

Lab 2

Pharmacognosy

PHG112



The background is a dark blue gradient. On the left side, there are several overlapping, curved bands in shades of green, ranging from a light lime green to a darker forest green. On the right side, there is a stylized, light-colored outline of a leafy branch, with several leaves of varying sizes and shapes extending upwards and to the right.

Faculty of **Pharmacy**

FOENUGREEK

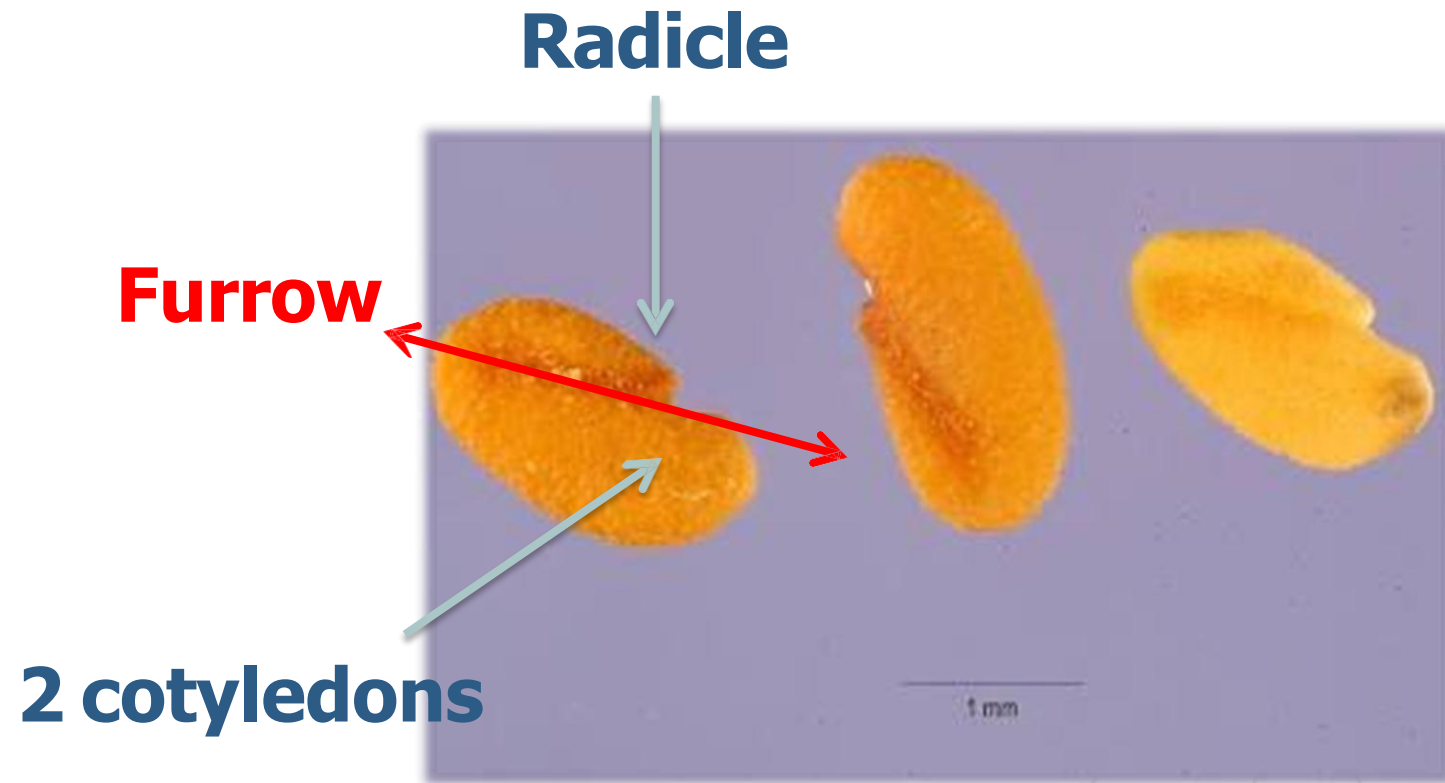


ORIGIN:

Dried ripe seeds of *Trigonella Foenum-graecum*, Linn.
(Family Leguminosae).



MORPHOLOGY:

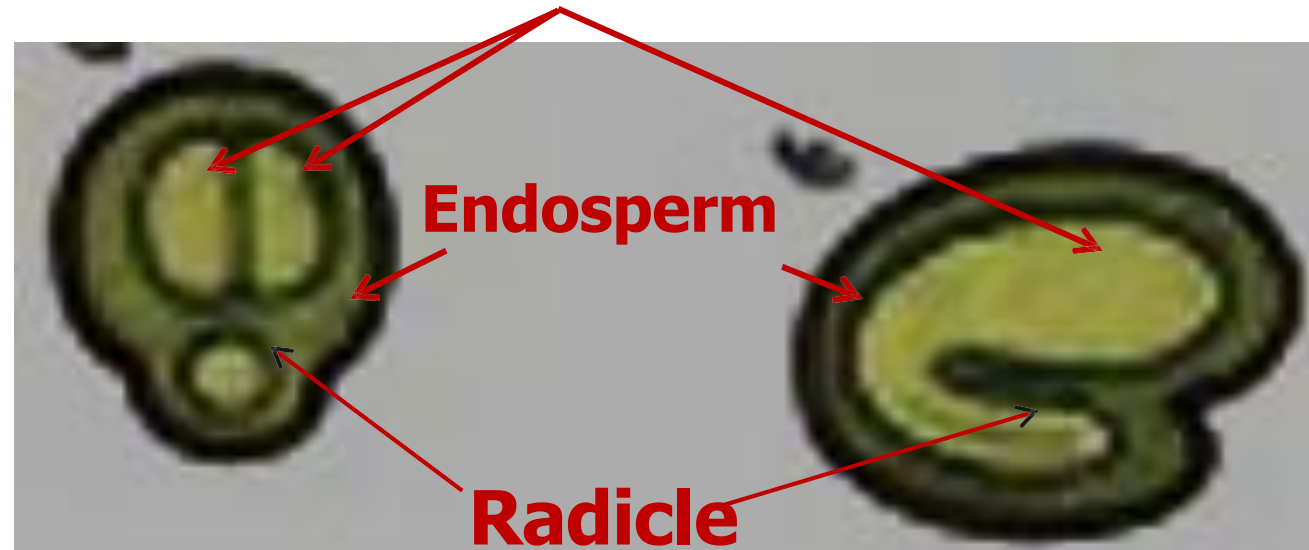


MORPHOLOGY:

Surface: leathery.

Testa scars: A furrow runs diagonally to divide the seed into 2 unequal parts (radicle and cotyledons).

