



Short Communication

## TRIAL FOR THE PROPAGATION METHOD IN FLEMINGIA SPP., A SHRUB PLANT AND A LAC INSECT HOST IN THRISSUR, KERALA

<sup>1\*</sup>S. Muthukumar, <sup>1</sup>T.V. Sajeev, <sup>3</sup>K. Thamilarasi, <sup>2</sup>A. Mohanasundaram, and <sup>3</sup>Vaibhav Lohot

<sup>1</sup>Kerala Forest Research Institute, Peechi, Thrissur, Kerala-680653, India

<sup>2</sup>National Research Centre for Banana, Trichy- 620 102, Tamil Nadu, India

<sup>3</sup>National Institute of Secondary Agriculture, Namkum, Ranchi-834010, India

**Article History:** Received 7<sup>th</sup> November 2023; Accepted 19<sup>th</sup> December 2023; Published 31<sup>th</sup> December 2023

### ABSTRACT

Due to the challenges posed by the poor availability and germination of *Flemingia spp.* for lac insect cultivation, the Kerala Forest Research Institute in Thrissur experimented with the air layering method and stem cutting (Vegetative Propagation) to enhance the number of seedlings. The layering method was successful for all three treatments, although it is observed variations in the length of the roots. The plant treated with coco peat exhibited longer roots and a greater number of roots, followed by the plants treated with only soil and vermiculite. The stem cutting method (vegetative propagation) was also successful for both plants, suggesting that both techniques can be used as alternatives for cultivating lac insect host plants instead of relying on seed germination.

**Keywords:** *Flemingia semialata*, *Flemingia macrophylla*, Layering, Vegetative Propagation.

*Flemingia spp.*, including *Flemingia semialata* and *Flemingia macrophylla*, are shrub plants that are easily manageable and exhibit faster growth when compared to other lac insect host plants for the cultivation of the lac insect *Kerria spp.* A project entitled "Conservation of Lac Insect Genetic Resources" is underway at the Kerala Forest Research Institute (KFRI) at Peechi, Thrissur, Kerala, India. This project includes the maintenance of both lac insect gene bank and lac insect host plant gene bank.

Some of the most common tree species that have been successfully exploited in agroforestry systems include *Cajanus cajan*, *Sesbania sesban*, *Sesbania macrantha*, *Tephrosia vogelii*, *Calliandra calothyrsus*, *Flemingia macrophylla* and *Gliricidia sepium*. All these tree species have the potential to restore fertility of fallow land and at the same time produce fuel wood or fodder on farms, and also increase yield of food crops. They are used for the improvement of fallows, mixed cropping, relay cropping, and biomass transfer (Science Direct, 2018). *Flemingia spp.* is not only used for lac insect cultivation but is also employed in treating various health complications. The root of large leaf *Flemingia* is utilized as medicine and serves as a valuable substitute in the

current domestic market due to its weight. It possesses properties such as wind-damp dispelling, invigorating blood circulation in the arteries and veins, and strengthening bones and muscles. This is applied in the treatment of conditions such as rheumatic ostealgia, lumbar muscle strain, and others (Google patents, 2008).

Poor synchrony of flowering, flower and fruit drop during pod development and rapid shattering of ripe seed in many legumes might be the major cause of its poor seed yield and so will be difficulty in seed conservation (Pandey *et al.*, 2020). Some of the less-known species of *Flemingia spp.* are *F. semialata* and *F. macrophylla* which are used for rearing of lac insect in Jharkhand, Chhattisgarh, West Bengal and Odisha but have remained ignored of their genetic improvement (Kumar *et al.*, 2017). Due to the unavailability and poor growth of seed germination for *F. semialata* and *F. macrophylla*, alternative germination methods such as vegetative propagation and layering were attempted as a trial at the KFRI lac insect host plant gene bank. Three different soil mediums only soil, vermiculite, and coco peat were used for both layering and vegetative propagation.

\*Corresponding Author: Dr. S. Muthukumar, Kerala Forest Research Institute, Peechi, Thrissur, Kerala-680653. Email: [livemuthu@gmail.com](mailto:livemuthu@gmail.com), Mobile: +91 9942627426.

The layering method was successful for all three treatments, although we observed variations in the length of the roots. The plant treated with coco peat exhibited longer roots and a greater number of roots, followed by the plants treated with only soil and vermiculite. The stem cutting

method (vegetative propagation) was also successful for both plants, suggesting that both techniques can be used as alternatives for cultivating lac insect host plants instead of relying on seed germination (Plate 1).



**Plate 1.** Performance of different soil medium on the growth of *F. semialata* root by air layering method.

#### ACKNOWLEDGEMENT

We express our gratitude to ICAR, India, for providing funds, and National Institute of Secondary agriculture (NISA), Ranchi, for supporting and guiding the project, as well as offering other necessary assistance.

#### REFERENCES

<https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/flemingia-macrophylla>

Kumar A, Arvindkumar and R Das (2017) Genetic improvement of Flemingia: future prospects. pp197-216.

[https://www.researchgate.net/313024943\\_genetic\\_improvement\\_of\\_flemin](https://www.researchgate.net/313024943_genetic_improvement_of_flemin).

Pandey, Anjula & Hajong, Subarna & Gore, Padmavati & Sivaraman, Nivedhitha & Gupta, Rita & G D, Harish. (2020). Note on True Seed and Tuber Characteristics of Soh-phlang (*Flemingia procumbens* Roxb.). *Indian Journal of Plant Genetic Resources*. 33. 235-239. 10.5958/0976-1926.2020.00034.0.

Google patents, (2008)  
<https://patents.google.com/patent/CN101611678A/en>.