

# TROPANE ALKALOIDS



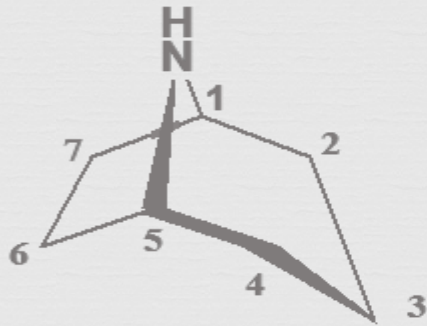
PHARMACOGNOSY  
3RD CLASS, 2ND SEMESTER

LAB.3

# Introduction



They are ester alkaloids resulted from the coupling of organic acids with amino alcohol (Base).



# Cont...



☞ Tropane Alkaloids are classified into:

## 1- Solanaceous Tropane Alkaloids.

**Occurrence:**

Atropa, Datura, Hyoscyamus.

**Main Alkaloids are:**

- 1) Atropine (Strong base)
- 2) Hyoscyamine.
- 3) Hyoscine (Scopolamine)



# Uses



**The three Alkaloids are anticholinergic agents:**

- A.** Decrease saliva and GIT secretions so used preoperative.
- B.** Decrease motility of smooth muscles so used as antispasmodics.
- C.** Stimulate respiratory system.
- D.** A mydriatic (causes dilatation of the eye pupil).
- E.** Atropine is the specific antidote to cholinergic agents by occupying receptor sites at parasympathetic nerve endings.
- F.** Hyoscine has more central effect so it is sedative and hypnotic.
- G.** Hyoscine is mainly used as antiemetic.

# Cont...



## 2- Erythroxyton Coca Alkaloids.

### Occurrence:

Coca leaves contain about 2% total alkaloids.

### Main Alkaloids are:

- 1) Cocaine.
- 2) Cinnamylcocaine.
- 3)  $\alpha$  truxilline.



# Uses



- A. Cocaine was used as local anesthetic.
- B. Cocaine has a CNS stimulant activity so is one of the widely abused drugs.

# *Atropa belladonna*



**Family Solanaceae**

# Cont...



- ❧ Belladonna leaf, also known as devils cherries, black cherry.
- ❧ The belladonna leaf yield not less than 0.35% of alkaloids.
- ❧ Native to Europe, North Africa, and Western Asia
- ❧ The name "belladonna" comes from the Italian language, meaning **"beautiful lady"**



# Toxicity



- ❧ Belladonna is one of the most toxic plants.
- ❧ All parts of the plant contain atropine alkaloids.
- ❧ The greatest danger to children because they look attractive and have a somewhat sweet taste.
- ❧ The root of the plant is generally the most toxic part.

# The symptoms of belladonna poisoning



- ❧ Blurred vision.
- ❧ Loss of balance.
- ❧ Headache, rash.
- ❧ Dry mouth.
- ❧ Slurred speech.
- ❧ Confusion, hallucinations.

# Constituents of belladonna are:-



- ☞ **Hyoscyamine** and its isomer **Atropine**, which is formed during extraction procedure.
- ☞ Also it contains **Hyoscine** (scopolamine) alkaloid, which is found in trace amounts.

# Cont...



- These alkaloids are also present in other plants as:-
  - Hyoscyamus niger* and *Datura stramonium*  
Family Solanaceae.