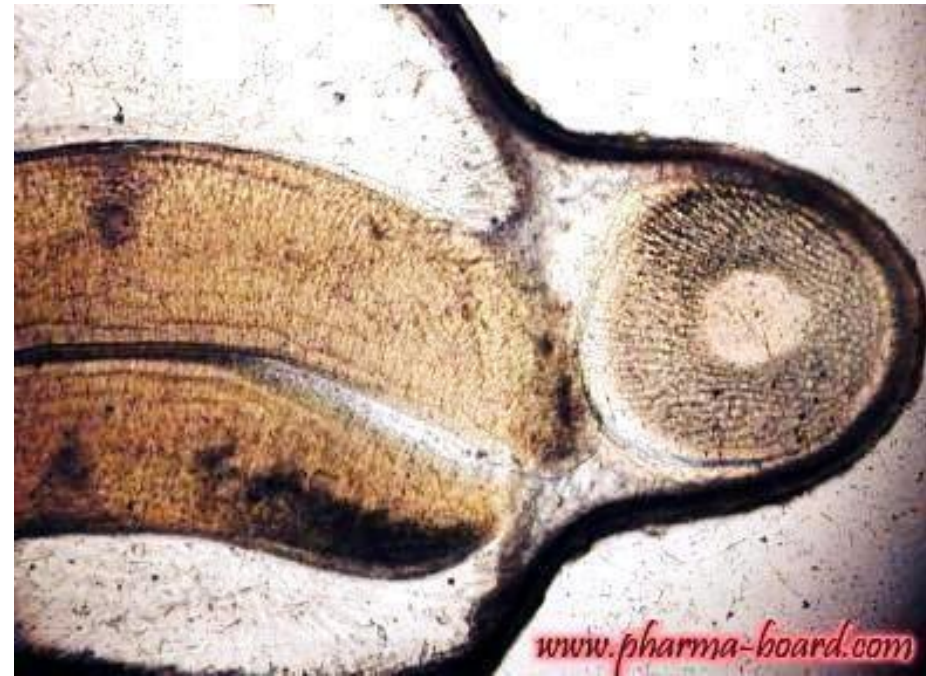
T-CUT 2 cotyledons **L-CUT**



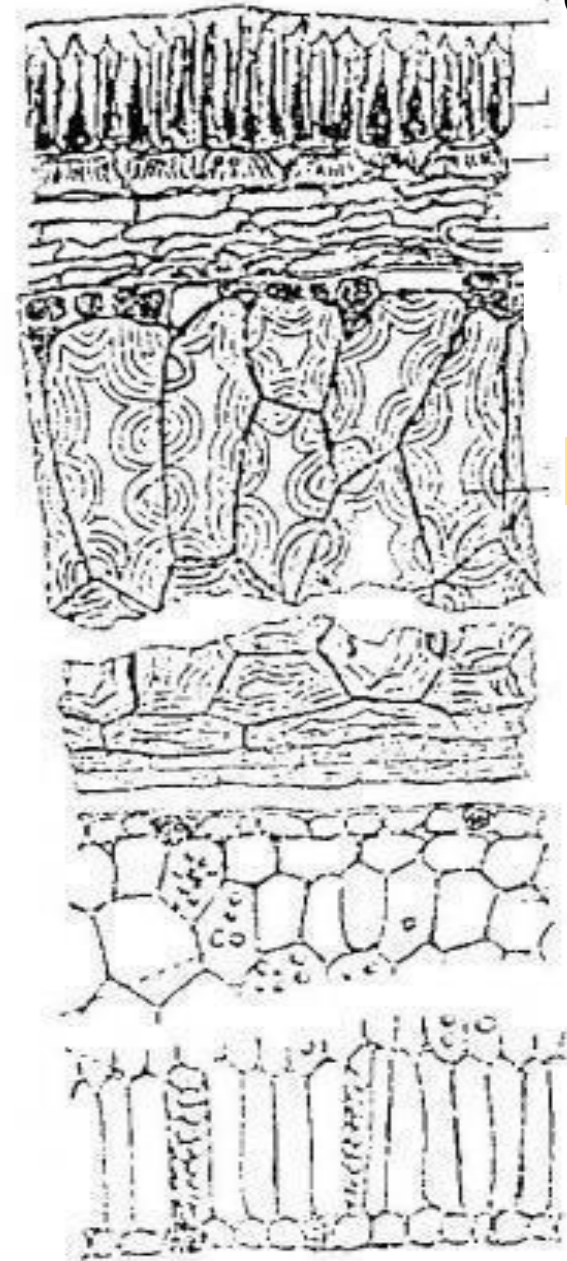
MORPHOLOGY:

Kernel: Albuminous.

Embryo: Accumbent.



T.S.



Cuticle

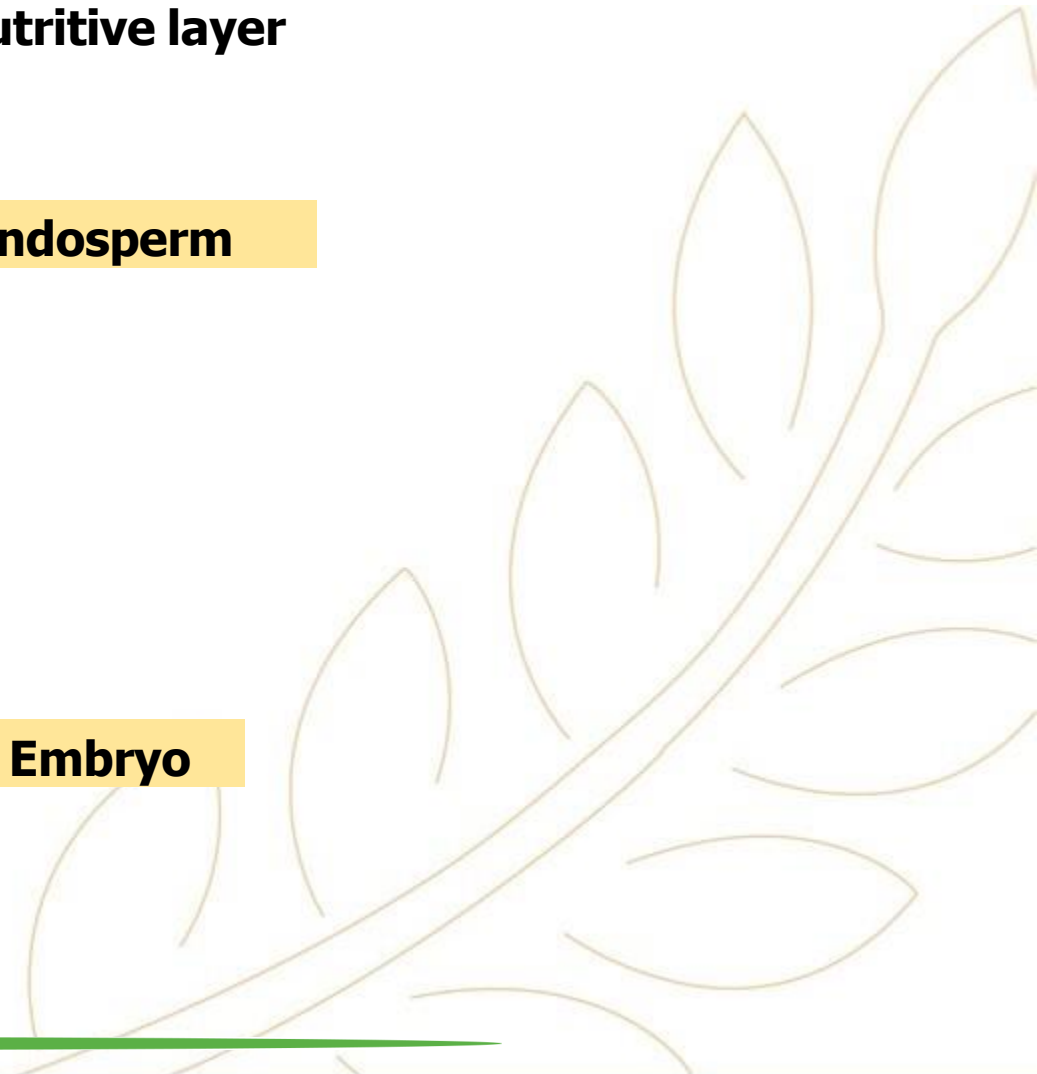
Epidermis

Hypodermis

Nutritive layer

Endosperm

Embryo



Physical characters:

Shape: Oblong, flattened & rhomboidal.

Color: yellowish-green.

Odour: Characteristic odour of foenugreek.

Taste: Mucillagenous & slightly bitter.



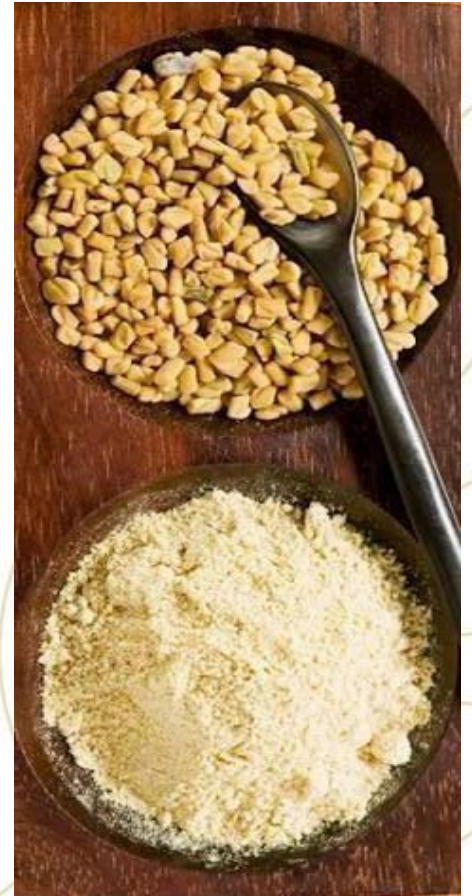
Powder:

