



MSA UNIVERSITY
معة أكتوبر للعلوم الحديثة والآداب

Pharmacognosy

PHG 112

Spring 2026

Pharmacognosy

PHG 112



potato tubers



ginger rhizome

Spring 2026

Lab 5



Intended Learning Outcomes (ILOs)

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

- 1. Describe the macroscopic characteristics** (shape, color, odor, taste, and surface features) of crude drugs such as **Anise** and ***Ammi visnaga*** in both whole and powdered forms.
- 2. Identify the key microscopic diagnostic features** of powdered drugs, including structures such as vittae, endocarp, hairs, sclereids, and epidermal cells.
- 3. Differentiate between similar fruits and seeds** (e.g., **Anise**, ***Ammi visnaga***, and **Fennel**) based on their morphological and anatomical characteristics.
- 4. Perform microscopic examination techniques** using different mounting media such as water, KOH, and phloroglucinol + HCl.
- 5. Recognize diagnostic elements in unknown powder samples** and determine their botanical origin.
- 6. Apply proper laboratory skills and safety practices**, including slide preparation, microscopic observation, accurate scientific drawing, and proper laboratory waste disposal.

Practical exam I

I. Powder Identificationc

II. Spots

Physical characters:

Condition:....

Color:...

Odor:...

Taste:.....

Microscopically examination:

Mount in water.....

Mount in KOH.....

Mount in phlourougucinol +H⁺

Comment.....

Diagnostic element (3 key elements):

Name.....

Origin

Uses.....

Spot 1

Name.....

Origin.....

Use:.....

Photo

Spot 2

Name.....

Origin.....

Use:.....

Photo

Spot 3

Name.....

Origin.....

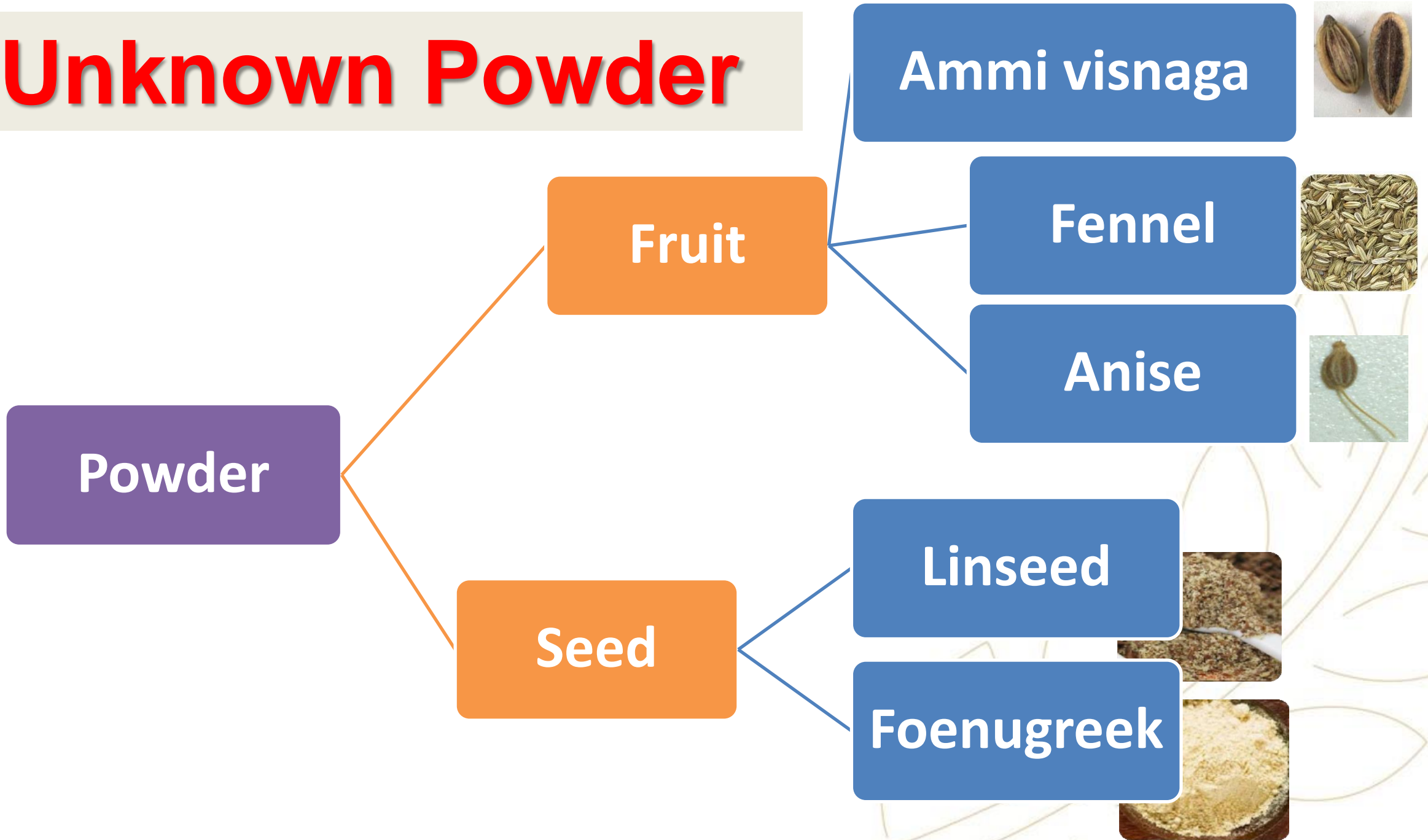
Use:.....

