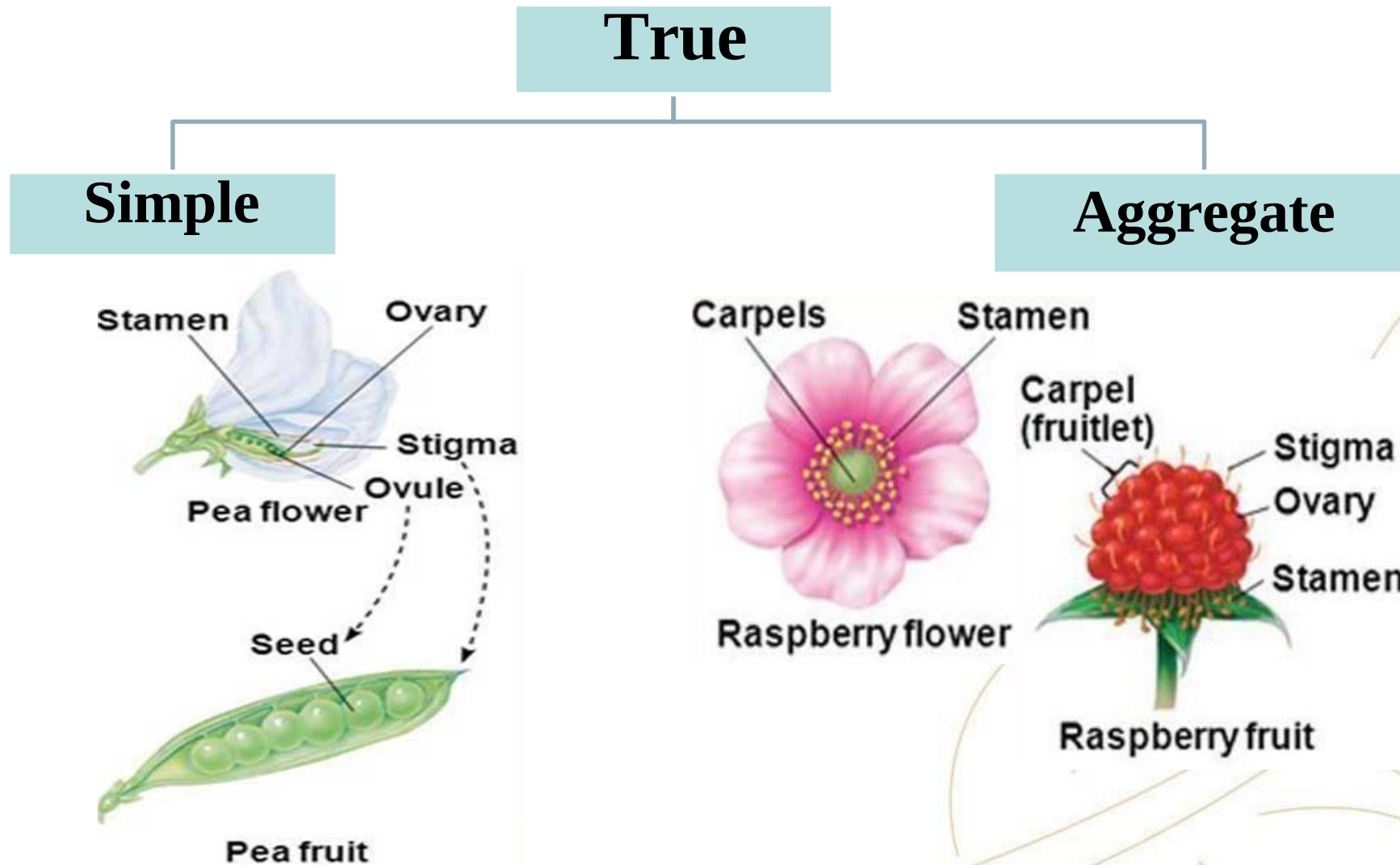
Classification

- According to the floral parts used:



Classification

- According to the type of gynaecium:

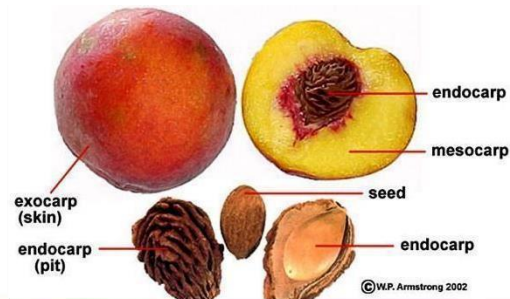
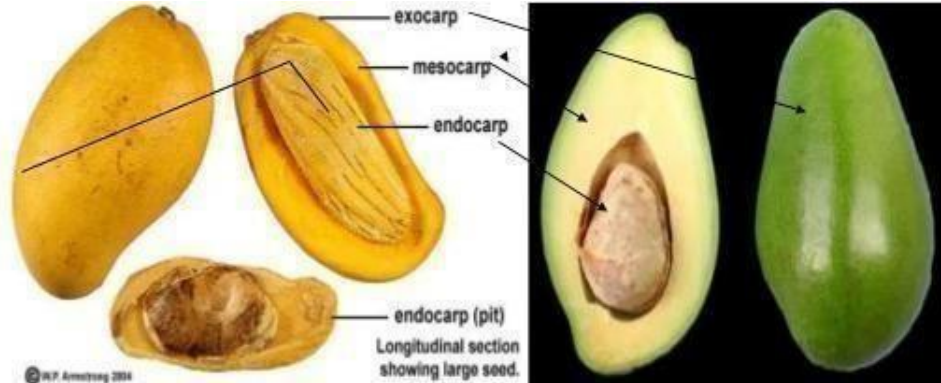