Condition: Homogenous Fine powder

Color: Yellowish buff colour

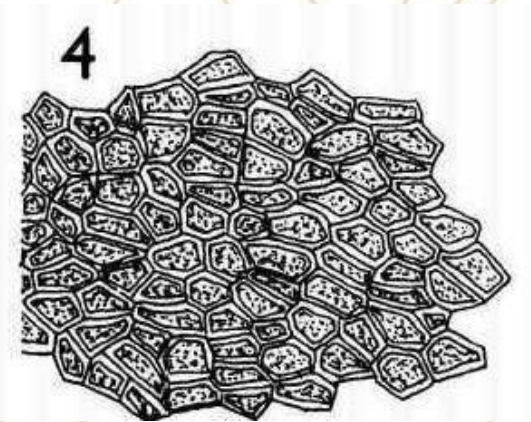
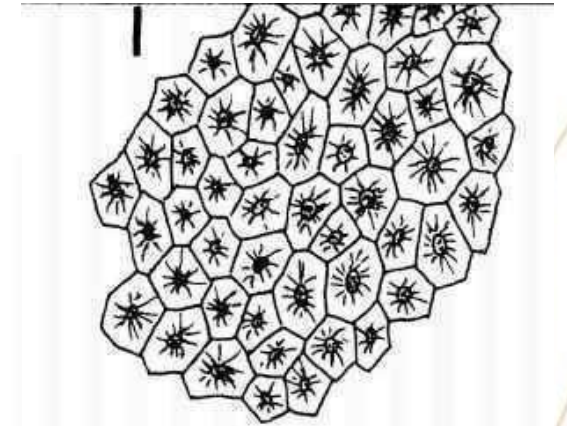
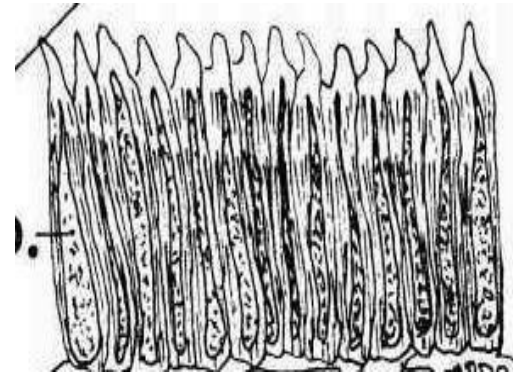
Odor: Oily characteristic odor

Taste: Mucilaginous, slightly bitter



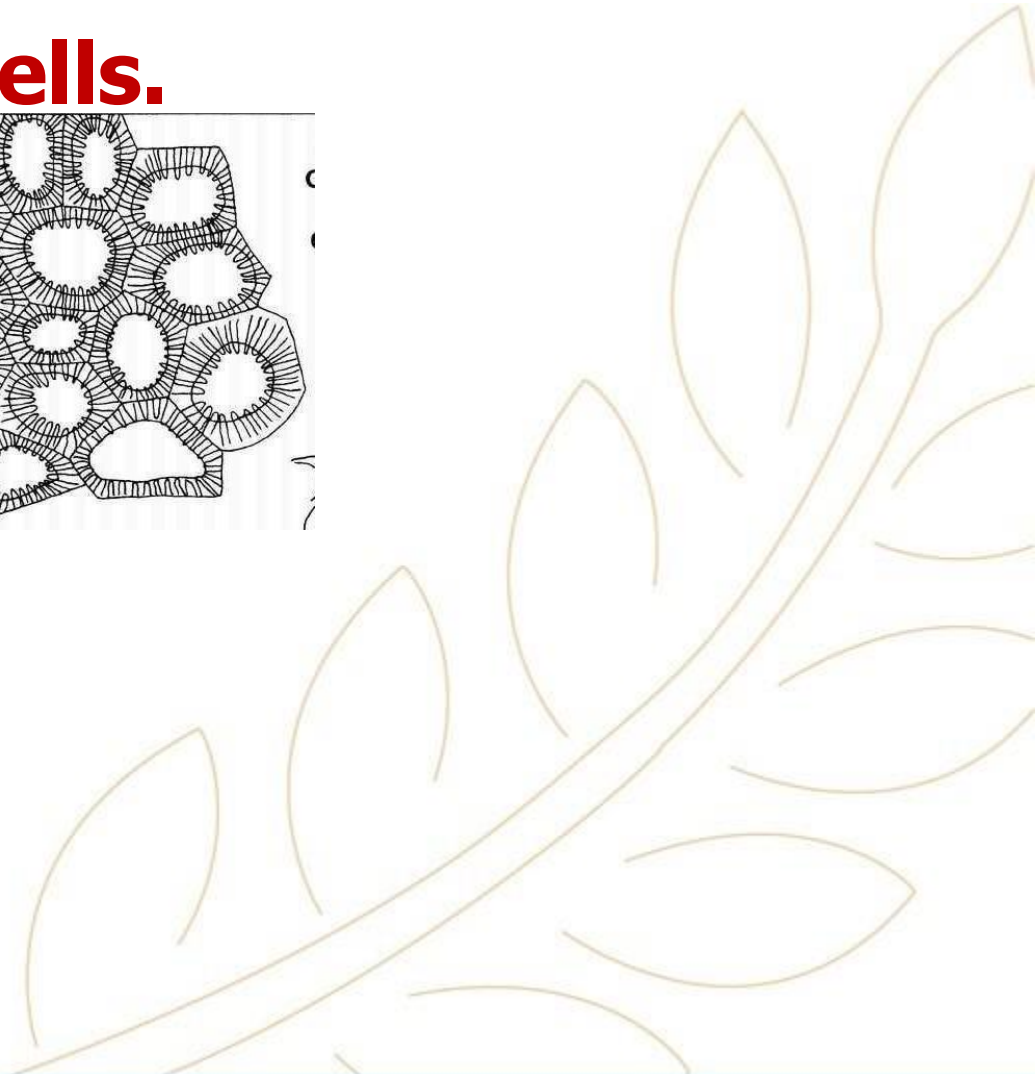
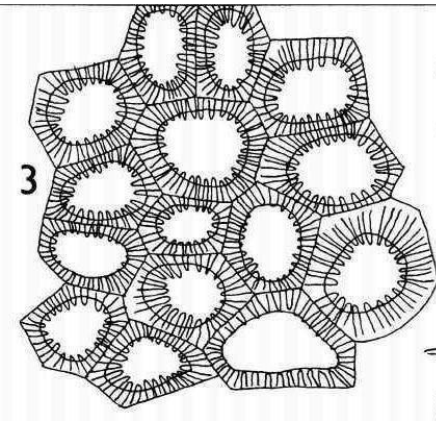
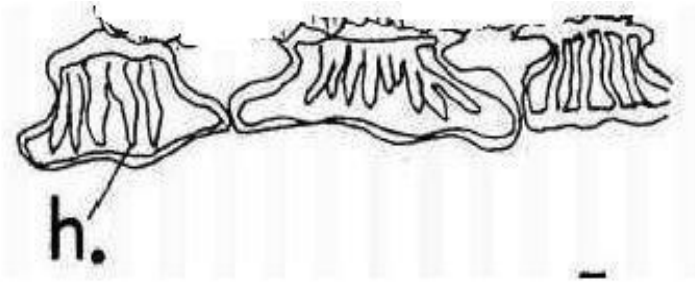
Microscopical Characters

1- Palisade-like epidermal cells.



