

PHARMACOGNOSY III PRACTICE

MICROSCOPY

MICROSCOPE



OPTICAL PARTS

Enlightening Parts

Light Source

Mirror

Diaphragm

Condenser

Magnifying Parts

Objectives

Ocular



MECHANICAL PARTS

Base

Arm

Body Tube

Stage

Objective Revolver

Macrometer screw

Micrometer screw

Reagents

Chloral hydrate Solution: (chloral 50 g, water 50 ml)

While using the solution add a few drops to the plant material, and boil briefly over a small flame. Chloral hydrate dissolves cellular contents (starches) and allows cell walls to be easily observed.

Sartur Reagent: Contains KI, I, aniline, Sudan II, lactic acid, alcohol, and water. It is a heat-induced reagent.

- **Lactic Acid:** Clarify sections and prepares.
- **Sudan III:** Stains oils and suberized walls (cork tissues) to orange-brown. It is also useful for the examination of secretory cells and ducts.
- **Aniline:** Reacts with lignin in acidic conditions and forms yellow color (stains the sclerenchyma tissues, xylem, stone cells and scleroids)
- **Iode:** Reacts with starch and stains yielding blue-purple color.
- **Potassium iodide:** It is essential to dissolve iode.
- **Alcohol 95% and water** are the supporting elements for the preparation of reagent.

Preparation of Samples

- Place 1 or 2 drops of reagent on a clean glass slide.
- Moisten the tip of a needle with water and dip into the powder. Transfer a small quantity of the material that adheres to the needle tip into the drop of fluid on the slide.
- Cover the sample using the cover slip, do this slowly and gently, this will help preventing the formation of air bubbles.
- In case a heat-induced reagent is used, carefully boil over a small flame of a micro burner until the air is completely removed.

Alkaloid Drugs

1- Cortex Chinae



Cortex Chinae (Rubiaceae)

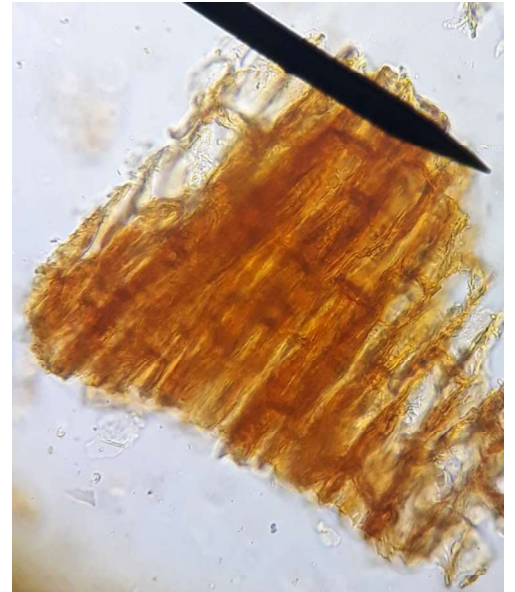
PN: *Cinchona succirubra*

R= Sartur, MM= 10x40

- a-) Sclerenchyma Fibres:
fusiform lignified fibres
having striated walls
(yellow)