Classification

- According to the type of pericarp:

Simple

Succulent



Drupe (fleshy fruit with a stony endocarp)

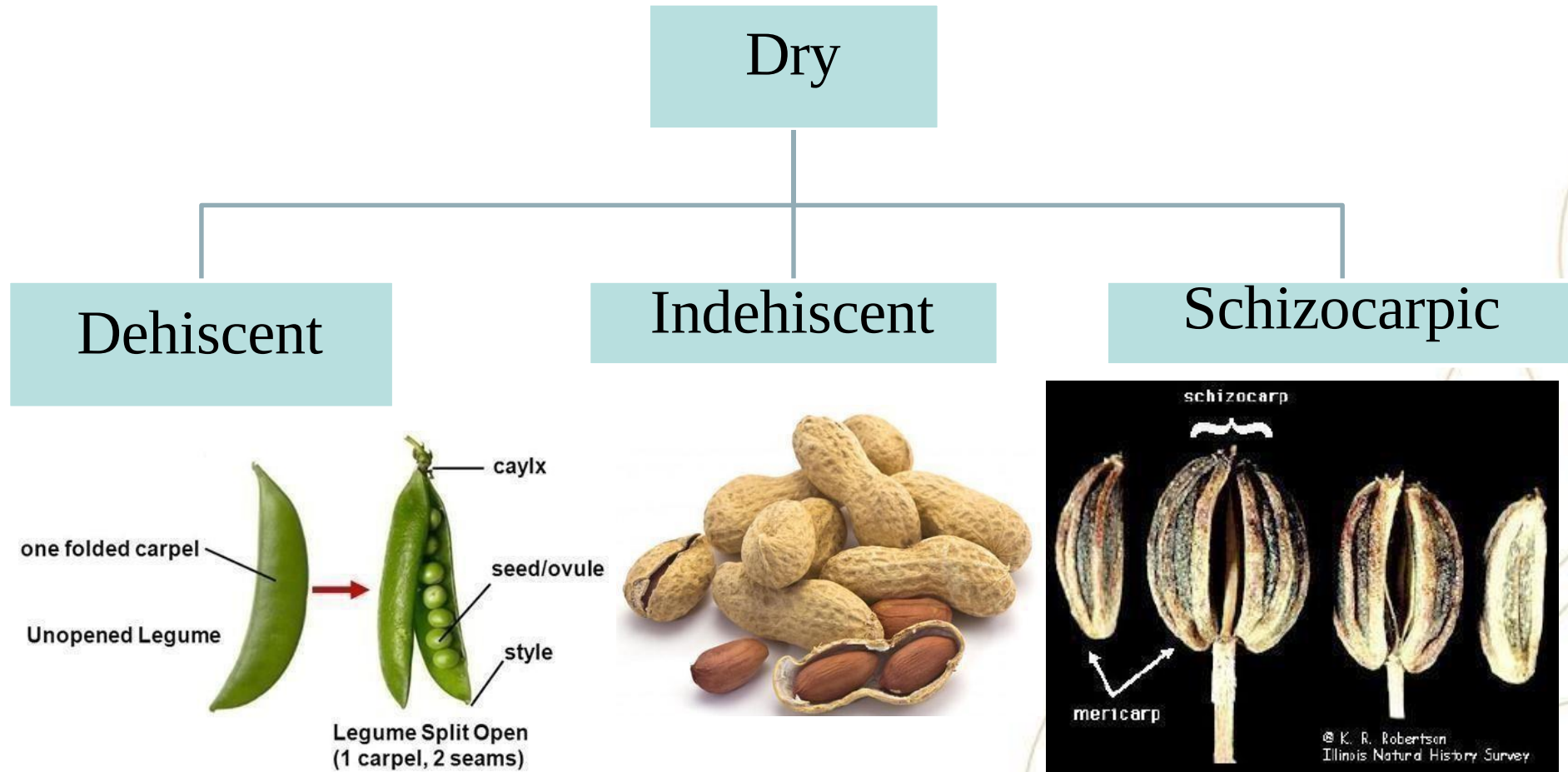
Dry



© W.P. Armstrong 2001

Classification

- According to the behavior after ripening:



A close-up photograph of a wooden bowl filled with fennel fruit seeds. The seeds are small, elongated, and have a distinct green and white striped pattern. Some seeds are scattered on the wooden surface around the bowl. The background is a warm, light brown color.

Fennel fruit



Fennel fruit



- **Origin:**

It is the dried ripe fruits of *Foeniculum vulgare* family Apiaceae (Umbelliferae).