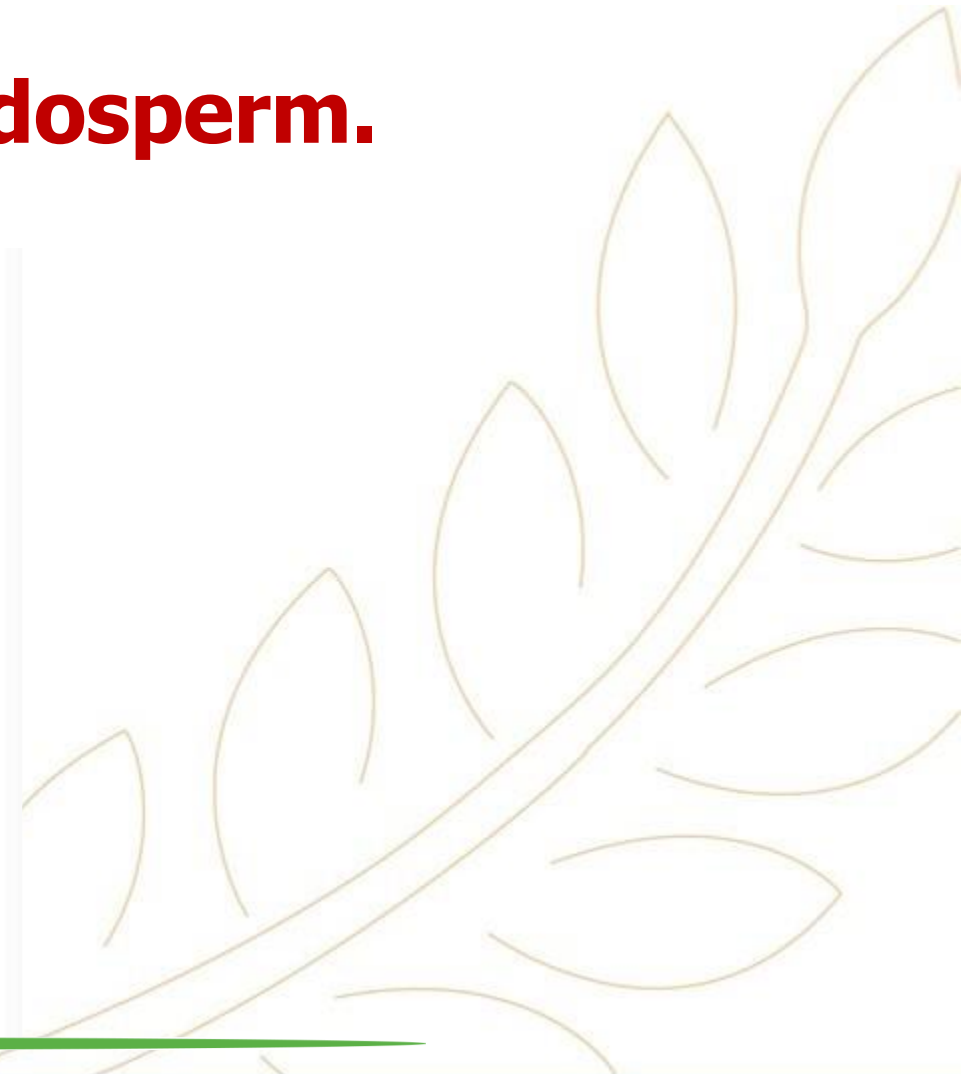
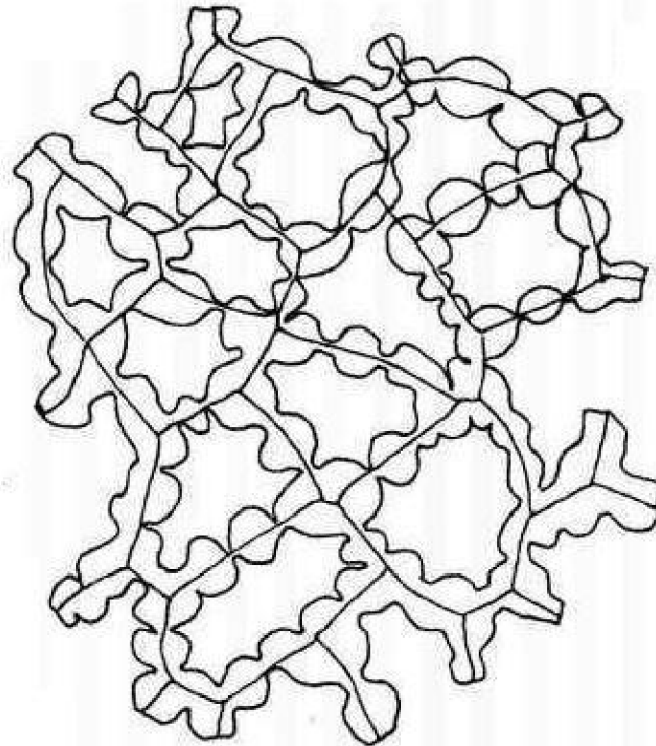
Microscopical Characters

2- Basket-like hypodermal cells.



Microscopical Characters

3- Stratified mucilaginous endosperm.

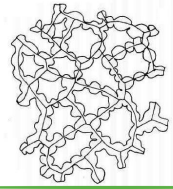
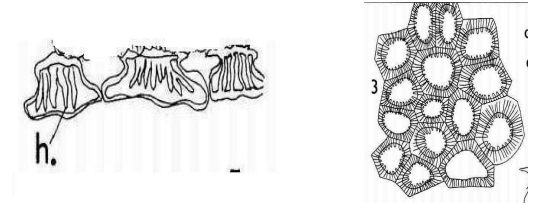


Microscopical Characters:

Mount in KOH: All key elements except endosperm

Mount in phloroglucinol: Negative result

Mount in water: Negative result



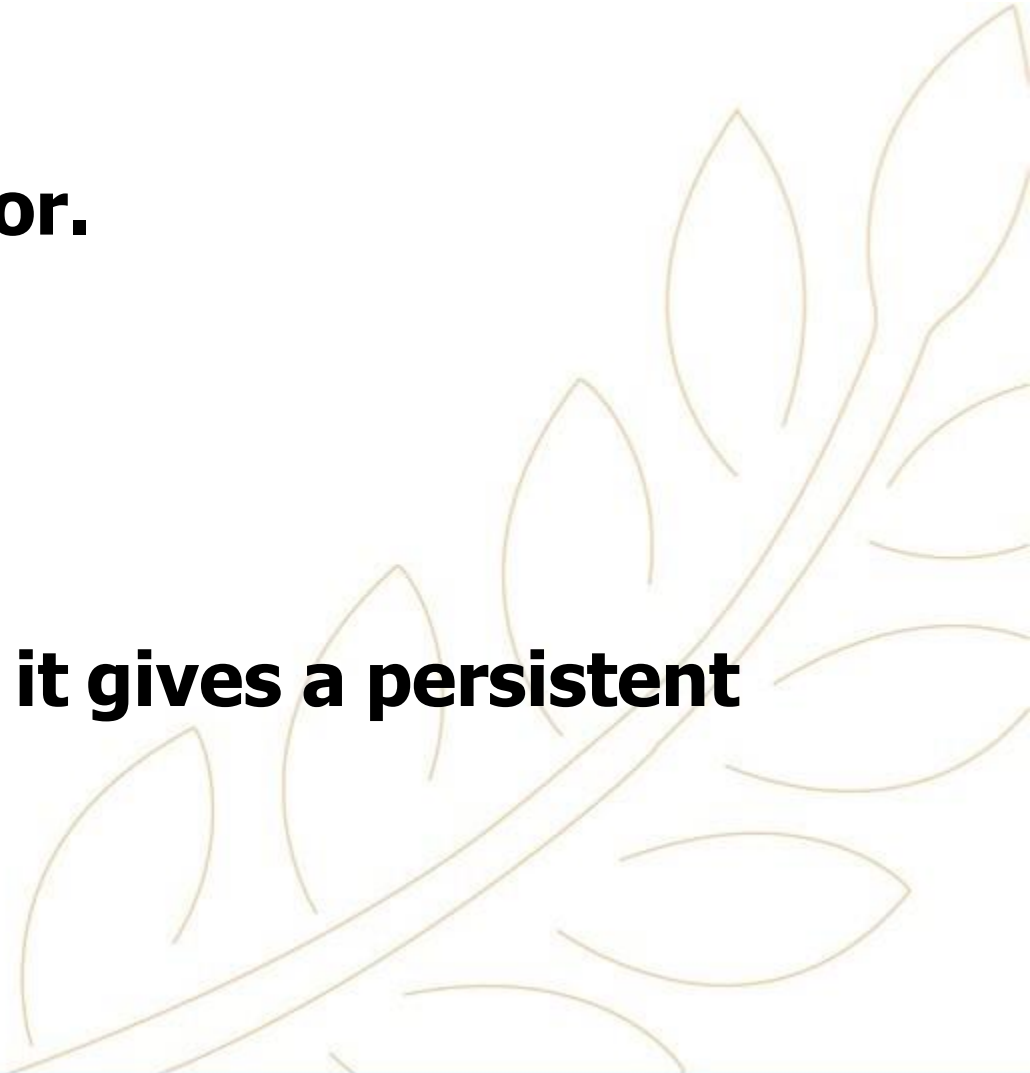
CHEMICAL TESTS:

- 1) Powder + Sudan III: Red Color.
- 2) Powder + Methylene Blue: Blue Color.

Why?

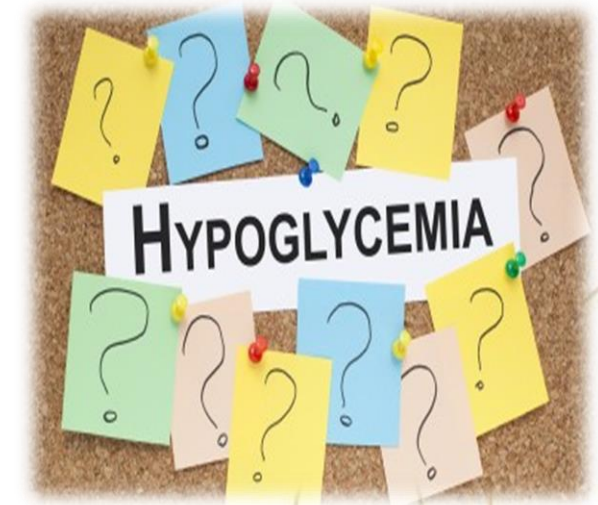
3) Froth test:

Upon vigorous shaking of Powder+H₂O, it gives a persistent froth!