Photo

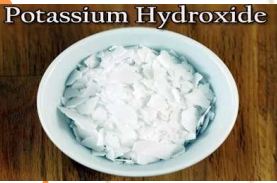
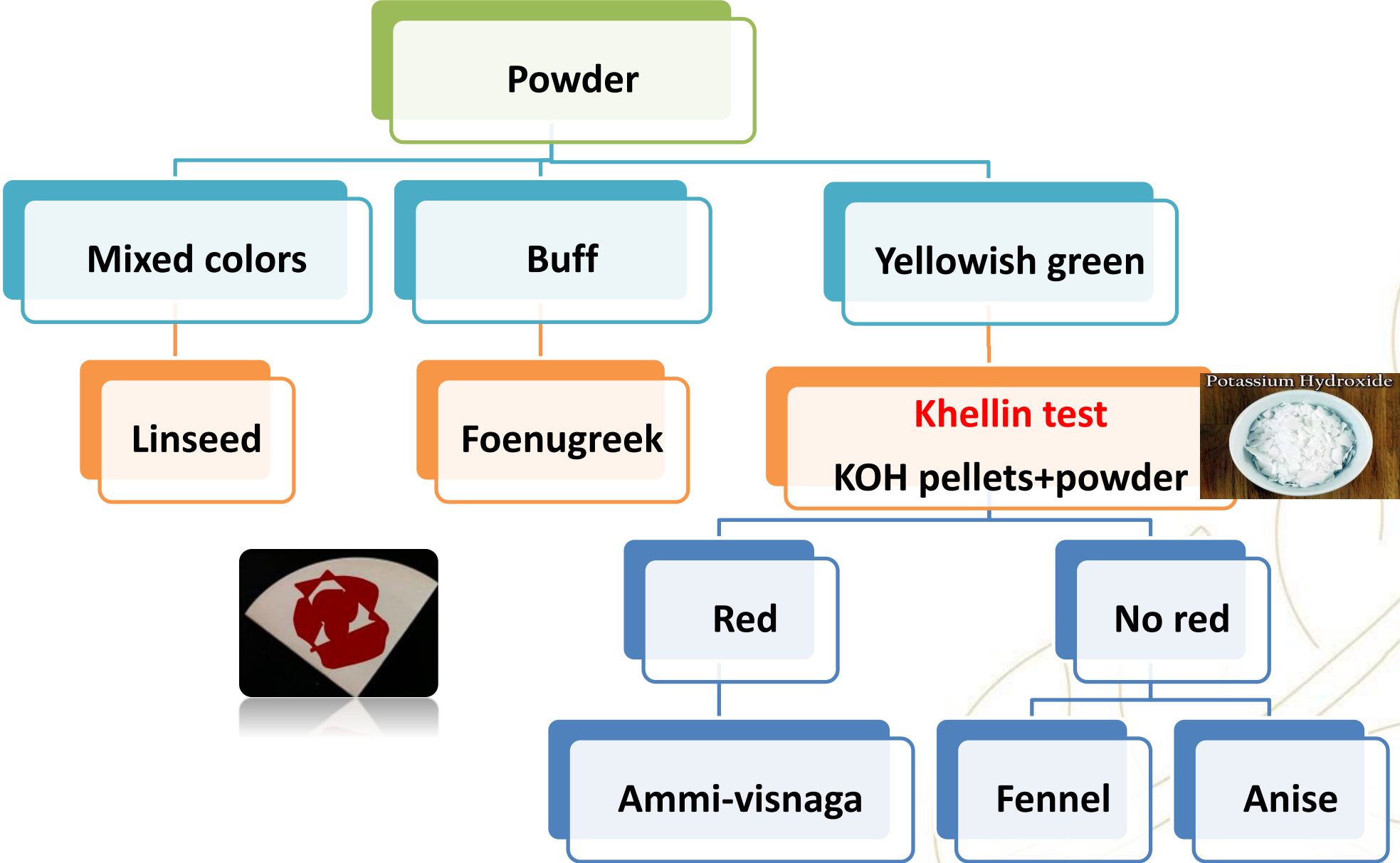
I. Powder Identification



