

GERMINATION OF SEEDS OF *Datura stramonium* L. UNDER DIFFERENT CONDITIONS (TEMPERATURE & SOIL)

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ABSTRACT

The germination studies of the seeds of *Datura stramonium* Linn were conducted at laboratory conditions. Under different temperatures studies showed that the most suitable temperature, at which the seeds of *Datura stramonium* Linn. were germinated in maximum number, was 30°C. The germination studies showed that possible factor responsible for the dormancy of seeds was hard testa. Different soil conditions also affected the germination of seeds of *Datura stramonium* Linn. The seeds of the species were sown under 5 different types of soil i.e. clayey, sandy, loamy, Control (clayey loam) and leaf mold soil, in pots and field. In the leaf mold soil the %age of seed germination was greater than other types of soil.

INTRODUCTION

Datura stramonium L. belongs to the family **solanaceae** (Stewart, 1972) and is a pharmacopoeial drug plant of British and United State Pharmacopoeias (Khan & Hussain, 1960).

Description: It is an annual herb, 1.3 meters or more high. Stem erect, branched (Treases, 1975). Leaves with long petioles; lamina ovate, about 10 - 20 cm long and 6 - 15 cm wide, coarsely dentately lobed, nearly glabrous (Wallis, 1960). Flowers pedicillate, solitary, terminal, white in color; calyx: sepals 5, gamosepalous, persistent forming a cup shaped structure at the base of mature fruit; corolla: petals 5, gamopetalous, infundibuliform, twisted tips of the teeth acuminate; androecium: stamens 5, epipetalous; gynoecium bicarpellary, syncarpous; ovary superior, obliquely placed, each loculus contains numerous ovules; style long; stigma capitate (Khan & Hussain, 1960). Fruit thorny capsule, dehisces septifragally to form four valves to liberate numerous seeds (Wallis, 1960). Seeds flattened, reniform, black or dull dark brown and marked by shallow reticulate depressions.

Constituents: *Datura stramonium* L. usually contains up to 0.7 % of the alkaloids

hyoscyamine, atropine, apoatropine, belladonine, scapolamine, resin etc. Daturine is a mixture of hyoscyamine and atropine (Youngken, 1950). Pater (1952) found in the leaves of *Datura stramonium* L. 0.25 - 0.342 % and in the roots 0.120 % of the total alkaloids, (Wallis, 1960). According to the biennial report 1959 - 60 of P.C.S.I.R. Karachi, the %age of alkaloids in different parts of *Datura stramonium* L. in East Pakistan (Bangladesh) was found to be - seeds 0.4%, leaves 0.3% and roots 0.2%.

Uses: *Datura stramonium* L. affects the nervous system, mostly severely causing narcotic symptoms, dilate pupils etc., and cause mortality in stock and human beings and used as sedative and anodyne. It has been recommended in epilepsy. An ointment made with powdered leaves allays the pain of hemorrhoids. In British and U.S. Pharmacopoeias it is also advised in whooping cough. The powdered root is applied to gums for pain also used for toothache.

The purpose of the research work is to find the effect of various temperatures and soils on the germination and growth behavior of *Datura stramonium* L. The first part of the research work i.e. "Germination of seeds of *Datura stramonium* L. under different conditions (temperature and soil)", is presented in this