Uses

1. Hypoglycemic in diabetic patients.



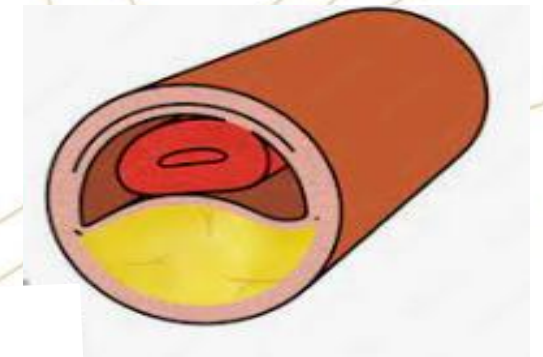
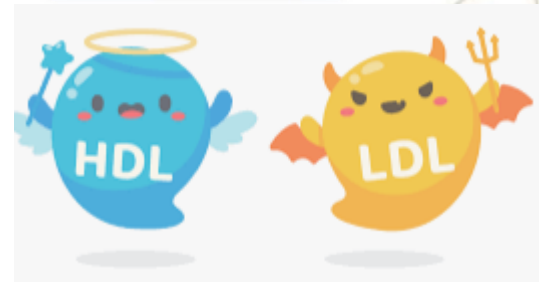
2. Lactagogue.



3. Treatment of dyspepsia & gastritis.



4. Hypocholesterolemic actions.



Cardamom



Origin:

Dried ripe seeds of *Elettaria Cardamomum*,

Family Zingiberaceae

“recently removed from the capsules”

Why??????



Seeds are recently removed from the capsules:

1. To Prevent the loss of volatile oils
2. To Prevent insect attack (due to presence of: Volatile oils, Starch)
3. To differentiate between commercial varieties



Morphology:

The Fruit

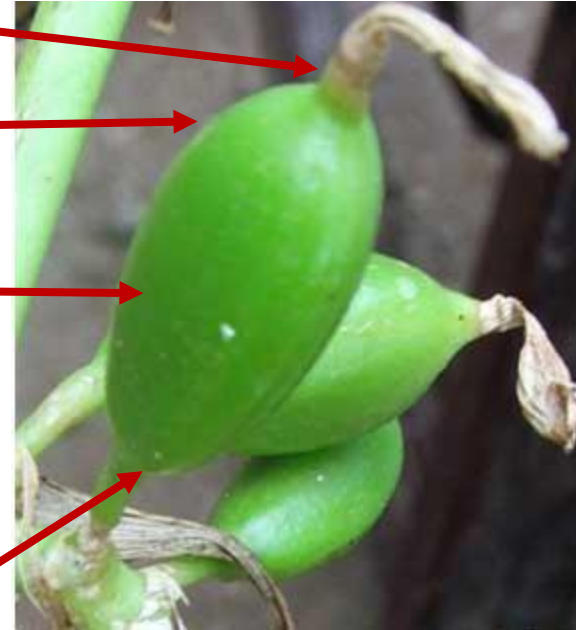
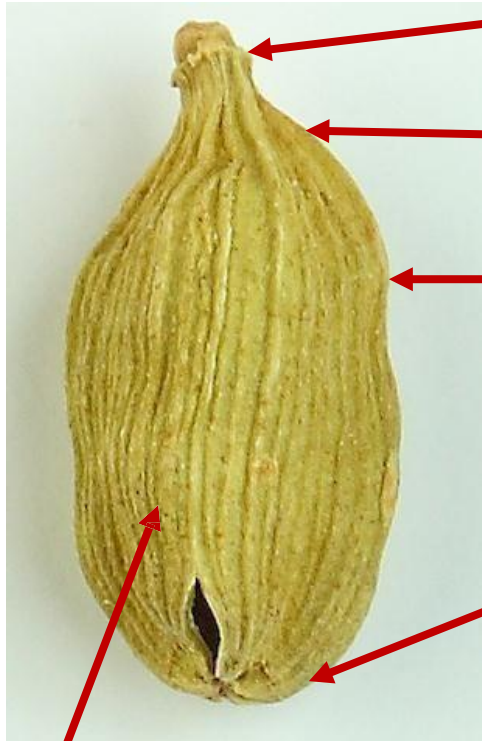
Remains of floral parts

Blunt Apex

Ovoid Capsule

Rounded Base

Longitudinal striation



Morphology:

The Seed



Arrilus
Testa
Raphe

Transverse wrinkles

Hilum & Micropyle



Morphology:

Shape: Irregular angular Surface:

Transversly striated

Scars: H&M in depression

Raphe is a channel extending on 1 side

So what kind of ovule????

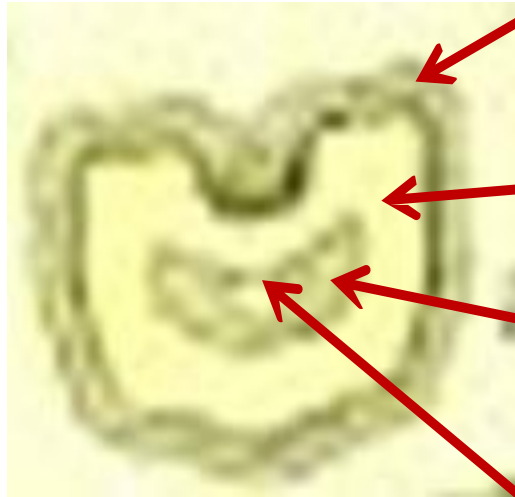
Outgrowth: Thin colorless membranous arillus

(arise from hilum)

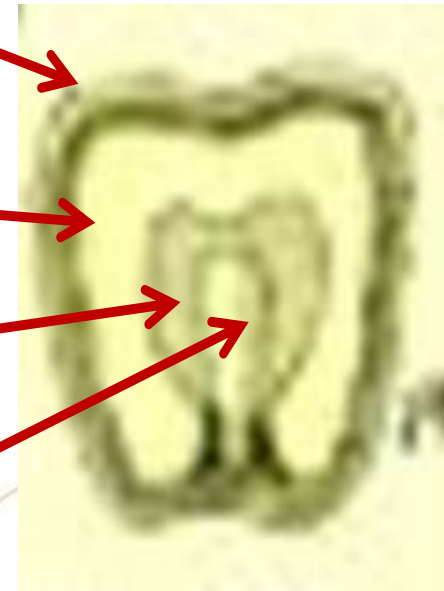


Morphology:

