

Seed Abortion in *Oroxylum indicum*, A Commercial Medicinal Tree

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**ABSTRACT**

*Oroxylum indicum* (L) Benth. Ex Kurz (Family: Bignoniaceae) is one of the medicinal tree species of deciduous forest that distributed in South-east Asia. During experimentation, aborted seeds were recorded in collected seedlot for nursery. Rate of seed abortion ranged from 30.56 to 47.62 % among 13 pods collected from a single tree. This could be one of the causes for low seed germination. Reasons for seed abortion in this species have been discussed.

*Oroxylum indicum* (L) Benth. Ex Kurz (Family: Bignoniaceae), commonly known as *Tetu*, is a deciduous species distributed widely in South-east Asia. This plant has several medicinal properties viz., anti-microbial, anti-fungal, anti-inflammatory and anti-cancer [1]. This species is one amongst the Dashmul plants used in ayurvedic medicine, *Dashmularista*. Due to its medicinal properties, species has gained economic importance. Presently, large quantity of raw materials is being procured from natural forests to meet out the needs of pharmaceutical industries. Owing to its unscientific exploitation, species is becoming rare in their natural habitat. Therefore, the FRLHT (Foundation for Revitalisation of Local Health Traditions), Bangalore has treated this species as vulnerable / endangered category in Southern India [2]. Hence, this species needs domestication, commercialization and also conservation in their natural habitats.

An attempt has been made to standardise the nursery techniques of this specie for large scale planting programme [3]. The study was conducted at the College of Forestry, D.B.S.K.K.V., Dapoli during 2009. For the study, a total 13 unopened pods of *O. indicum* were collected from the single isolated tree. Seeds were extracted from pods after shade drying for about seven days. Preliminary observations on pod and seed characteristics were recorded in this species [3].

During the experimentation, it was recorded that 41.13 per cent of seeds in a seed lot contained aborted seeds (Plate. 1). Perhaps, this could be the first report on such an event in this species. Among thirteen pods, rate of aborted seeds ranged from 30.56 to 47.62 per cent (Fig. 1). However, the percentage of fertile seeds per pod (Plate 1) varied from 52.38 to 69.44 with an overall mean of 58.87 per cent (Fig. 1). Result clearly indicated that in a seed lot, about 40 per cent of seeds were found to be aborted, which is directly affects the seed germination. Further, it is suggested to go for grading of seed lot by removing aborted seeds before seed sowing. This piece of information may be useful for calculation of seed rate for raising nursery stock of this species.

The seed emptiness has been reported in several tree species. In teak, variation in seed emptiness among seedlots of 20 seed production areas in Karnataka was recorded and it varied from 6.67 to 55.0 per cent [4]. It is presumed that peak rainy season coincided with blooming period resulted in lack of pollinator, lack of pollen grains may cause for seed emptiness in teak. Further, non-synchronous flowering may be another major factor that affect seed fill in teak [4]. Dane and Melton have reported lower aborted

seeds in self-pollination as compared to cross pollination in *Medicago sativa* [5]. They mentioned that abortion of mature seeds appeared to be independent of factors conditioning embryo abortion in the early stages of seed development.

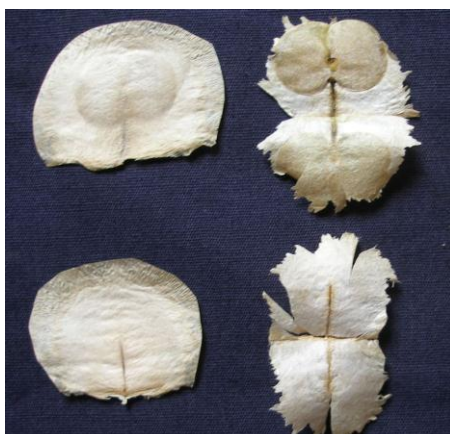


Plate 1: Photo showing fertile seed (a) and aborted seed (b) in *Oroxylum indicum*

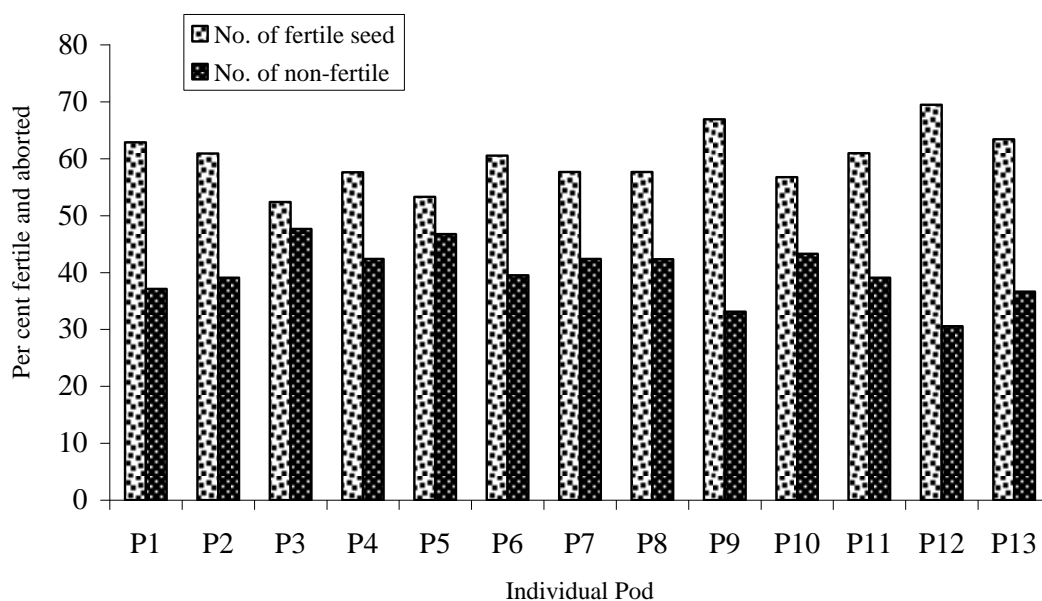


Fig. 1 Variation in per cent fertile and aborted seeds among thirteen pods studied

There are several other factors that responsible for seed abortion in tropical trees like lack of pollen germination, reduced fertilization, post-fertilization seed abortion, difference in time of fertilization and competition for maternal resources within a pod [6-7]. However, in *Oroxylum indicum*, it is known that species is distributed scatterly and pollinated by bat species viz. *Eonycteris spelaea* and *Leschenault's rousette* [8] and is self-incompatible in nature. Thus, lack of pollination could be the major factor that affecting seed abortion in this species.

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