



IN VITRO PROPAGATION OF VANDA COERULEA - AN ENDANGERED ORCHID FROM NORTHEAST INDIA

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ABSTRACT: *Vanda coerulea* Griff. ex Lindl., commonly known as Blue Vanda, is an endangered species of orchid found in Northeast India extending in distribution up to China. In view of the species' importance from an economic and conservation point of view, an effort was made to optimize the methodology of *in vitro* propagation through green pod culture. The protocol was optimized with the aim of replacing the nitrogen source from Ammonium nitrate to others due to the ban on the chemical due to its use in explosives. Surface sterilization of green pod using 0.125% mercuric chloride followed by flaming gave highest contamination free culture. Highest germination percentage was observed in modified semi-solid MS medium supplemented with 1.0 mg/L 6-benzylaminopurine (BAP) and 1.0 mg/L naphthalene acetic acid (NAA) whereas maximum elongation of both shoots and roots was observed in modified MS medium supplemented with 1.0 mg/L BAP and 0.5 mg/L NAA. Fully grown *in vitro* seedlings were acclimatized initially using vermicompost moistened with 1/4th liquid MS medium. Thus, an efficient protocol was developed by modifying the MS basal media where Ammonium nitrate (NH₄NO₃) as the nitrogen source was replaced by Ammonium sulphate (NH₄SO₄) and Calcium nitrate Ca(NO₃)₂. The plants were established in the RFRI campus and have flowered successfully.

Keywords: *Green Pod Culture, micropropagation, Vanda coerulea*

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INTRODUCTION

Vanda coerulea Griff ex. Lindl, commonly known as Blue Vanda or Autumn Lady's Tresses, is a species of perennial epiphytic orchid which bears exquisite bluish-purple flower. This species is distributed in the Himalayan foothills of India and Myanmar, China and Thailand at elevations of 800-1,000 meters above sea level. In India, it is found in Arunachal Pradesh, Assam, Nagaland, Manipur, Mizoram and Meghalaya.

The Blue Vanda was first discovered by William Griffith in 1837 on *Gordonia* trees in the oak and pine forests of the Khasi Hills in India and described in 1847 as *Vanda coerulea*. Because of the unusual blue colour, which is very rare in flowers, the demand for this newly discovered orchid surged suddenly among the orchid

enthusiasts and the breeders to develop new hybrids. The resulting unsustainable collection of the species for commercial use caused rapid decline of the wild population. The ever-increasing habitat destruction and global warming are also causing threat to its existence. In order to protect the remaining wild population, several measures have been taken up at national and international level. The species is enlisted in the Appendix II of CITES and in the 'Schedule VI' of the Wild Life (Protection) Act, 1972 of India. This species has also been enlisted as rare and endangered in the Red List of Threatened Plants by IUCN.

For any conservation effort availability of efficient propagation method is an important prerequisite. Looking into the threatened conservation