FCut



L-Cut



Testa

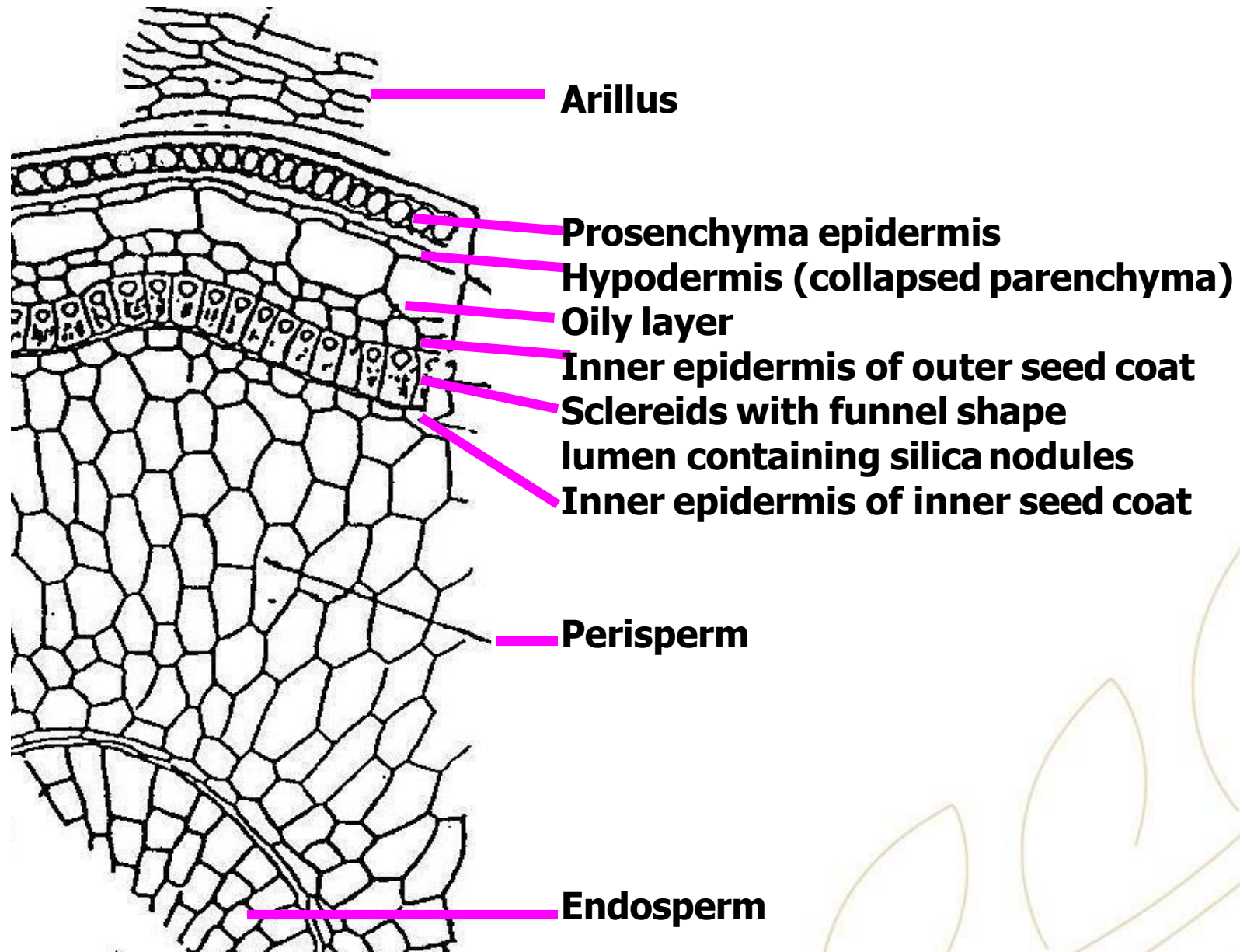
Perisperm

Endosperm

Embryo

Type of kernel???

TS.



Physical characters:

Color: Dark reddish-brown

Odor: Strong aromatic odor

Taste: Agreeable aromatic taste



Powder:

Condition: Homogenous

Color: Greyish-buff

Odor: Aromatic

Taste: Aromatic, Pungent

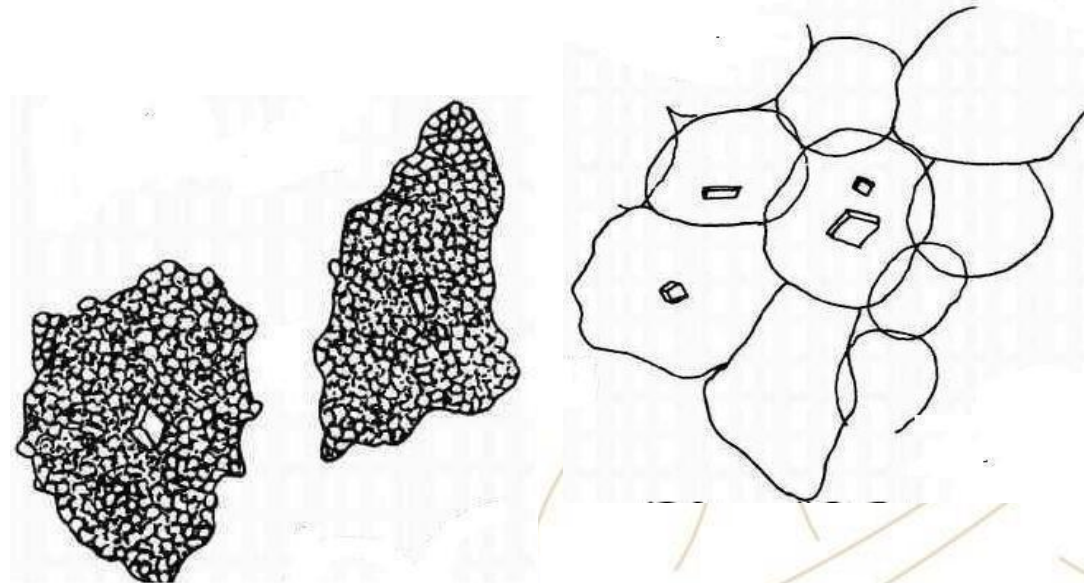


Microscopical Characters

Key elements:

A) Mount in Iodine:

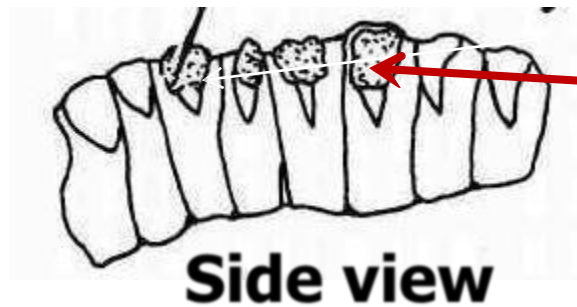
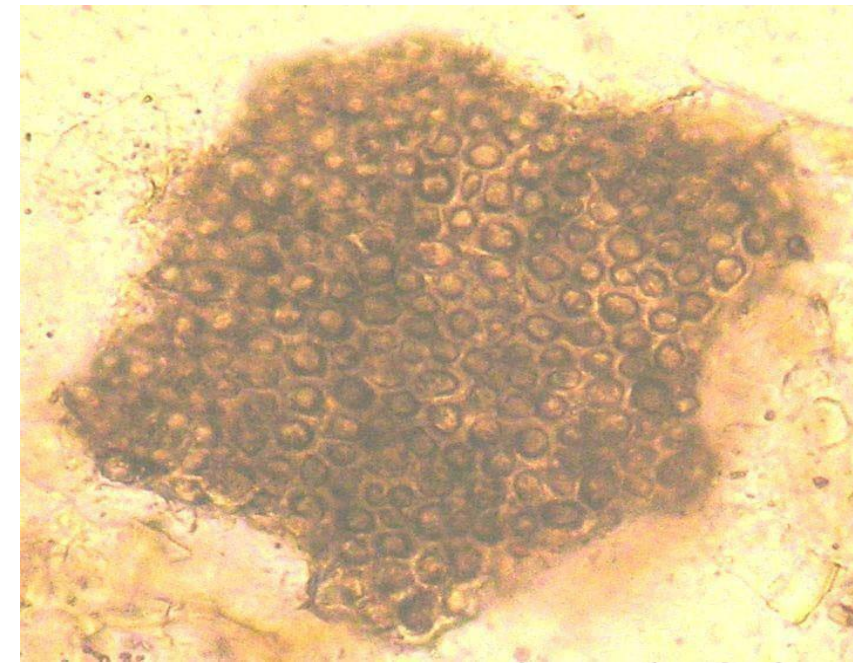
1- Thin-walled perisperm cells containing starch and CaOx



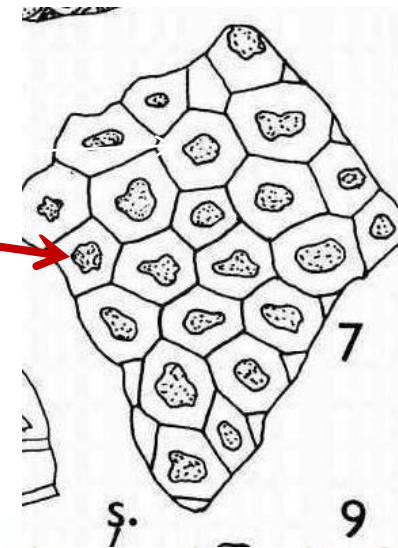
Microscopical Characters

B) Mount in KOH:

1- Reddish-brown scleride cells with funnel-shaped lumen and silica nodule.