Fennel fruit



Morphology:

- **Shape:** Cylindrical
- **Color:** Yellowish green
- **Odor:** Aromatic
- **Taste:** Sweet taste
- **Surface:** Glabrous having Primary ridge and Secondary ridge

Stylopod →

1ry ridge →

2ry ridge →

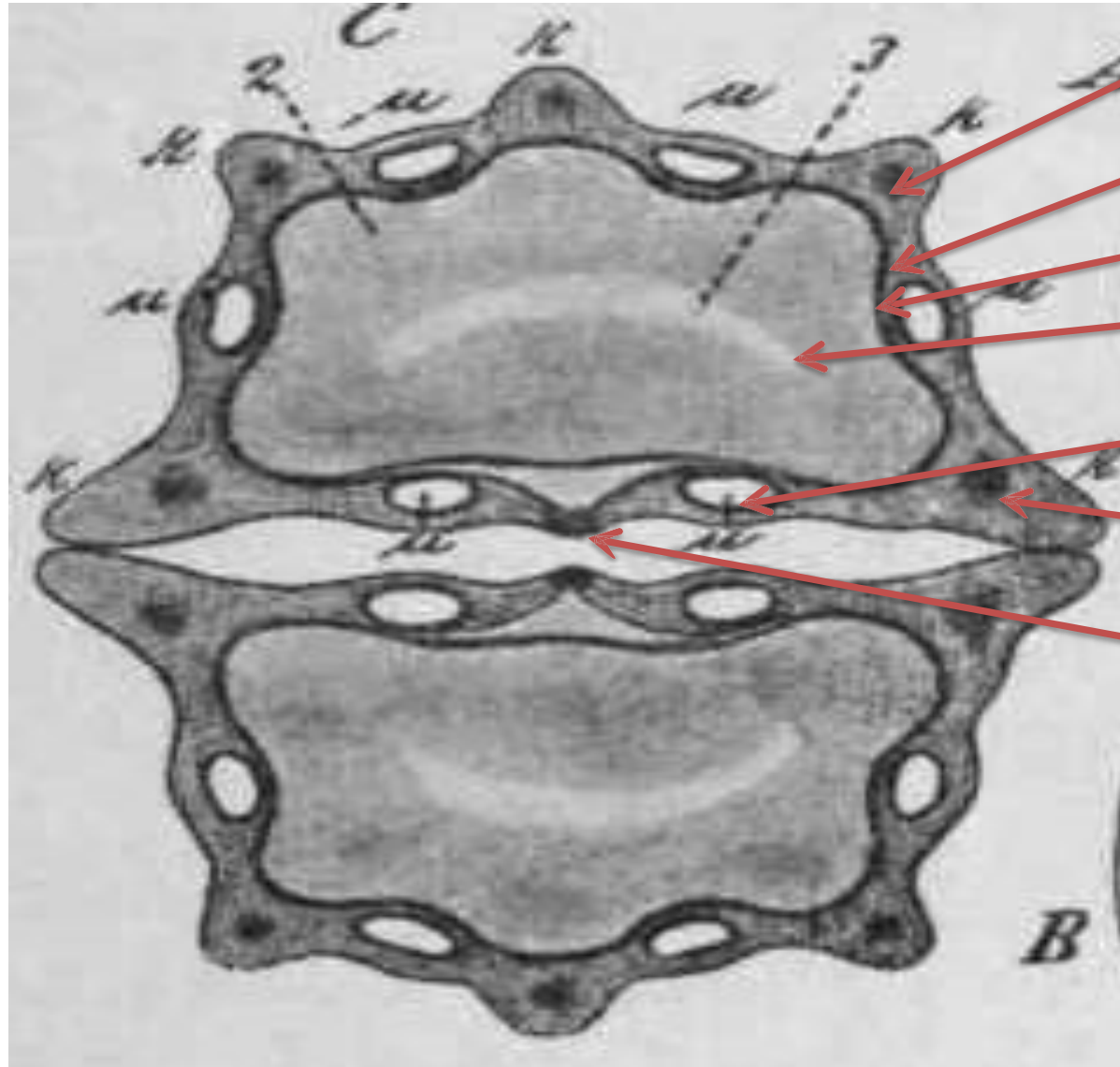




Fennel fruit



T.S.