Unknown Powder



I. SCHEME FOR POWDER



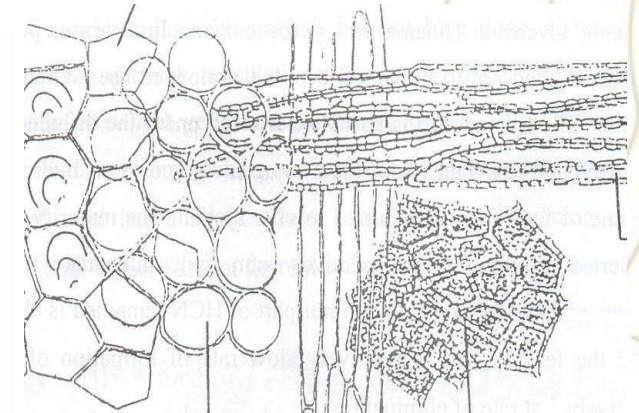
Mixed Powders

Powder+ KOH
(Boil)

Linseed



- **Mat like structure: "Sclerides (narrow elongated cell with thick lignified pitted wall) overlapped with hypodermis"**.



Condition: Fine powder

Color: Yellowish brown with dark particles

Odor: Oily characteristic odor of linseed

Taste: Mucilaginous oily

Buff Powder

Powder+ KOH(Boil)

under the microscope

- Palisade-like epidermal cells

Foenugreek

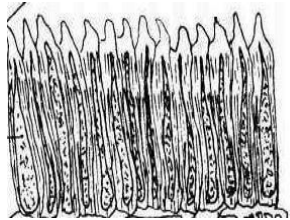
Powder:

Condition: Fine powder

Colour: Yellowish buff

Odour: Characteristic odour

Taste: Mucilagenous slightly bitter



Khelline test

Red color

Powder+ KOH
(Boil)

