EFFECT OF CYTOKININ PRECONDITIONING ON *IN-VITRO* MULTIPLE SHOOT REGENERATION OF LENTIL CULTIVAR

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Abstract: This study was aimed to establish a protocol for enhancing shoot proliferation, rooting percentage during the regeneration of lentil cultivar and also to demonstrate that pre-culturing of seedlings stimulates production of multiple shoots from cotyledonary nodes and shoot tips of Lentil cultivar. The highest direct shoot regeneration (79%) with an average of 15-16 shoots/explant were obtained when cotyledonary node explants were excised from seedlings germinated on Murashige and Skoog modified (MSM) media supplemented with benzyl adenine (BAP) 5 mg l^{-1}, and subsequently cultured on MS modified media with 0.5 mgl^{-1} benzyl adenine (BAP) . Pre-culturing of seedlings, at the time of seed germination with high BAP concentration results in fast and multiple shoot regeneration followed by culturing the explants on lower concentration of BAP. For rooting, different concentration of IBA, IAA and NAA were used and highest rooting was recorded on half strength MS medium supplemented with 0.3mg l^{-1} IBA. The rooted plantlets were hardened initially in culture room at 27±2°C and then transferred to *in-vivo* environment. The highly regenerative system developed in the present investigation for this important legume crop could be a useful tool for genetic transformation.

Keywords: Cotyledonary node, *In vitro*, Lentil L-4076, Multiple shoots, Roots regeneration

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