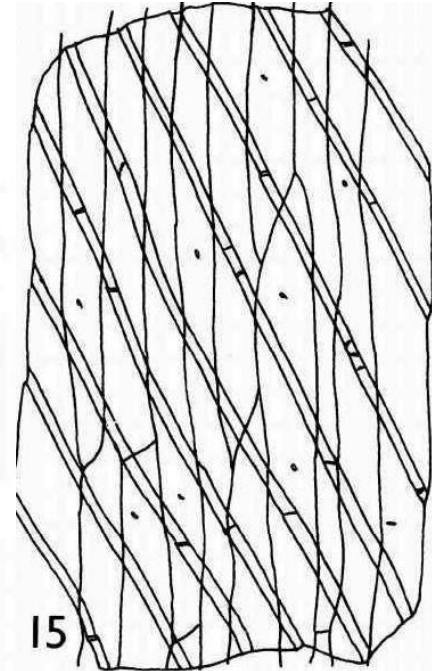
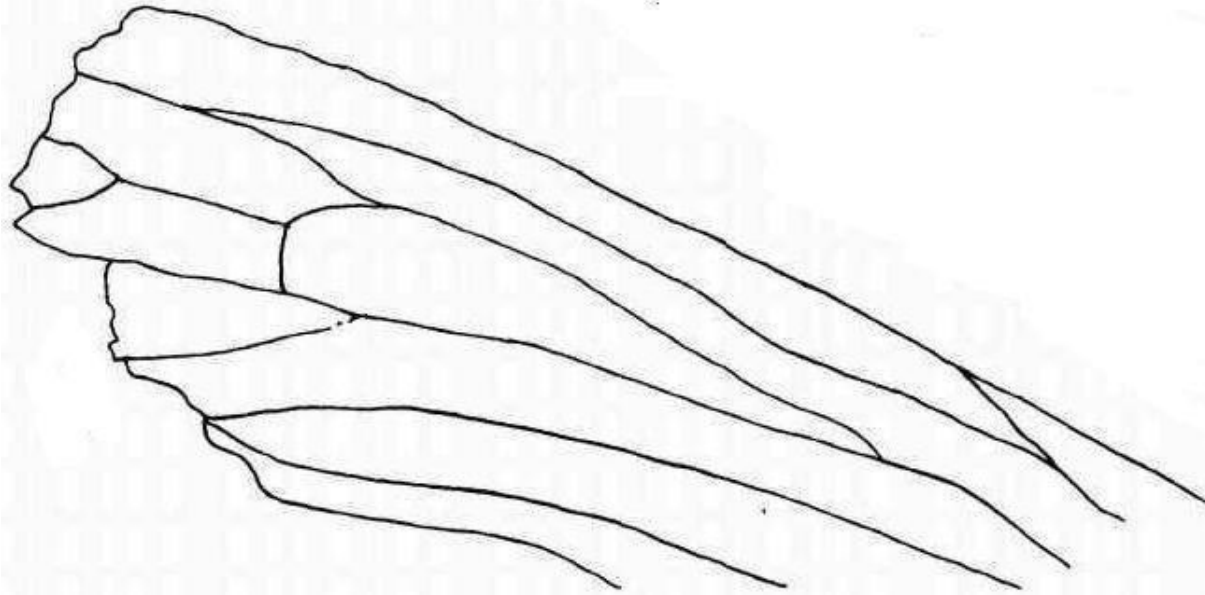
Silica nodule



Top view

Microscopical Characters

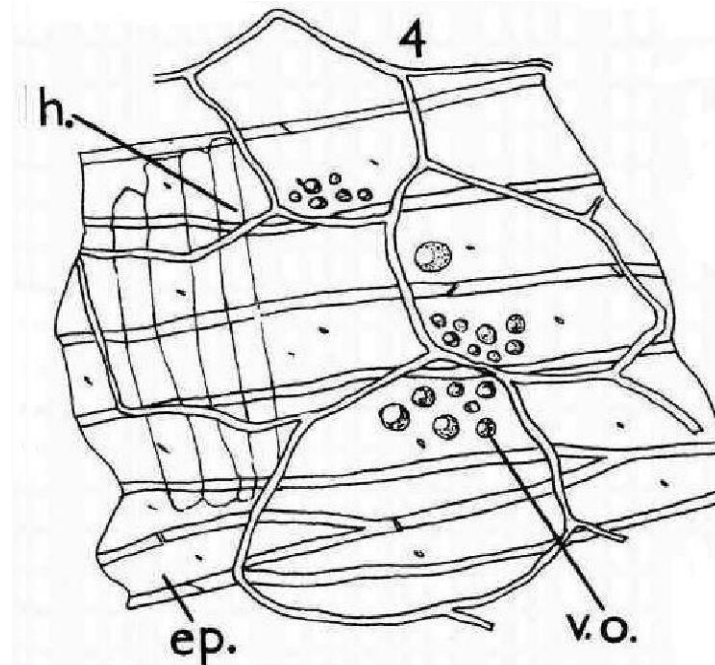
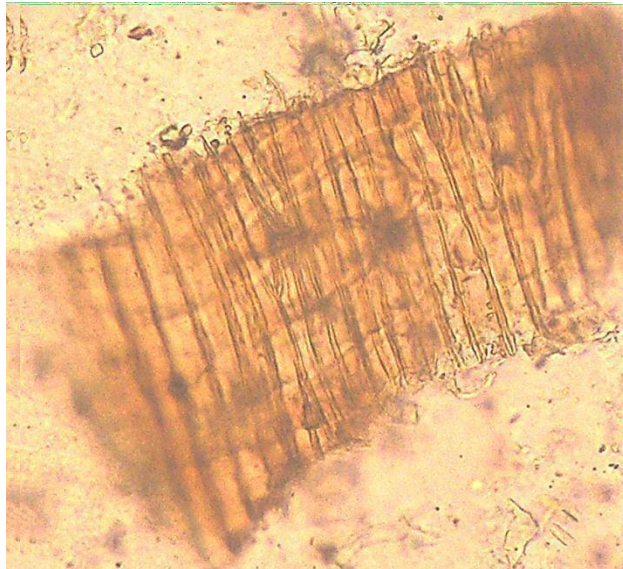
2-Arillus



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Microscopical Characters

3- Epidermal thick-walled prosenchyma cells crossed with cells of hypodermal collapsed cells and cells of oily layer

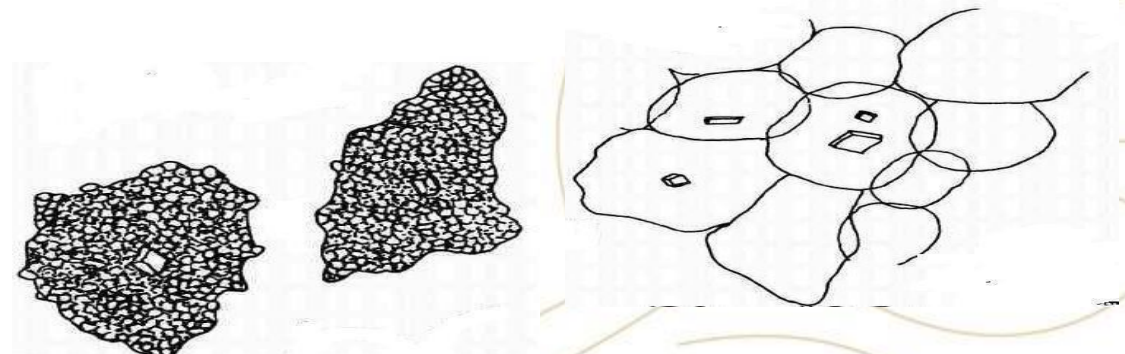
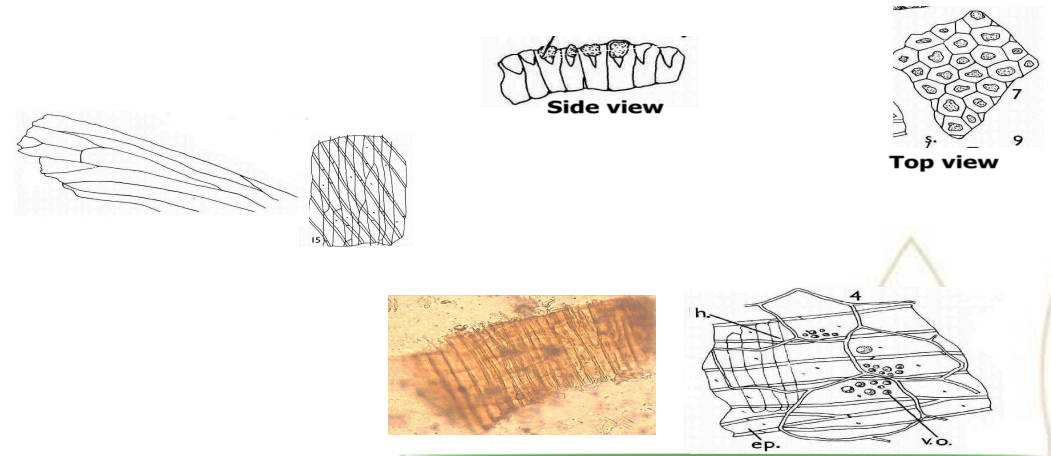


Microscopical Characters:

