

IN VITRO PROPAGATION OF *Plumbago indica* L. (RATHNITHOL)

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Plumbago indica. L (Rathnithol) is a rare and valuable medicinal plant species widely used in traditional and Ayurveda medicine. Propagation through the seed is difficult due to lower germination rate and less seedling survivability under the natural field conditions. There is an urgent need for establishment of a suitable *in vitro* protocol for mass propagation of this plant to meet the country's requirement.

Callus induction from leaf pieces in combinations of three concentrations of 6-benzyladine (BA) (0, 0.1, 2 mg/l) and indole-3-acetic acid (IBA) (0, 2.5, 3 mg/l) were compared and best appearance compared to other treatments in callusing was observed in Murashige & Skoog (1962) medium supplemented with 2mg/l BA and 3mg/l IBA. Highest average number of roots per explants (11.28 ± 13.98) was found in medium containing 3mg/l IBA alone and the highest shoots per explant (0.75 ± 3.05) was observed in medium containing 2mg/l BA and 3mg/l IBA. There was a significant difference in overall appearance of the growth ($P > f = 0.0001$).

Shoot multiplication from single nodal cuttings were conducted in MS basal medium supplemented with four concentrations of BA (0, 1.0, 2.5, 5 mg/l) and three concentrations of Naphthalene Acetic Acid (NAA) (0, 0.1, 1 mg/l). The media supplemented with 2.5mg/l BA and 0.1 mg/l NAA was showed highest number of shoots (2.96 ± 0.62) and significant differences were given among the treatments ($P > f = 0.0495$). Two status of MS medium (solid and agitated liquid medium) with 2.5mg/l BA was compared for shoot multiplication on nodal explants. A higher number of live cultures (85.7%) and lower percentage of contaminations (14.2%) were observed in solid media. There was no any significant difference between the solid and liquid media in appearance or in number of shoots ($P > f = 0.7278$).

Key words: *Plumbago indica*, Medicinal plant, Organogenesis