pericarp

mesocarp

endocarp

endosperm

vittae

Vascular bundle

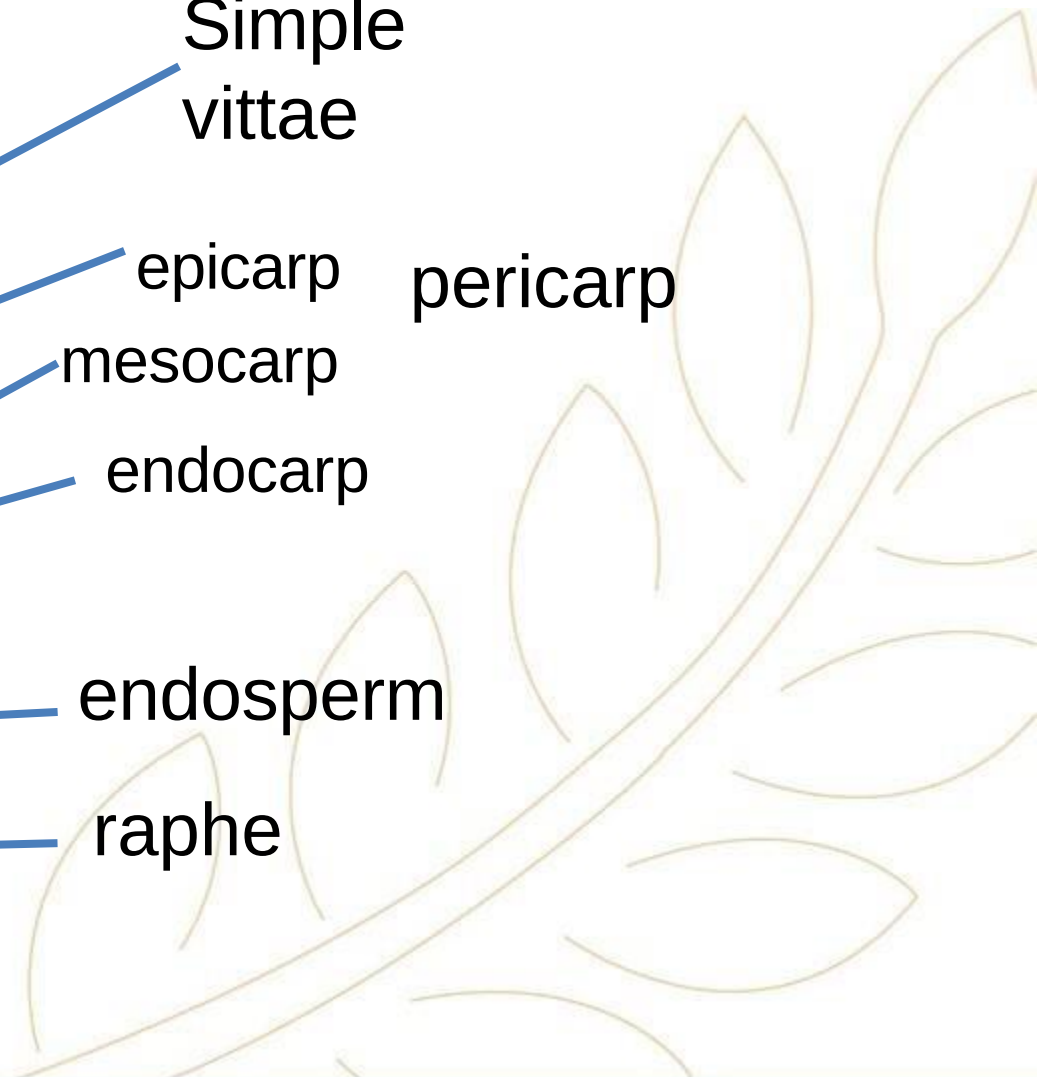
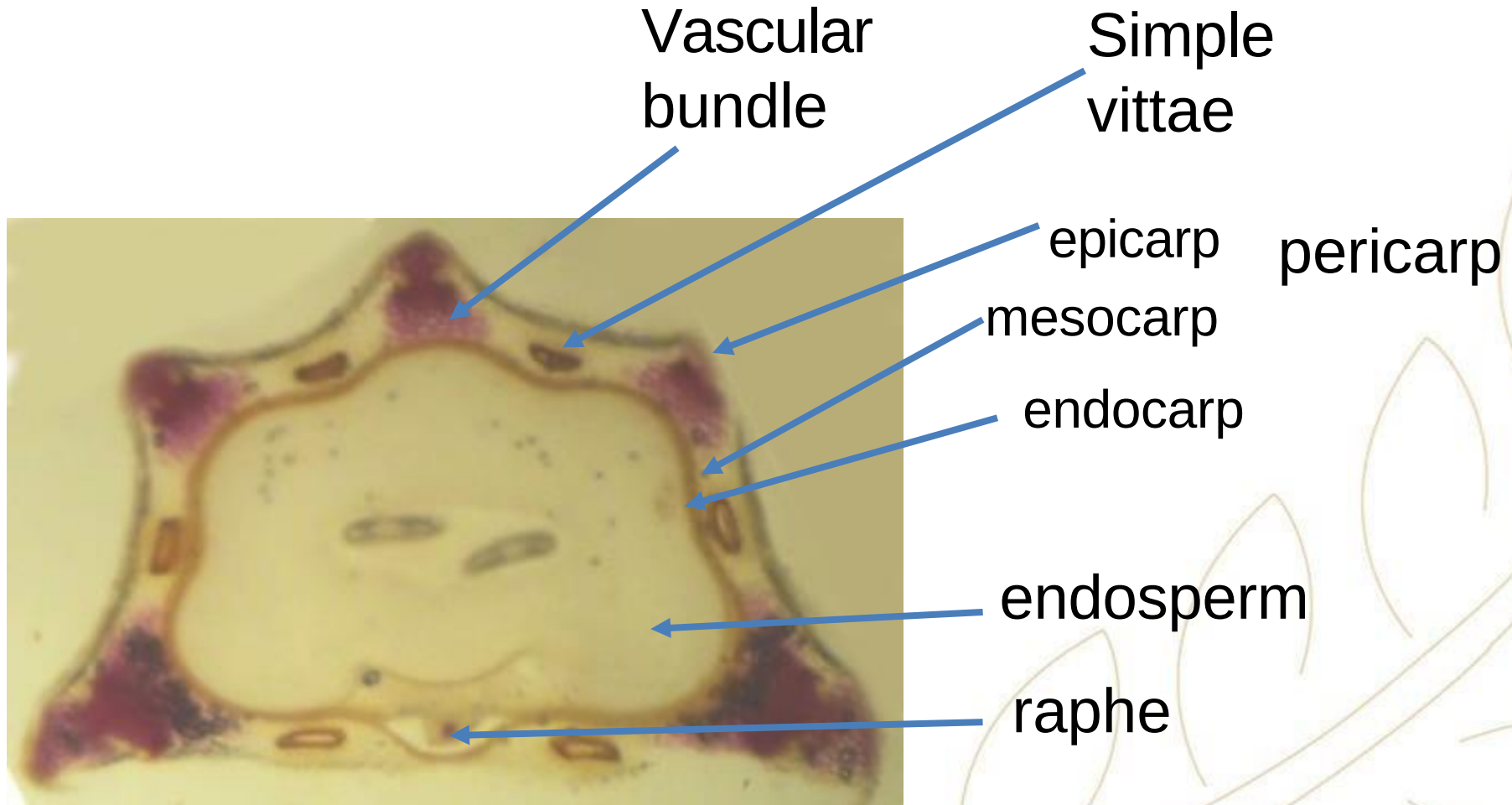
Raphe



