

The performance of different nodal cuttings under different hormonal combinations in Micropropagation of *Anoectochilus roxburghii*

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Abstract

Anoectochilus roxburghii is an endangered medicinal and highly valued ornamental plant belongs to family Orchidaceae. Extinction of this species has been identified over last few decades due to over wild-collection, loss of favorable habitats, slow growth and low rate of proliferation. Conventional propagation has been identified as an inefficient and time consuming method in propagation of this species. Micropropagation is considered as the technique which ensures rapid multiplication of plants including many other benefits compared to conventional propagation. The objectives of the present study were to find out the best nodal cutting of this species for in-vitro propagation and select appropriate hormonal combinations with full MS media for shoot proliferation. The experiment was carried out using complete randomized design with six treatments combinations replicating three times with three cultures. Six treatments consisted of three types of nodal cuttings (explant) as first, third and fifth nodes either with 1.5 mL⁻¹ of 6-(BAP) or with combination of 1.5 mL⁻¹ of 6-(BAP) and 0.5 mL⁻¹ of α -naphthaleneacetic acid (NAA). Data were recorded at the fourth, sixth and eighth weeks after establishment. The highest number of multiplied shoots were recorded in 3rd nodal cutting with full MS media supplemented with 1.5 mL⁻¹ BAP at eight weeks after establishment and it also showed that the shortest time for initiating shoots within two and half weeks. Most of the culture vessels were contaminated after four days of establishment. According to observations, MS media treated with 1.5 mL⁻¹ of BAP performed better in in-vitro culture establishment and organogenesis (shoot) of *Anoectochilus roxburghii* nodal cuttings. Third nodal cuttings performed better in culture establishment and organogenesis under full MS media treated with 1.5 mL⁻¹ of BAP. Lower nodal cuttings closer to growth media of mother plants were more susceptible for microbial contaminations when used as explants in in-vitro cultures.

Keywords: *Anoectochilus roxburghii*, BAP, Nodal cutting, NAA, Organogenesis

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