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## Role of silver nitrate in plant regeneration from cotyledonary nodal segment explants of *Prosopis cineraria* (L.) Druce.: A recalcitrant medicinal leguminous tree

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### ABSTRACT

An efficient protocol for *in vitro* plant regeneration from cotyledonary nodal segment explants of *Prosopis cineraria* (L.) Druce., a multipurpose leguminous tree, was established. Nodal explants were excised from 5-day-old seedlings and cultured on Murashige and Skoog (MS) medium fortified with different concentrations of BAP (0.44–2.22  $\mu\text{mol/l}$ ) alone for shoot bud regeneration. Highest percent of shoot bud regeneration (87.66%) was noticed on MS medium supplemented with 2.22  $\mu\text{mol/l}$  BAP. The nodal segments derived from seedlings were placed on MS medium with different concentrations of BAP (0.44–2.22  $\mu\text{mol/l}$ ) in combination with 0.46  $\mu\text{mol/l}$  for shoot bud multiplication. The highest percent of shoot bud multiplication (93.50 %) with 3.5 shoots/explant was recorded on MS medium containing 2.22  $\mu\text{mol/l}$  BAP and 0.46  $\mu\text{mol/l}$  KIN combination. The number of multiple shoots was further increased to 12.0 shoots/culture when the combination of 2.22  $\mu\text{mol/l}$  BAP, 0.46  $\mu\text{mol/l}$  KIN and 0.59  $\mu\text{mol/l}$   $\text{AgNO}_3$  was used. For rooting, the elongated shoots (>2 cm) were cultured on MS medium augmented with various concentrations of NAA (0.53–2.68  $\mu\text{mol/l}$ ) along with 0.46  $\mu\text{mol/l}$  KIN and 0.59  $\mu\text{mol/l}$   $\text{AgNO}_3$ . Among the combinations tested, the highest percent of root formation (87.66 %) with 4 roots/shoot was observed in the medium containing 0.53  $\mu\text{mol/l}$  NAA, 0.46  $\mu\text{mol/l}$  KIN and 0.59  $\mu\text{mol/l}$   $\text{AgNO}_3$  combination. Rooted plantlets were successfully transferred into plastic cups and acclimatized under greenhouse conditions. Subsequently, they were established in the field and grew normally.

**Keywords:** Cotyledonary nodal explants, Growth hormones, Multiple shoot bud induction, *Prosopis cineraria*, Silver nitrate.

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