

In vitro regeneration of popular tobacco varieties of Bangladesh from leaf disc

ABSTRACT

Regeneration ability of five *Nicotiana* varieties viz., Virginia, Jati, Motihari, CC Bengal and Sumatra were investigated via callus induction using leaf discs. Explants were cultured on MS medium supplemented with different concentrations and combinations of plant growth regulators. Callus formation frequency was 67.20%. Among the varieties used, Motihari induced the highest percentage (97.50%) of callus followed by Jati (92.50%) in 2.0 mg/L Kinetin and 2.0 mg/L IAA. Shoots were induced from calli cultured on the same medium. Maximum shoot formation from leaf discs was 82.50% on medium supplemented with 2.0 mg/L Kinetin and 2.0 mg/L IAA. It was also revealed from this study that Motihari was the best variety for callus formation and subsequent plantlet regeneration which is a pre-requisite for vector mediated transformation for varietal improvement of *Nicotiana* species. The rooting response of regenerated shoots was observed by using 1/2 MS medium with IBA (0.0, 0.5, and 1.0 mg/L). The highest root formation was found in Motihari (90%) with 1/2 MS medium supplemented with 0.5 mg/L IBA. After that regenerated plantlets with plenty of roots were transferred successfully to pots and subsequently to the field.