



EXPERIMENT NO: 5

Belladonna leaves: Deadly night shade leaves: Folia Belladonnae

Latin name:*Atropa belladonna L.*

Family:*Solanaceae*



Atropa belladonna
Belladonna

- Perennial herbaceous plant (1m)height.
- Flowers pale purple.
- Fruits form berry and have black colour.
- The leaves are thin, long- pointed (acuminate).
- Odour: odorless.
- Taste: bitter.
- Origin: Central and Southern Europe.

Constituents

Alkaloids tropane group (0.4%)

1. Atropine
2. Hyoscyamine
3. Scopolamine
4. Hyoscine

Pharmacological effects & Uses:

1. Atropine:

- a) Antisecretory drug, so it used in: peptic ulcer therapy, gastritis, sinus nasal secretions, allergy and asthma.
- b) Antispasmodic: decrease intestinal hyper motility.
- c) Pupil dilator (mydriasis effect): used in the eyes surgery and in the eyes examinations .
- d) Parasympatholytic agent, so it is used as antidote in case of poisoning from:
 - 1- Pilocarpine
 - 2- Physostigmine
 - 3- Organophosphate insecticides.
- e) CNS stimulant (very dangerous to be used as CNS stimulant).

2- Scopolamine (CNS depressant): treatment of motion sickness (nausea & vomiting). antimuscarinic agent.

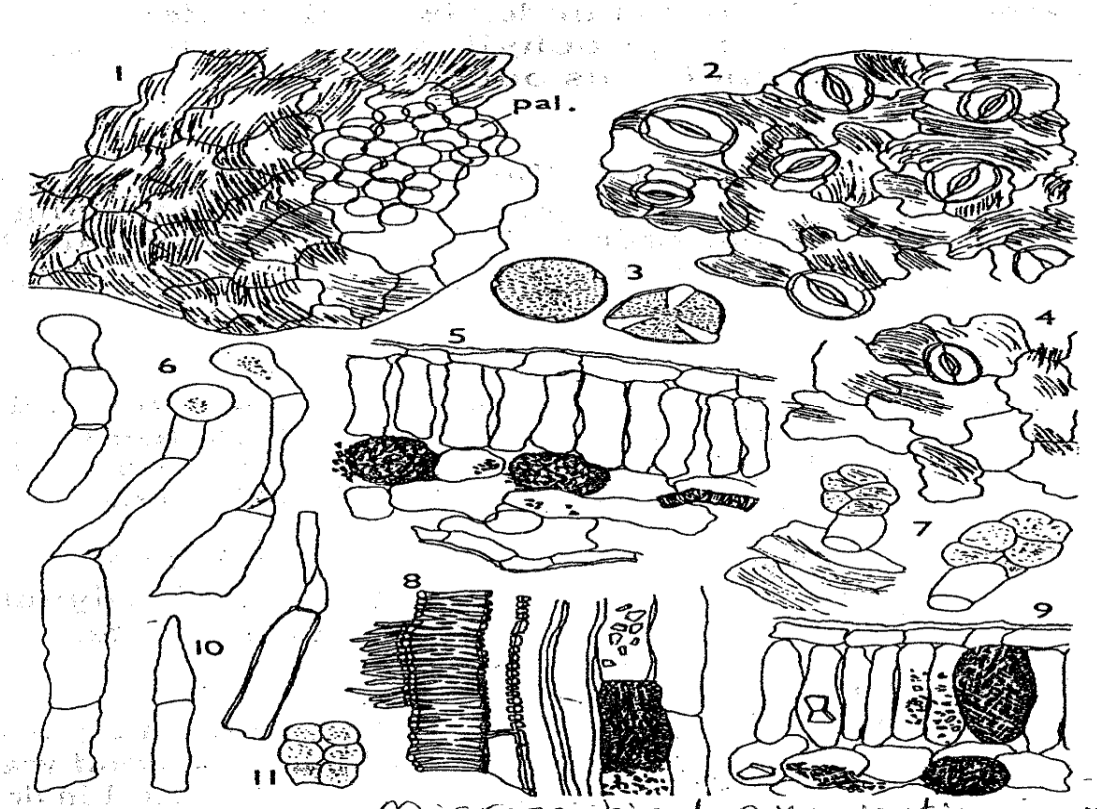
3- Hyoscyamine: control gastric secretions & intestinal hyper motility, so it is used in treatment of peptic ulcer and colic's .

4- Hyoscine: sedative effect used in case of colic's (renal and intestinal colic's).

Microscopical examinations

Key elements:

1. Cuticular striation and numerous anisocytic stomata (2).
2. Glandular trichomes with uniseriate, multi-cellular stalks and unicellular heads (6).
3. Reticulate & thickened vessels (8).



1. Upper epidermis in surface view showing cuticular striations and part of the underlying palisade (pal) .
2. Lower epidermis in surface view showing cuticular striation and numerous anisocytic stomata.
3. Pollen grains.
4. Upper epidermis in surface view showing an anisocytic stoma.
5. Part of the lamina in sectional view, showing two idioblasts in the spongy mesophyll and scattered microsphenoidal crystals of calcium oxalate.
6. Glandular trichomes with uniseriate, multi-cellular stalks and unicellular heads.
7. Glandular trichomes with unicellular stalks and multicellular heads, one attached to a fragment of the epidermis over a vein.
8. Fragment of the inner tissues of the stem in longitudinal sectional view showing reticulately thickened vessels, xylem parenchyma, fibers and un lignified parenchymatous cells containing calcium oxalate crystals.
9. Part of the lamina in sectional view showing the upper epidermis, an idioblast in the palisade and other cells containing scattered prisms and microsphenoidal crystals of calcium oxalate.
10. Part of a covering trichome.
11. Multicellular head from a glandular trichome.