

detailed studies exist, especially concerning the mechanism of meiotic segregation as well as the effects of B-chromosomes on flowering (KEAN *et al.* 1982) and growth (MOIR and FOX, 1976; KEAN, 1981). As a result, it was found that the accumulation of the B-chromosomes is probably due to their preferential migration at the first meiotic division in the female to the pole giving rise to the single functional megaspore (KEAN *et al.*, 1982).

These findings are of interest for the present study insofar as the absence of B-chromosomes in the test material may be explainable by their absence in the mother trees.

### 5. Literature

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## Short Note: An albina-type natural Chlorophyllmutant in *Azadirachta indica* A. Juss

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### Abstract

Occurrence of albina-type chlorophyll mutant in Neem is reported. This is perhaps the first report of achlorophyllus seedlings detected in the half-sib progenies of ten selected Neem trees.

*Key words:* Neem, Albino-Seedlings.

### Zusammenfassung

Es wird über das Auftreten von Albino-Sämlingen (Chlorophyll-Mutanten) bei *Azadirachta indica* A. Juss berichtet. Dies ist möglicherweise der erste Bericht über Albino-Sämlinge, die bei dieser Baumart in Halbgeschwister-Nachkommenschaften von 10 selektierten Einzelbäumen entdeckt wurden.

### Introduction

*Azadirachta indica* A. Juss., the Indian Neem tree is wide-spread in this country, both in wild state as well as under plantations. It is a common avenue tree and

highly valued as medicinal plant and as a timber. The Neem seed oil is also used as an agent for pest control. Neem has been employed as a rule for dry zone afforestation in various states. For large scale plantations under social forestry programme, various experiments are being conducted at nursery stage and from one such experiment, Neem seedlings exhibiting chlorophyll mutation is reported in this paper.

### Material

Open pollinated seeds from ten mature selected trees having dense crown and profuse fruiting were collected during the months of June and July. The seeds were germinated immediately after collection as Neem seeds do not retain viability for a longer period. From each individual tree, 2000 seeds were kept for germination and nearly 12510 seedlings were raised from ten individual trees (*Table 1*). After completion of the germination period, seedlings were transplanted into polybags containing soil, sand and farm yard manure and were kept under observation.

### Observations

The Neem seeds germinate epigeously and the period of germination was 20 to 27 days. The germination percentage obtained in ten trees varied from 60 to 68 per cent. Bed No. 7 (Tree No. 7) showed three seedlings having milky

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Fig. 1. — Neem seedlings A: Nomal green seedling B: Albino seedlings.

Table 1. — Details of Seed germination and occurrence of albino seedlings from selected Neem trees.

Tree No.	Seed weight (g)	Seed sown for germination	Seeds germinated	Frequency of albino seedlings (%)
1.	580	2000	1225	-
2.	585	2000	1260	-
3.	577	2000	1200	-
4.	575	2000	1240	-
5.	585	2000	1305	-
6.	581	2000	1240	-
7.	576	2000	1220	0.245
8.	584	2000	1260	-
9.	580	2000	1200	-
10.	578	2000	1360	-
Total	5801	20000	12510	0.245
Avg.	580.1	2000	1251	-

white arched hypocotyl region instead of usual green hypocotyl. These three seedlings further produced pure white leaves (Fig. 1) and survived only for a brief period of one month. It was observed in the field, that tree No. 7 which produced three albino seedlings was far away from the group of Neem trees. Natural isolation of this tree might have led to selfing. However, it is commonly observed in Neem, that during the flowering period various insects, mainly bees are found to visit the honey smelling flowers indicating the role of cross-pollination.

#### Discussion

Like many other broad leaved forest tree species, in Neem also no exact information is available on the floral biology and pollination mechanism such as, whether it is

an often cross-pollinated or often self-pollinated tree crop? Such basic information on the breeding system is essentially required for the success of the tree improvement programme. Occurrence of mutants like albino-seedlings in Neem could be due to geitonogamy which is genetically equal to self-pollination. And continued selfing in cross-pollinated crop may give rise to weaker progenies. In the present investigation, tree No. 7 appears to carry chlorophyll mutant lethal gene in heterozygous condition and transmitted this trait to its progenies resulting into 0.245 per cent homozygous albina seedlings which subsequently perished. Similar such cases have been reported earlier in *Pinus roxburghii* (VENKATESH and THAPLIYAL, 1963), *Eucalyptus tereticornis* (VENKATESH and SHARMA, 1974), *Bombax ceiba* (VENKATESH and EMMANUEL, 1976) and *Santalum album* (SRIMATHI and KULKARNI, 1982). Frequency of occurrence of these mutant traits can thus be used as genetic markers in estimating the natural out-crossing and inbreeding in the parents carrying the lethal mutant gene in heterozygous condition as used by SQUILLACE and KRAUS (1963) in Slash pine.

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