



## **Twin And Triplet Seedlings in *Swietenia mahagoni***

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### **ABSTRACT**

Seedlings abnormalities is one of the natural phenomena reported in many tropical tree species. In this paper, abnormality of twin and triplet seedling is reported for the first time in *Swietenia mahagoni*,(L.) Jacq.

### **Keywords:**

*Swietenia mahagoni*, triplet seedling, twin seedling

### **INTRODUCTION**

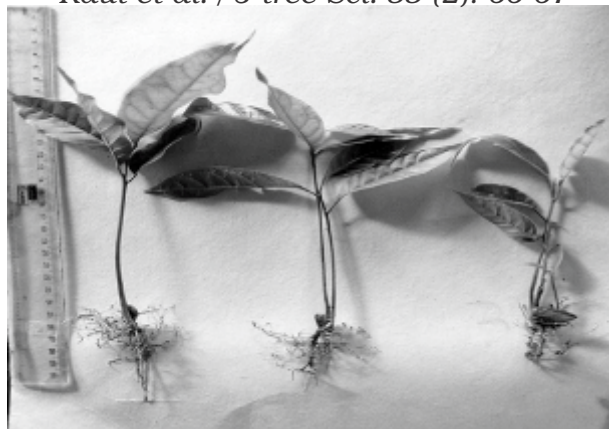
The study of morphological development of seedling during germination helps in the evaluation of normal and abnormal seedlings. Seedling morphological abnormality such as double embryo, polyembryony, twin seedling, triple seedlings, albino and chlorophyll mutant etc. observed in many tropical tree species and this could be due to the several factors such as genetic factor, developmental error during ovary development, fertilization or mutation. However, seed grading and seedling evaluation are most important aspects of seed testing, which influences the future survival, growth and adaptation of seedlings to specific planting site. Abnormal seedling are widely reported in the country (Gunaga et al. 2008, 2011, Gunaga and Vasudeval 2011). Grading of seedling is necessary step in the forest nursery to separate under-growth or abnormal seedling form normal seedling height. Such abnormal seedlings are generally discarded before transportation of seedlings to the planting site.

*Swietenia mahagoni*,(L.) Jacq. family Meliaceae is native to West Indies. It was introduced to India in 1975 and now grown in many part of India (FRI 1981). Mahogany moderately fast growing, medium sized to large evergreen tree attaining a height of 30 m. It is fast upright growing

tree with abroad rounded symmetrical crown. It is 20 -30 feet in spread. The fruit is a large greenish brown capsule, splitting into 5 parts flat, long winged, light brown seeds. Its wood is red brown in colour. Both the male and the female flowers are produced on the same plant. The bark is smooth dark brown in colour. The leaves are pinnate which are 12 -25 cm long, with four to eight leaflets. Such abnormal seedlings are recorded in *S. mahagoni* from the forestry nursery of College of Forestry, Dapoli, Maharashtra. Details of abnormal plants recorded are presented in this paper. In this study, such abnormalities like twin and triplet seedlings were recorded in *Swietenia mahagoni*,(L.) Jacq., is a commonly used herb in Ayurvedic medicine (Mayur et.al. 2011) and one of the commercially important avenue planting tree species of India.

### **MATERIALS AND METHODS**

The Forest Nursery of College of Forestry, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli is raising seedlings of commercial important tree species for farmers of Konkan region *S. mahagoni* is one of the species, which is raised annually in our nurser. The species has got demand especially for planting along the road side and avenue planting. It also have medicinal value. In order to raise seedlings, seeds of this species were collected from healthy tree located in the



**Photo 1:** Twin and triple seedlings of *Swietenia mahagoni*

campus. The capsules were collected from tree just before they start to dehisce. Capsules were sun dried and seeds are taken out when the capsule was open. Seeds were de-winged and sown in germination bed. Observations on germination count plant abnormality, plant survival were recorded. A total of 950 seed were sown in the germination bed made up of Coir-pith in the germination chamber.

#### RESULTS AND DISCUSSION

Fruit (capsule) of *S. mahagoni* consists many winged seeds and each seed produced into single seedling. However, in the present study twin and triple seedlings in *S. mahagoni* were observed (Photo 1). The total germination capacity of a seed lot of *S. mahagoni* was 76.53 percent .in total seedling lot , 99.04 percent of seedling was normal and remaining 0.96 per cent of seedlings were abnormal having 0.68 and 0.28 per cent of twin and triplet seedlings, respectively (Plate 1). Perhaps this could be the first report on this species

Many workers have earlier reported twin and triplet seedling in many species like *Acacia farnesiana*, *Robinia pseudocasia*, *Terminalia arjuna*, *Tectona grandis*, *Santalum spicatum*, *Mangifera indica*, *Shorea robusta*, *Dalbergia sissoo*, *Bombax ceiba*, *Putranjiva roxburghii*, *Nothapodytes nimmoniana*, *Calophyllum inophyllum*, *Saraca asoca*, *Garcinia indica* and *Mammea suriga* (Gunaga and Vasudeva 2008)

The growth performance of such abnormal seedlings at juvenile stage has not been observed by the earlier workers. The genetic potential of such abnormal seedlings, if desirable, can be used for

future breeding programmes. Hence, such seedlings instead of discarding could be retained and grown to test their early performance under field conditions. Gunaga and Vasudeva (2008) however, recommended to keep one leading shoot for higher vigour in twin and triplet seedling and remaining shoots to be culled out at the earliest possible to use these seedlings for field planting.

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