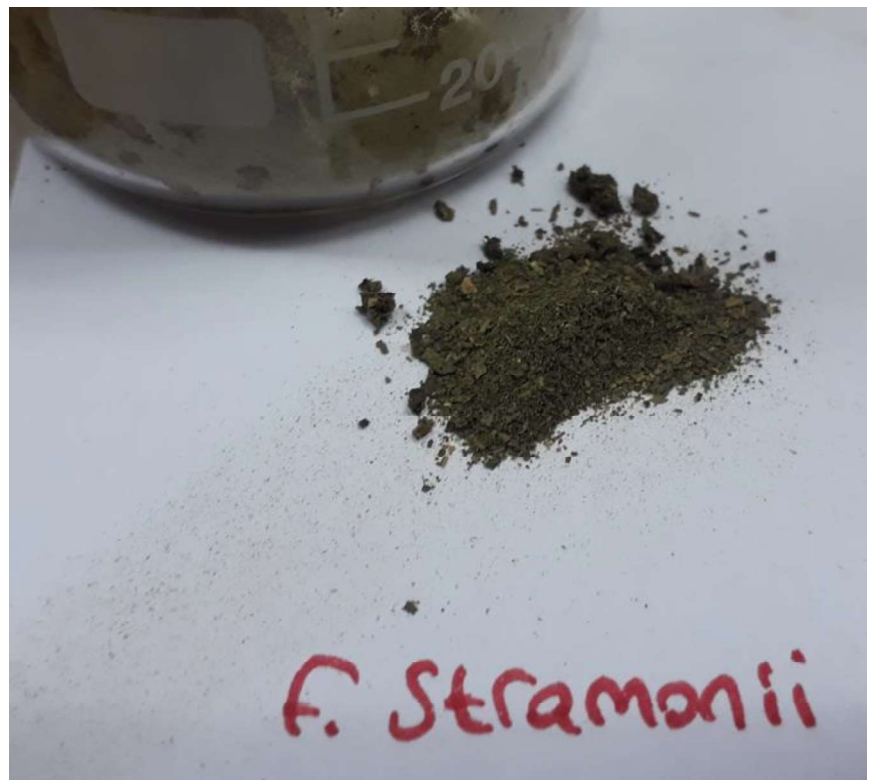
b-) Fragments of cork cells



c-) Microprisms of Ca-oxalate



2- Folia Stramonii



Folia Stramonii (Solanaceae)

PN: *Datura stramonium*

R= Chloral hydrate, MM= 10x40

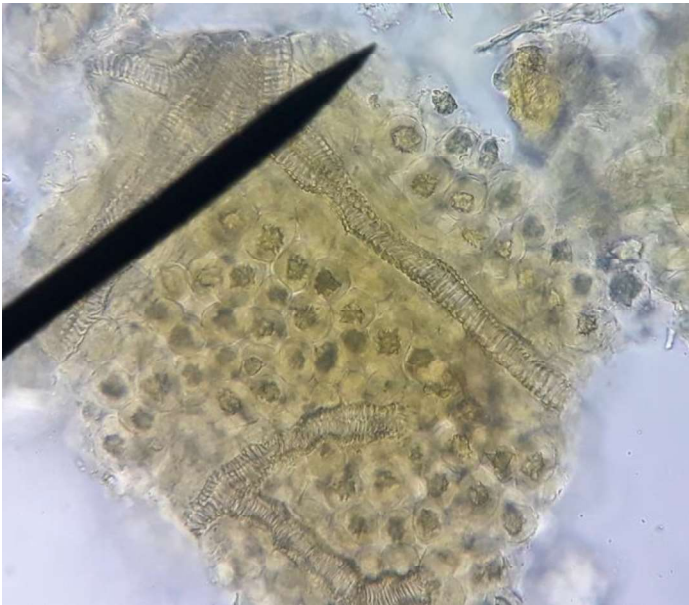
a-) Uniserial, three to five-celled hairs



b-) Warty, shortly stalked,
and glandular hairs



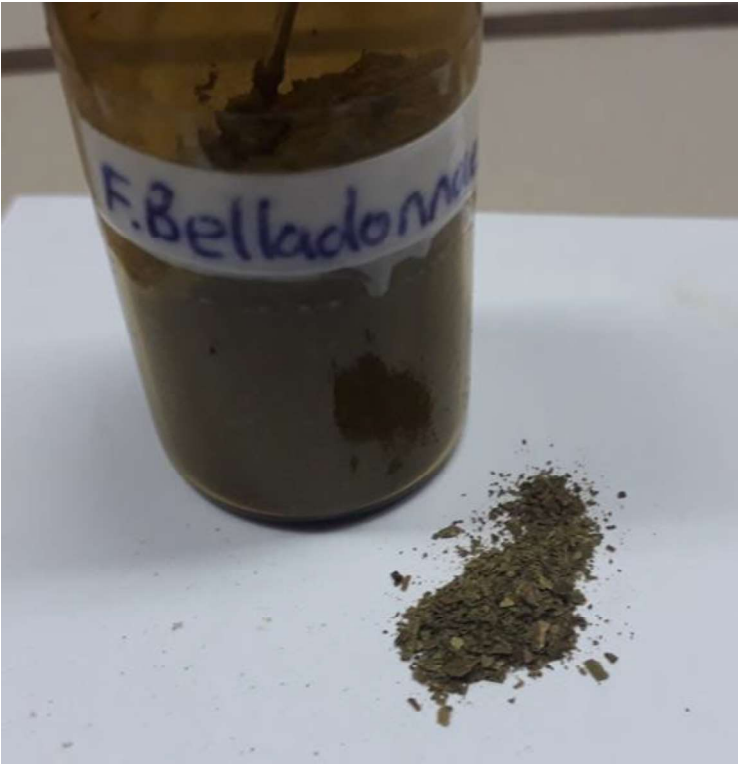
c-) Cluster-crystals of Ca-oxalate



d-) Wavy epidermal cells, stomata surrounded by three or four cells, of which one is smaller than the others (typical Solanaceous stomata)