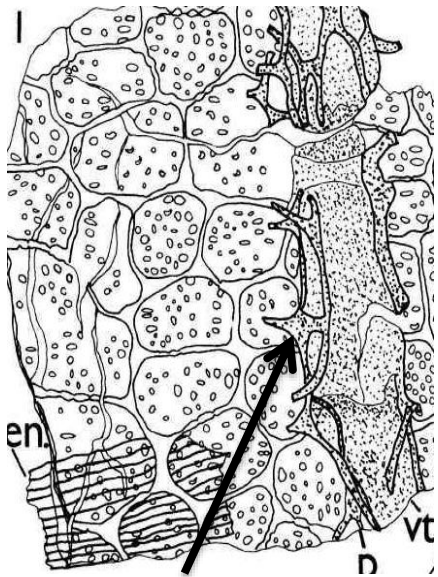
under the microscope

- Inner most layer of mesocarp
- Parquetory endocarp
- Club shaped vittea

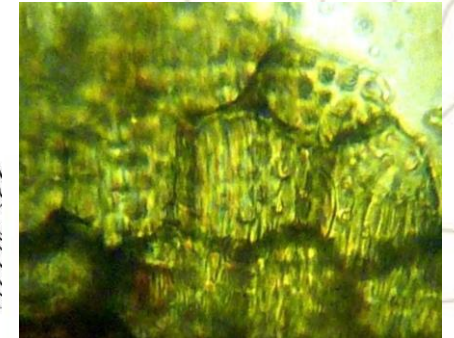
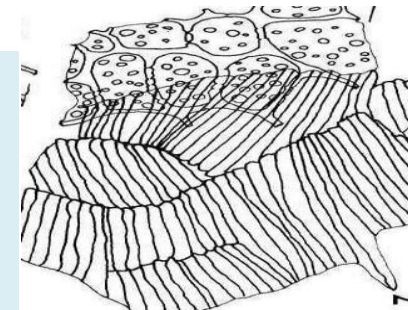
Ammi-visnaga

Powder:

Condition: Fine powder
Colour: Brownish green
Odour: Aromatic odour
Taste: Bitter taste



Club shaped vittea with radiating cells



Khelline test

Powder:

Condition: Fine powder
Colour: Yellowish green
Odour: Aromatic odour
Taste: Aromatic taste



