

Effects of different pre-sowing treatments on seed germination of the *Cassia javanica* L. var. *indoctiensis*

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Article Chronicle :

Received :

16.01.2012;

Revised :

01.05.2012;

Accepted :

29.05.2012

SUMMARY: The experimental study was undertaken primarily to develop larger scale seedlings trees of *Cassia javanica* to the landscape of Botanic Garden of Indian Republic Noida and the process involved to break its seed dormancy. Three different experiments were conducted to determine the effect of various treatments such as growth regulators, acid scarification, surface sterilization, mechanical scarification, hot water, sulphuric acid and water soaking, on seed germination. In all the experiments, daily observations were recorded for 60 days after sowing. It was observed in experiment 1, that mechanical scarification resulted in better germination of *C. javanica* as compared to unscarified seeds. Whereas in experiment 2, seeds dipped in distilled water for 5 minute showed the highest germination ratio (20%). While in experiment 3, 21 per cent germination was observed in con. sulphuric acid scarification for 45 minute. Among various treatments applied resulted better germination in comparison to untreated seeds. It was observed that seed treatment is essential for overcoming dormancy in *Cassia* seeds since germination is influenced by various factors.

HOW TO CITE THIS ARTICLE : Chauhan, Sandeep K. and Ahmedullah, M.(2012). Effects of different pre-sowing treatments on seed germination of the *Cassia javanica* L. var. *indoctiensis*. *Asian J. Environ. Sci.*, 7 (1): 87-90.

Key Words :

Cassia javanica,
Pre-sowing
treatment, Seed
germination

Cassia is beautiful flowering tree which is moderately stress tolerant and widely grown as an ornamental tree in tropical/sub-tropical areas of Indo-Malaya region. In a study to evaluate a large number of ornamental plants, it was found to be tolerant to extreme vagaries of the summer (Bhat and Al-Menaie, 1999). Its flowers are pleasantly fragrant also. Cassia are known as pink shower is flowering deciduous ornamental tree. Cassia is well known mainly for the landscaping attributes, tolerance to drought conditions and low maintenance requirements (Ghouse *et al.*, 1980). These characteristics qualifies Cassia for introducing in Delhi region and attempts have been made to introduce these trees to botanic garden conditions. However introduction of any plant into a new region requires thorough study with respect to its germinability and growth requirements and adaptability to particular climatic conditions. Cassia seeds usually exhibit

seed coat imposed dormancy which may be due to impermeability of testa to water and gases (Rolston, 1978). The most common cause of delay in seed germination is the imperviousness of the seed coat *i.e.* blocking of water entry into the seed (Cavanagh, 1980). For germination to start, the impermeable seed coat must be rendered permeable. Hence, dormancy breaking treatment of Cassia seeds is of big importance and needs specific treatments for breaking seed dormancy (Nalawadi *et al.*, 1977; Ramamoorthy *et al.*, 2005). Therefore, in the present investigation, three experiments were conducted at Botanic Garden Seed Bank Laboratory for *C. javanica* with an objective to determine treatments that promote maximum germination and produce superior quality seedlings. In addition to this, another objective of the study was to establish changes if any, occurring in the seed coat which increases seed coat permeability and ensures availability of moisture in the embryo to trigger the process of germination.

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