Fennel fruit



T.S.





Fennel fruit



Physical Character :

- **Condition:** Fine powder
- **Color:** Yellowish green
- **Odor:** Aromatic odour
- **Taste:** Aromatic taste



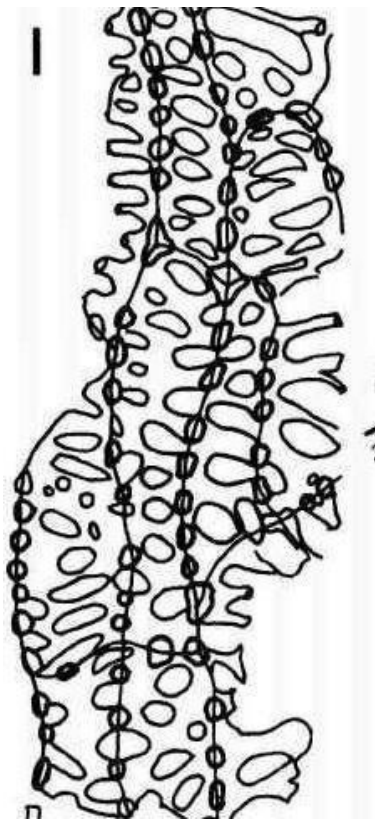


Fennel fruit

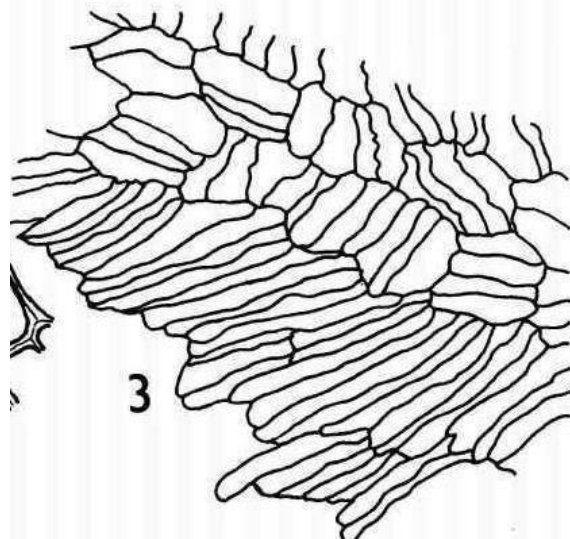


Key elements:

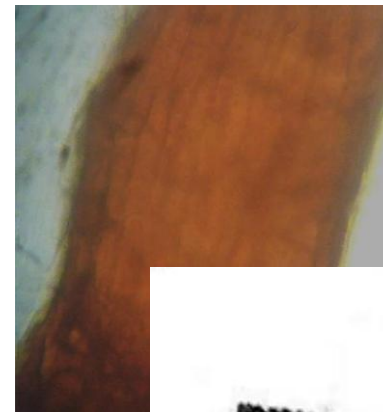
**Reticulate lignified
parenchyma**



Parquetry endocarp



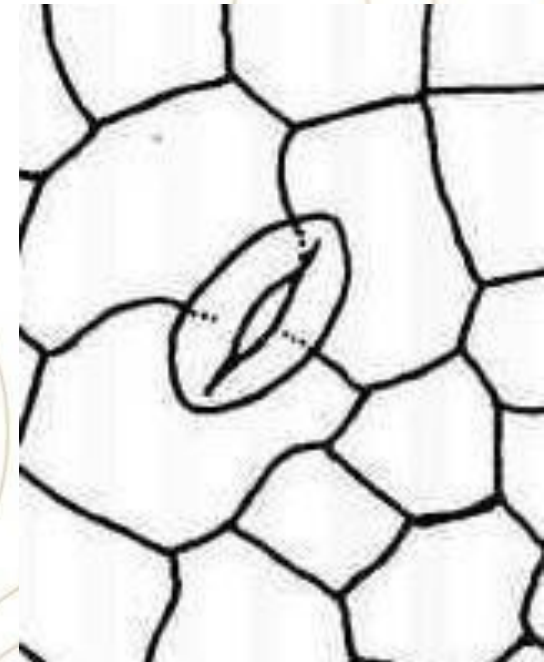
Simple vittae



Vittae

Epicarp

Straight wall, smooth
cuticle, anomocytic
stomata.