Mount in KOH: All key elements

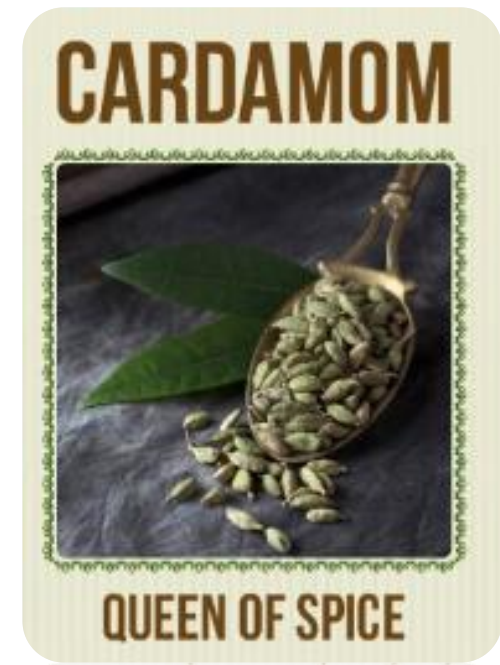
Mount in phloroglucinol: Sclerides → will turn red

Mount in water: Starch



Uses

1. Flavoring in curries & cakes
(called queen of spices).



2. Used for Anorexia and Heart burn.

3. Improve apetite.

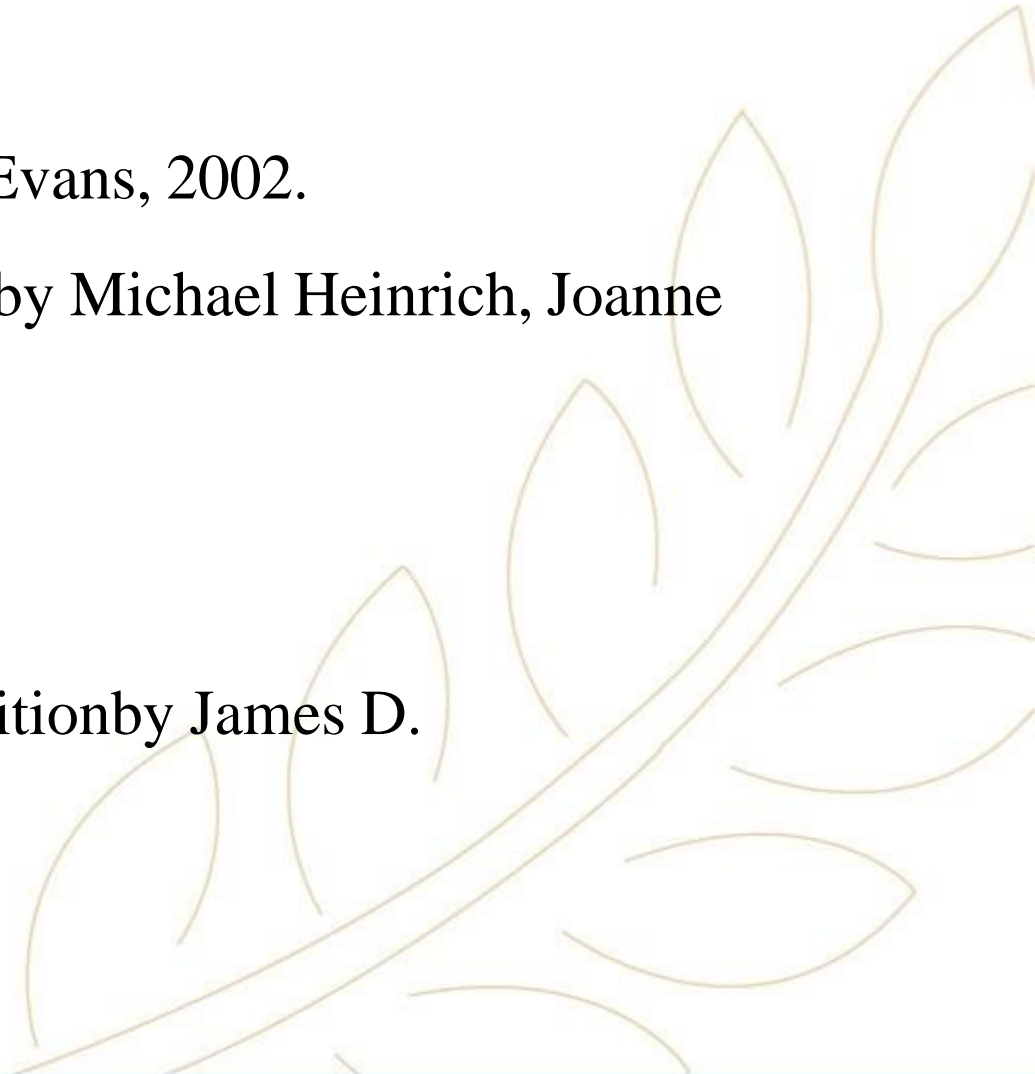


References:

1. Trease & Evans' Pharmacognosy by William Charles Evans, 2002.

3. Fundamentals of Pharmacognosy and Phytotherapy by Michael Heinrich, Joanne Barnes,
Simon Gibbons, and Elizabeth M. Williamson, 2004.

2. Botany : An introduction to Plant Biology, Third edition by James D. Mauseth, 2008.



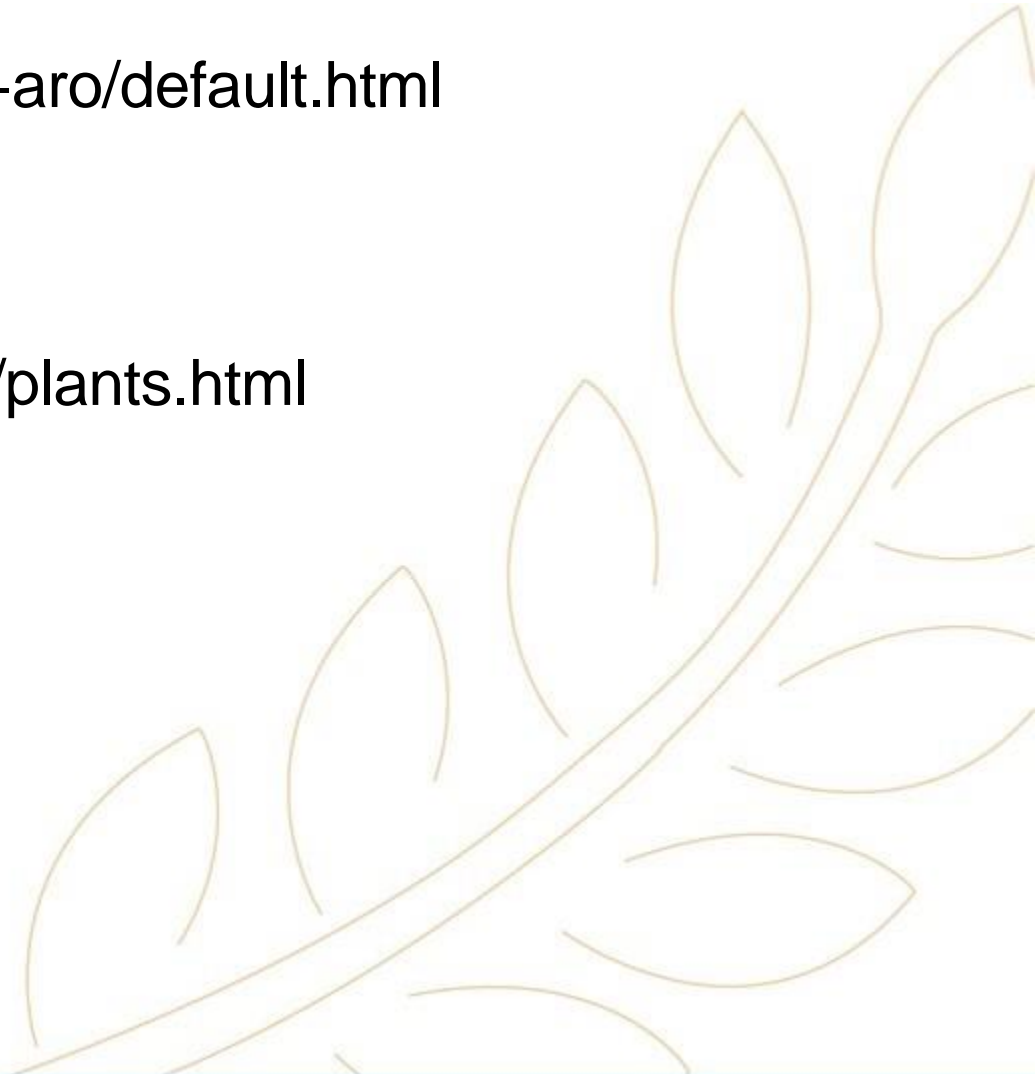
Useful links:

<http://www.hort.purdue.edu/newcrop/med-aro/default.html>

<http://www.herbmed.org/>

<http://www.danish-schnapps-recipes.com/plants.html>

<http://www.botanical.com/>





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Thank You!

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