NO Red

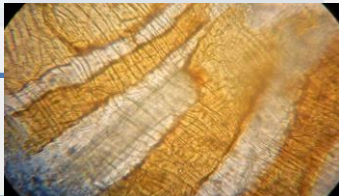


Boil in KOH

Anise

Fennel

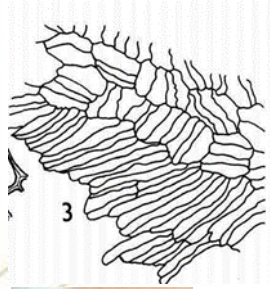
Branched vittae



Non-glandular Hair

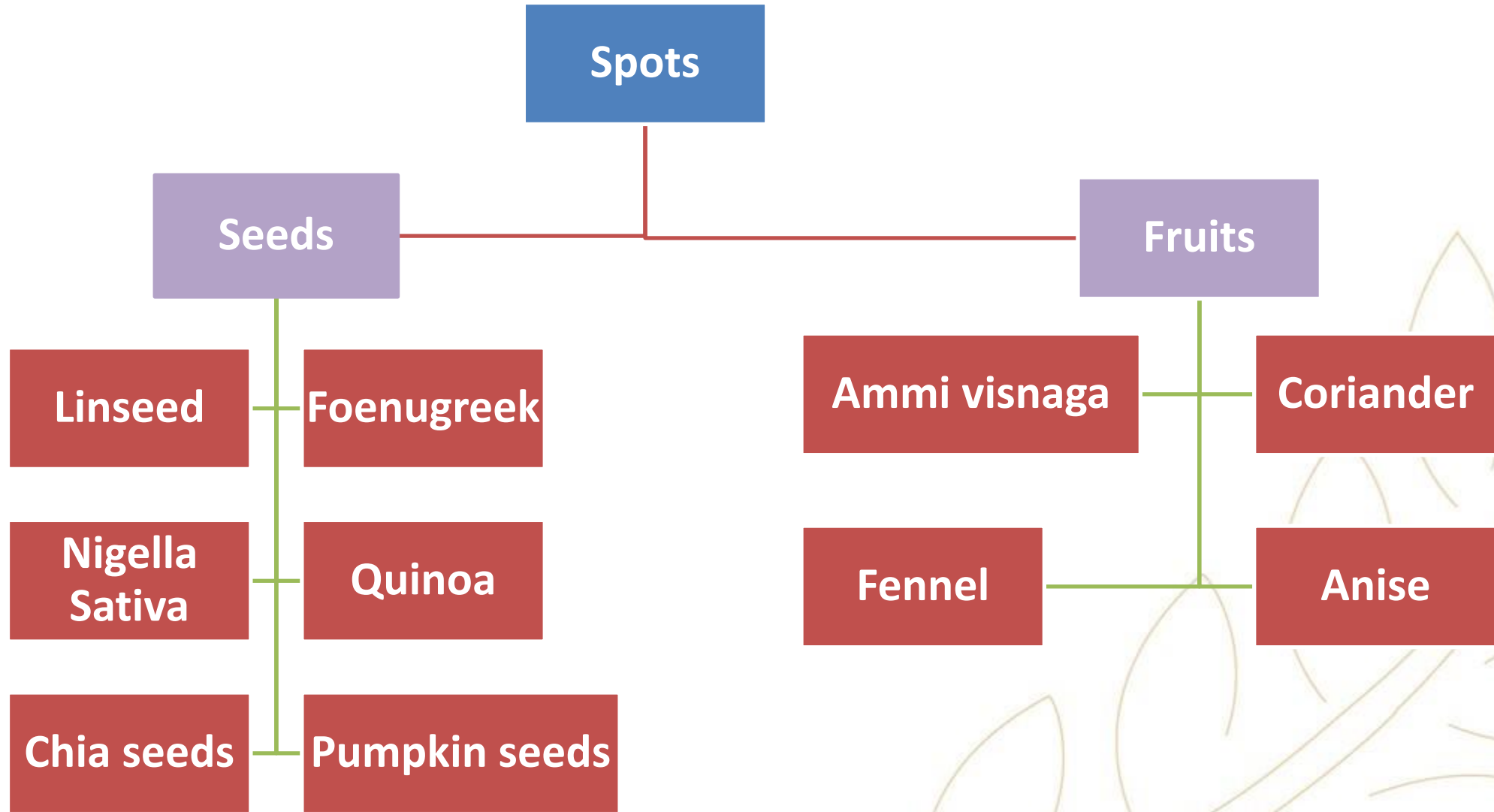


Simple vittea overlapped with parquetry endocarp



Spots





Linseed



It is the dried ripe seeds of *Linum usitatisimum*
Family: Linaceae.

Foenugreek



**Dried ripe seeds of *Trigonella Foenum-graecum*
Family Leguminosae.**



Quinoa



Dried ripe seeds of *Chenopodium quinoa*, a flowering plant in the Family “Chenopodiaceae”

Chia



Dried ripe seeds of *Salvia hispanica*, a flowering plant in the Family “Lamiaceae**”**

Pumpkin



Dried ripe seeds of *Cucurbita pepo*, Family
“Cucurbitaceae”



Nigella sativa



Dried ripe seeds of *Nigella sativa*; Family
“Ranunculaceae”

Coriander



It is the dried ripe fruits of *Coriandrum sativum* family Apiaceae.

Fennel



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

Anise



It is the dried fruits of *Pimpinella anisum*
Family Apiaceae.

Ammi visnaga



It is the dried ripe fruit of *Ammi visnaga* Family Apiaceae

THANK YOU!