

A STUDY OF THE ALKALOIDAL CONTENT OF *DATURA METEL* (SOLANACEAE) GROWN IN PAKISTAN

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Datura metel L. Syn., *D. Festuosa* L. Var., *D. alba* (Nees) [1] or *Safeid Datura* is a genus of poisonous herbs, shrubs (rarely small trees), distributed throughout the tropical and warm temperate regions of the world.

In Pakistan two species of this plant grow abundantly. *D. stramonium* is found in the northern region of Pakistan, but it is not rich in alkaloids [2]. *D. metel* grows wildy in Sind region particularly in Karachi and can be cultivated very easily. The drug used in commerce is collected mostly from wild plants.

The present communication, deals with a study of the alkaloidal contents of *Datura metel* L.

ALKALOIDAL CONTENT OF *D. METEL* L.

Samples were collected from plants growing wildy in the sandy soil near PCSIR Laboratories, Karachi and also from Malir, Karachi.

The air dried roots, leaves, flowers fruits and seeds of *D. metel* were assayed by extracting with ethanol (95 %), concentrating the alcoholic extract under vacuum at low temperature (40–48^o) and extracting the green, sticky, thick extract with dilute hydrochloric acid. The clear, reddish brown solution was made alkaline with a dilute (20 %) solution of ammonium hydroxide (pH 8–9) and then extracted immediately with successive portions of chloroform. The chloroform extract was dried with anhydrous sodium sulphate, filtered and the yellowish filtrate concentrated under vacuum. A golden-yellow syrupy residue of the total alkaloids (0.7–0.98 %) was left. Percentage of total alkaloids was least in fruits (0.07 %) and highest in flowers (1.6 %).

It was further observed that the amount of alkaloids in the roots increases gradually with the age of plant, and reaches a maximum of 0.62 % when the plant is 3–4

Table 1. Amount of hyoscine and apoatropine in different parts of *D. metel*.

| | Root | Leaves | Flower | Fruit | Seed |
|------------------|-----------------------|------------------------|--------|--------|--------|
| Hyoscine (%) | 0.0931 | 0.49 | — | 0.487 | 1.0 |
| | 0.1-0.22 ³ | 0.25-1.55 ³ | — | | |
| Apoatro-pine (%) | 0.148 | 0.53 | — | 0.0181 | 0.0964 |

months old and then it goes on decreasing during fruiting period. In the stem this amount is higher at early stages and lowers down in the fruiting stage. Similarly the unripe seeds contain 0.0668 % alkaloids whereas on ripening the alkaloidal content reaches 1.1 %.

From the total alkaloids the amounts of two important alkaloids apoatropine, hyoscine of *Datura* were also determined (Table 1.)

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