Fennel fruit



Microscopically

- **Mount in KOH:** Simple vittae and Parquetry endocarp.
- **Mount in Phloroglucinol:** Raphe, Vascular bundle, Reticulate lignified parenchyma and Carpophore
- **Mount in Water:** xylem vessels.

Fennel fruit



1 Carminative — relieves gastrointestinal pain, bloating and cramping.



2 Lactagogue — promotes milk production.



3 Mild expectorant — helps relieve cough and clear respiratory mucus.

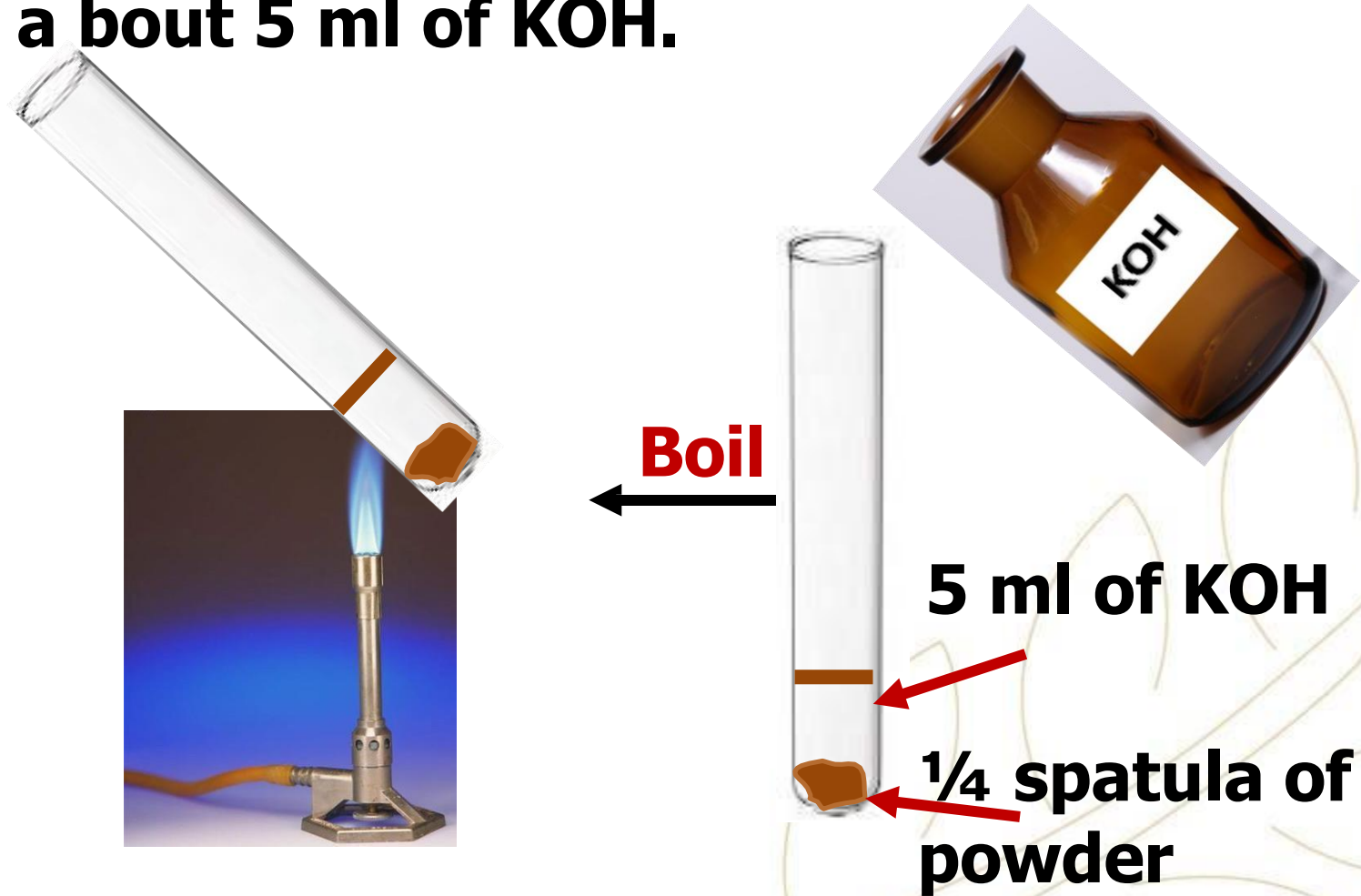


4 Aids weight management — may support appetite/weight-control efforts.



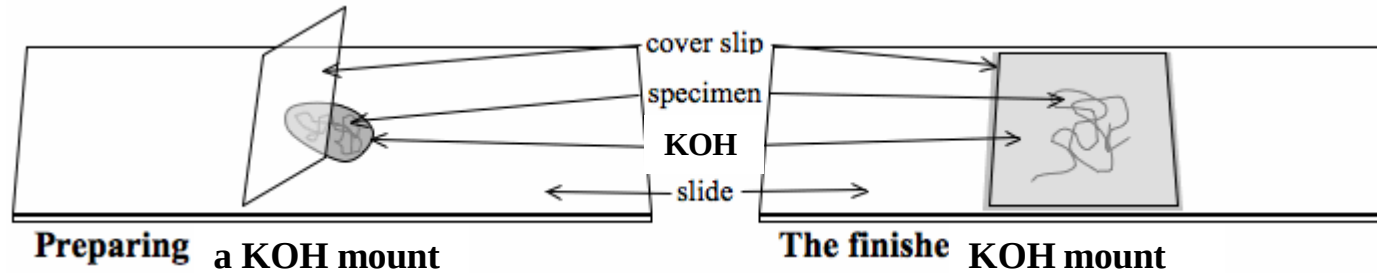
Practical work:

