DOI: 10.46991/JISEES.2025.SI1.159

Clonal Micropropagation of *Moringa oleifera* Lam

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ABSTRACT

Clonal micropropagation is an effective, modern method of accelerated vegetative propagation of plants and obtaining healthy, virus-free planting material. This study investigated the potential of using the tissue culture method to produce healthy *Moringa (M.) oleifera* Lam. planting material *in vitro*. Experiments were carried out using the tissue culture method. According to the results of the study in isolated culture, the efficiency of seed sterilization was found to be 85%. An optimal concentration of 0.5 mg/L gibberellic acid (GA_3) was identified for seed germination on a Murashige-Skoog (MS) nutrient medium, achieving a germination efficiency of 80%. During clonal micropropagation, it was found that a half-strength (0.5) MS nutrient medium containing 0.2 mg/L indole-3-butyric acid (IBA) and 1.0 mg/L 6-benzyladenine (BAP) promoted the formation of up to six to eight micro-shoots from one explant. In *in vitro* culture on a 0.5 MS nutrient medium containing 0.1 - 0.5 mg/L IBA resulted in 98% rhizogenesis of micro-shoots and micro-cuttings. Micropropagated *M. oleifera* microplants exhibited 1.3 - 1.7 times higher growth intensity and 1.1 - 1.6 times more nodes at a concentration of 0.5 mg/L IBA than variants grown on 0.5 MS media with 0.1 - 0.4 mg/L IBA. For micropropagation of *M. oleifera* on a 0.5 MS medium, an IBA concentration of 0.3–0.5 mg/L was optimal, achieving a multiplication ratio of 1:5.

Keywords: *In vitro*, Gibberellic acid, Indole-3-butyric acid, Murashige-Skoog, Micro-shoots, Rhizogenesis

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