



## **FLOWERING AND FRUITING OF AQUILARIA MALACCENSIS LAMK THROUGH BRANCH CUTTINGS AT EARLY AGE – A NEW REPORT.**

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**ABSTRACT:** The present study incorporates regarding the early flowering and fruiting of *Aquilaria malaccensis*, a most expensive non wood forest tree species of north east India. Due to recalcitrant nature of seeds of the species, the experiments were conducted through cutting trials. Plants were produced through cuttings, treated with 200ppm IBA. The results inferred for flowering in the cuttings within a very short period followed by fruiting with fertile seeds. Two seedlings were raised in the nursery finally. As the several factors are responsible for early flowering and fruiting of different plant species, likewise, during this study the plants of *A. malaccensis* produced vegetatively also experienced with various determinants like sunlight, prolonged rainy season etc.

**Keywords:** *Aquilaria malaccensis*, Flowering, Recalcitrant, Vegetative, Propagation

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### **INTRODUCTION**

*Aquilaria malaccensis* Lamk, belonging to the family *Thymelaeaceae* is one of the most precious tree species of north eastern region of India. The species is economically important due to the formation of agarwood in the heartwood of the tree. Agarwood, the most expensive material in the world is a resinous substance, used extensively in perfume, medicine and incense industry across Asian and European countries (Sen *et al.*, 2015). The essential oil, extracted from agarwood fetches a very high price in international market (Abdin 2014).

*Aquilaria malaccensis* is distributed throughout the South East Asian countries whereas in India, it is endemic to north east India only. The species is locally known as 'Xashi' or 'Agar' to the people since ancient time. A large section of rural population is dependent on this species for livelihood. But, due to over exploitation, the population of *A. malaccensis* in the natural forest of the entire region is dwindling and reaches the state of 'Critically endangered' (Harvey-Brown, 2018). Since the eighties, people of eastern Assam started cultivating agar in their homestead garden and at present in north east India almost 20 million agar trees are under cultivation. Out of them, only 5 million trees are naturally infected to produce agarwood which are mostly

distributed in three districts of the state namely Jorhat, Golaghat and Sibsagar (Borah and Deb, 2019). For cultivation, the plants are generally propagated through seeds which are available in the month of June – July. Germination of the seeds takes place within three weeks of sowing and the fresh seed shows 70-80% germination (Adelina *et al.*, 2004). But, the main drawback of propagating *A. malaccensis* through seeds is that, they cannot be stored for longer duration due to their recalcitrant nature. The branch cuttings, because of their easy availability, cheapness and same genetic makeup could be the future propagating material. In general, flowering and fruiting of the species start at the age of 5-6 years (Adelina *et al.*, 2004). However, unusual flowering and fruiting of *A. malaccensis* plants produced through vegetative means is being reported in this paper.

### **MATERIALS AND METHODS**

Under an ongoing project entitled "Co-ordinated research programme on Agar", funded by Indian Council of Forestry Research and Education (ICFRE), Dehradun, a component -'Development of vegetative propagation protocol for mass production of *Aquilaria malaccensis*' was undertaken at Rain Forest Research Institute (RFRI) (26° 46' N latitude and 96° 24' E longitude), Jorhat, Assam. Experiments were laid out