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



Practical work:

2- Prepare your slide and check the key elements.



3- Complete your drawings.

P.S.



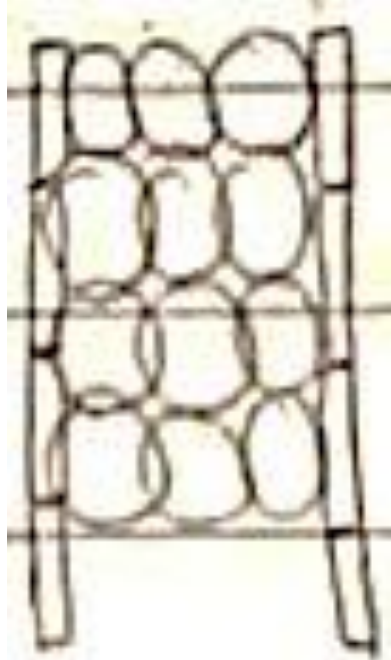
Keep your work place and tools clean.

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

Main Key Elements Drawings:

1

Simple vittae



2

Parquetry endocarp



3

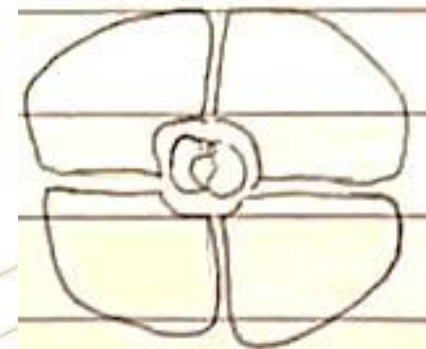
Reticulate lignified parenchyma



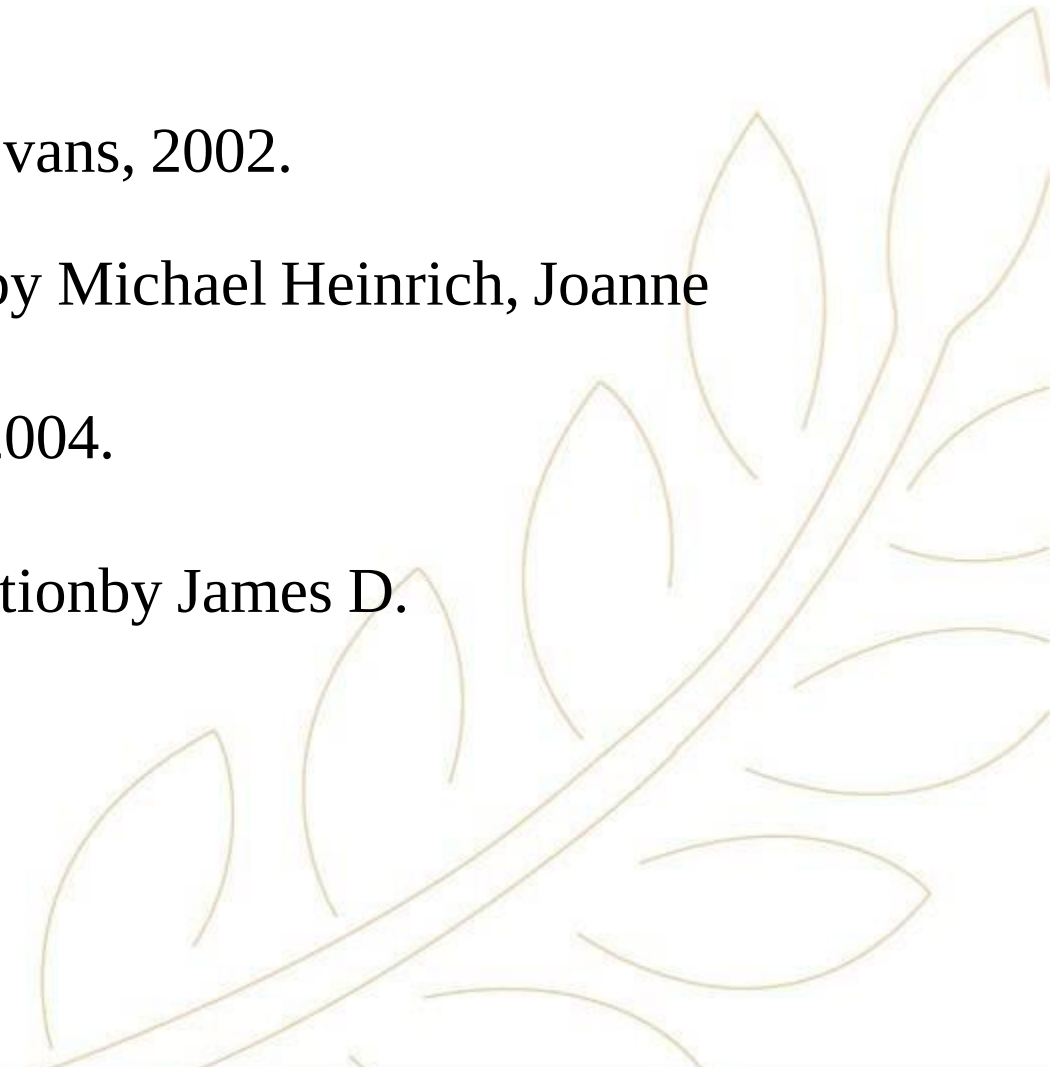
4

Epicarp

Straight wall, smooth cuticle, anomocytic stomata.



References:

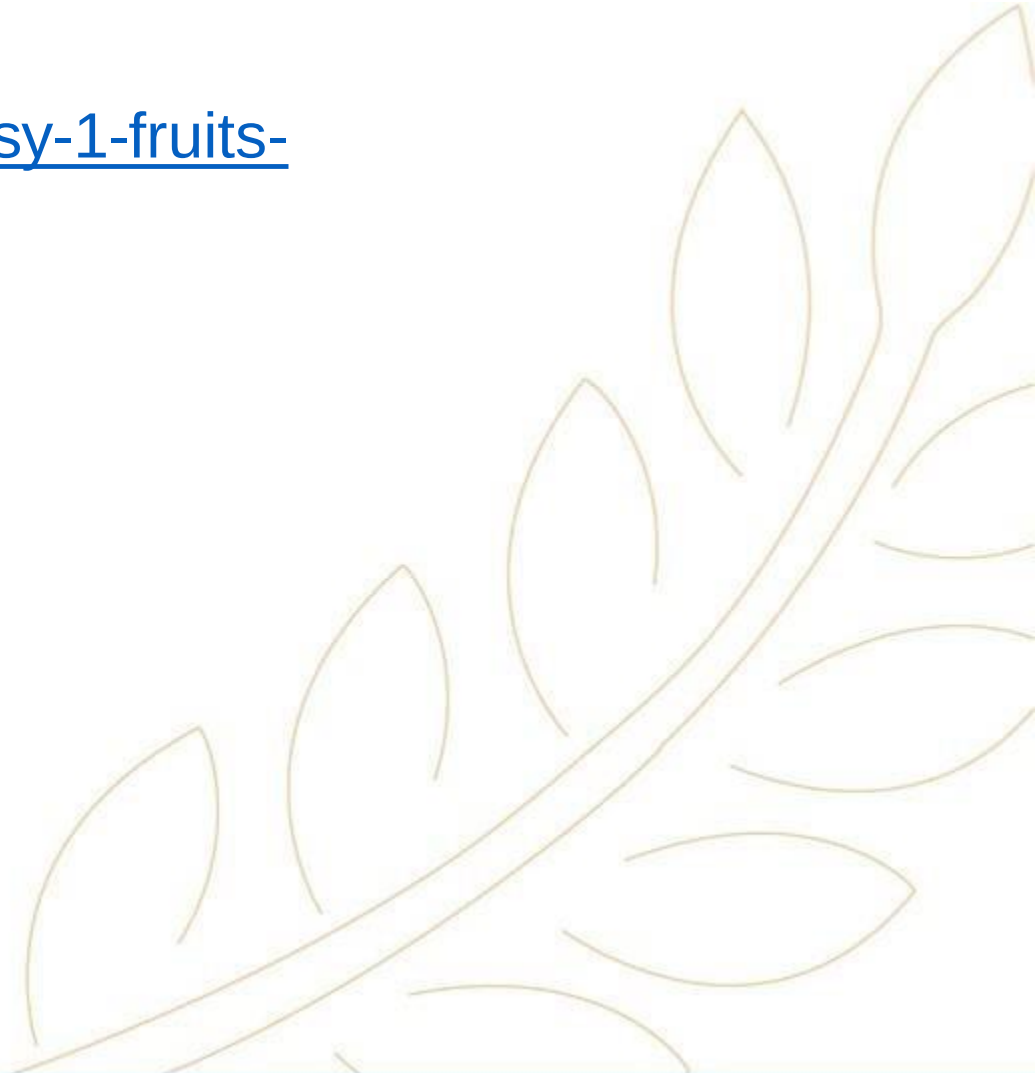
1. Trease & Evans' Pharmacognosy by William Charles Evans, 2002.
 2. Fundamentals of Pharmacognosy and Phytotherapy by Michael Heinrich, Joanne Barnes, Simon Gibbons, and Elizabeth M. Williamson, 2004.
 3. Botany :An introduction to Plant Biology, Third edition by James D. Mauseth, 2008.
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Useful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

<https://www.slideshare.net/slideshow/pharmacognosy-1-fruits-introduction/256451637>

<https://www.youtube.com/watch?v=mjnJKuFv6X0>

https://www.youtube.com/watch?v=ob6Vgl2_TaQ



THANK YOU!