3- Folia Belladonnae

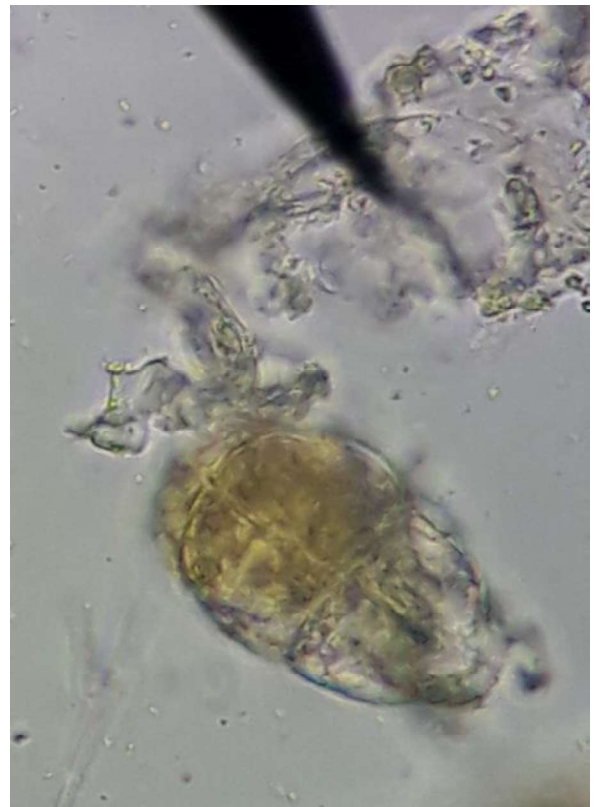


Folia Belladonnae (Solanaceae)

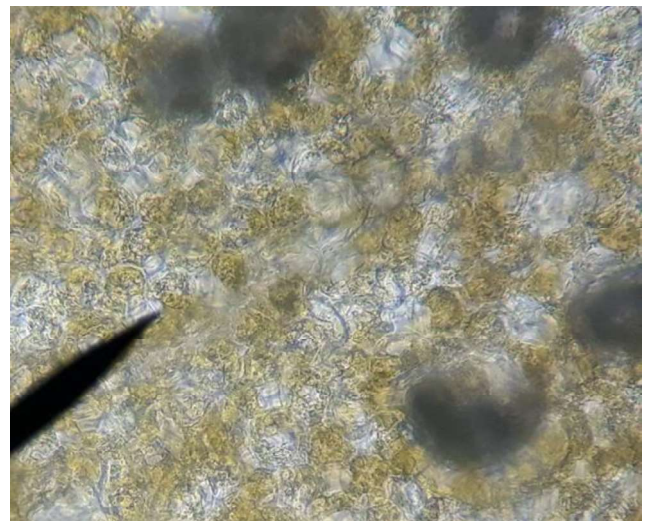
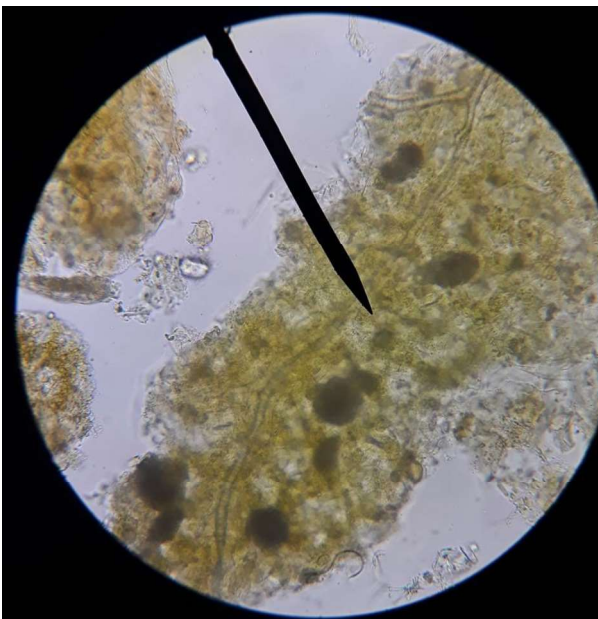
PN: *Atropa belladonna*

