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In vitro propagation of *Plumbago indica* L. (Plumbaginaceae)

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Plumbago indica L. (Plumbaginaceae) is valuable medicinal plant widely used in traditional and Ayurveda systems of medicine in Sri Lanka. Almost all the raw material requirements depend on exports due to lack of systematic cultivation in the country. Establishment of large scale cultivations is hampered by lack of sufficient planting materials in the initial stage. Therefore, establishment of suitable *in vitro* protocol for mass propagation of *P. indica* is prerequisite. Shoot multiplication from single nodal cuttings were conducted in Murashige & Skoog (MS) medium supplemented with four concentrations (0, 1.0, 2.5, 5 mg/L) of 6-benzyladinine (BA) and three concentrations (0, 0.1, 1 mg/L) of Naphthalene Acetic Acid (NAA). The highest number of shoots/explants (4.1 ± 1.5) was observed at 5th week after establishment in 2.5 mg/L BA and 0.1 mg/L NAA and it was significantly different at 5% significant level (P =0.0001). Comparison of two status of MS medium (solid and liquid medium) with 2.5 mg/L BA showed that the highest number of shoots (16.9 ± 2.5) and the highest growth score (8.5 ± 1.1) were in liquid medium. Root induction was observed in varying levels in all treatments including the control. The highest number of roots (3.3 ± 1.6) was observed in MS media supplemented with 0.2% of activated charcoal (AC) alone, while the highest root length (3.1 ± 1.8) and growth score (7.7 ± 1.2) were observed in media containing both Indole Butric Acid (IBA) and AC. Effect of different concentrations (0, 0.1, 2 mg/L) of BA and IBA (0, 2.5, 3 mg/L) on callus induction from leaf explants was determined and better performance in callusing was observed in medium supplemented with 2 mg/L BA and 3 mg/L IBA. Direct shoot and root induction was observed in many treatments. Higher number of roots per explants (28.0 ± 6.8) was found in medium containing 3 mg/L alone and the highest shoots (6.3 ± 2.5) were observed in medium containing 2 mg/L BA and 3 mg/L IBA. There was a significant difference in overall appearance of the growth (P = 0.0003). Present study reveals that there is a high potential of introducing *in vitro* propagation of *P. indica* for establishment of commercial scale cultivation.

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