

Isolation of Atropine from *Datura stramonium*

By

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Datura

Datura is a member of the most important family Solanaceae . It consist of about more than 10 common species distributed worldwide.

Datura is a herbaceous species widely distributed in the warm regions .

The most important species of *Datura* distributed in Iraq are :

- *D.innoxia*
- *D.metel*
- *D.stramonium*

Scientific classification

Family :*Solanaceae*

Scientific name :

Datura stramonium L.

Common names:

Arabic : datura; tatoora

English: angel's trumpet and thorn-apple;



Datura stramonium L.

Phytochemical composition

Phytochemical analysis confirmed that the extract of the *Datura* Contained tropane alkaloids.

Tropane alkaloids are specific class of alkaloids,. They characterize by bicyclic tropane ring system.

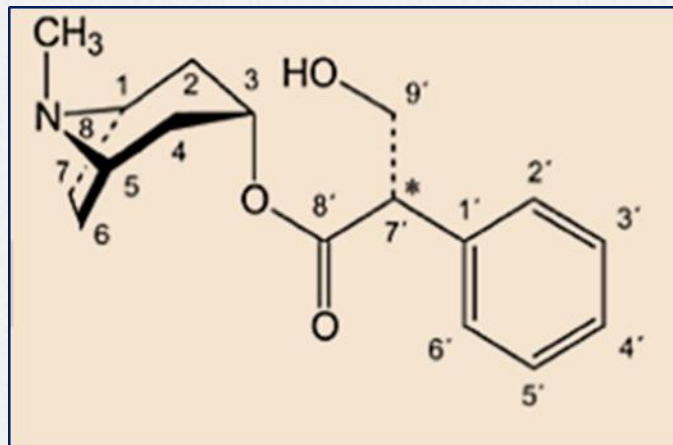
Tropane alkaloids subdivided into three major groups of medical importance : hyoscyamine / scopolamine , cocaine and calystegines.

Tropane alkaloids (atropine and scopolamine) are found in all parts of the plant, particular in the seeds , they contain about **0.25%–0.7% alkaloids.**

Atropine

The chemical formula of atropine (C₁₇H₂₃N₀₃)
molecular weight of about: (289.38).

Atropine is colorless crystal or white crystalline powder, odorless when dried at 120C⁰ .



pharmacological action

Atropine is a “classic” anticholinergic compound represented by the antimuscarinic (which block acetylcholine action competitively non selective).

	Iris	Ciliary Body	Secretion:saliva sweat,Bronchial	Bronchial muscle	GI muscle	Heart	CNS
Atropine	+	+	+	++	++	++	+

Atropine is the initial drug of choice in acute Organ phosphorus poisoning.

Solubility

Atropine is soluble in organic solvents.

1g soluble in..... **2 ml** alcohol
2.5ml alcohol at 60°C
27 ml of glycerol
25ml ether
1 ml chloroform

Atropine has low solubility in water (approximately 1g atropine in **455ml** water and **1 g** atropine in **90ml** water at 80 °C). Appear in long orthorhombic prisms from acetone, and rhombic needles from dilute alcohol.

Procedure

- A 20 g of dried powdered plant extracted in 620 ml of solvent system consist from (chloroform, methanol and 25% ammonia 15:15:1(v/v/v)) at room temperature for one hour .
- Filtration and washing with water, Transfer the mixture to separatory funnel and treated with 20 ml CHCl_3 .
- After that ,collect organic fraction to be evaporated the solvent .Till to dryness.

- The residue was dissolved in 100 ml CHCl_3 and 20 ml of 1N sulfuric acid and mix thoroughly, then re-separate using separator funnel.
- The organic layer was removed and the aqueous one (pH 10-12) with 25% ammonium hydroxide on ice .

- Furthermore extracted and treated with 10-20 ml CHCl_3 . The solvent was evaporated to dryness at room temperature over two nights.



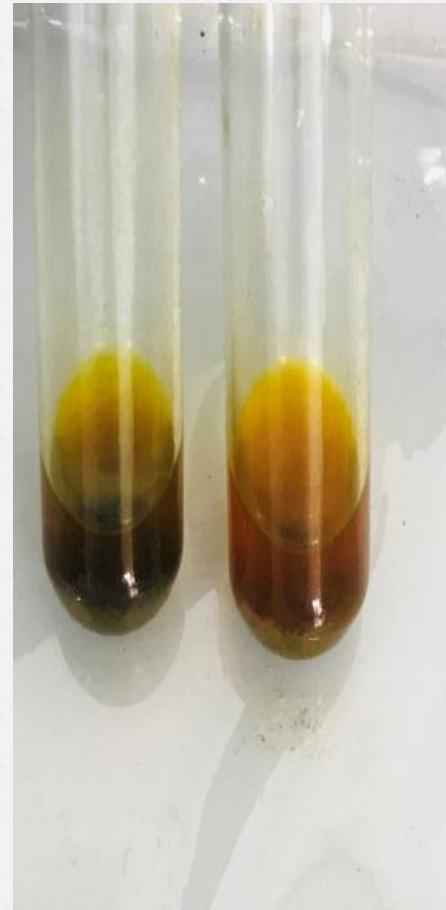
Identification

Draggendorff reagent :

1 ml of extract + 1ml of reagent



reddish- brown



Determination of yield of extract

The net yield of extracted (20g) of dried powdered of *Datura stramonium* explained in (w/w) is about 1.25.

THANK YOU