R= Chloral hydrate, MM= 10x40

a-) Glandular trichomes with unicellular stalks and multicellular heads

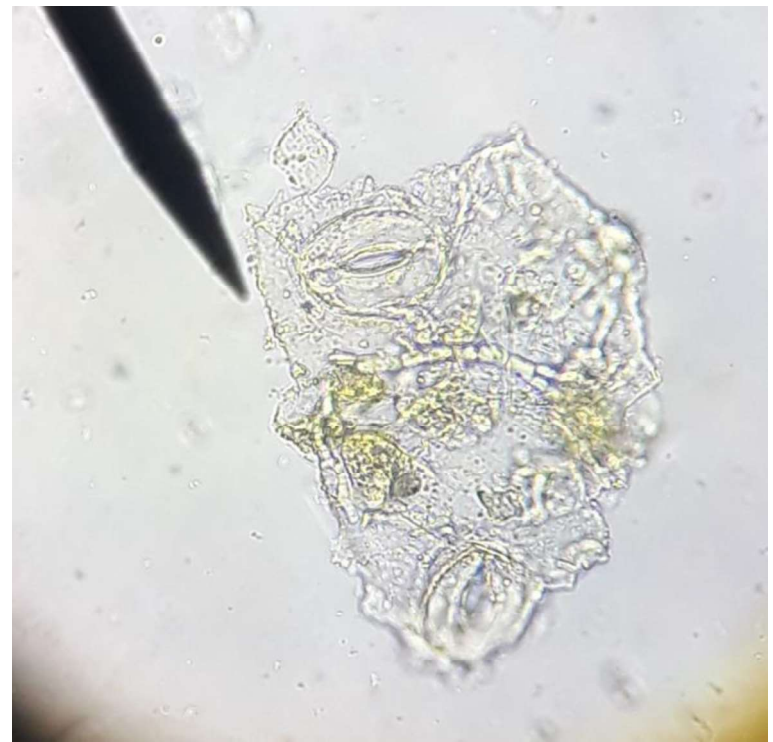
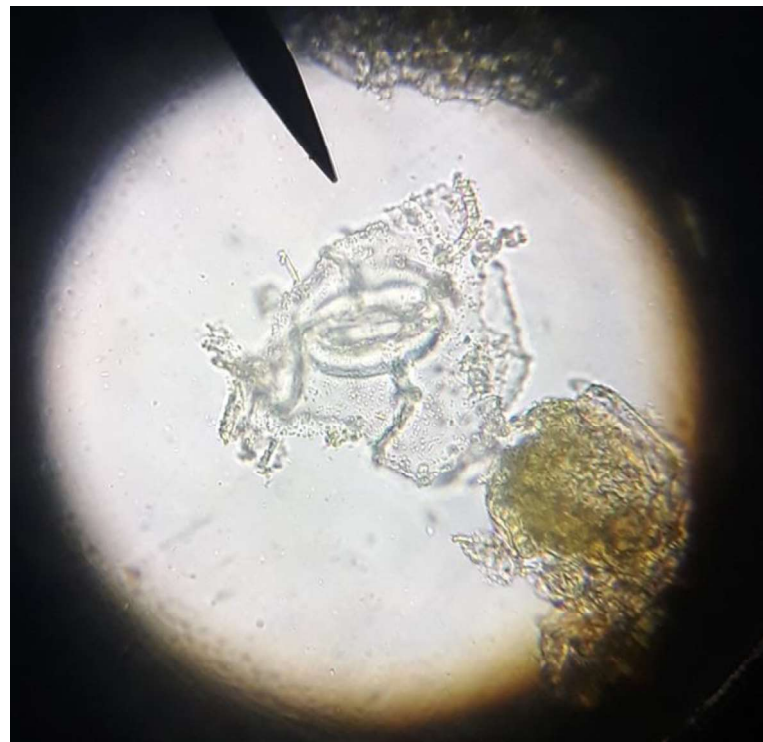


b-) Cells of the mesophyll, filled with numerous, minute crystals of calcium oxalate.



c-) Stoma:

Each stoma is surrounded by three or four cells, one of which is smaller than the others; the epidermal cells have sinuous walls and striated cuticle.



4-Folia Hyoscyami



Folia Hyoscyami (Solanaceae)

PN: *Hyoscyamus niger*

R= Chloral hydrate, MM= 10x40

a-) Glandular hair

b-) Non-glandular hair

c-) Crystals:

1- Simple crystals

2- Twin crystals