

ORIGINAL ARTICLE

**STUDY ON THE EFFECT OF PLANT GROWTH REGULATORS ON ADVENTITIOUS
BUD FORMATION OF *NICOTIANA TABACUM* L.**

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Abstract: *Tobacco is a plant, which is frequently used in the research of plant biotechnology. However, the natural growth of this plant shows seasonal and geographical restrictions. Keeping this in view, a study was conducted to micropropagate tobacco (*Nicotiana tabacum*) plants in vitro to make it easily available round the year in laboratory condition. The main objective of the study was to determine the best growth regulator, which can be used in minimal concentration level to induce multiple bud formation from leaf explants of *Nicotiana*.*

The method of micropropagation was carried out from leaf explants, using different combinations of growth regulators with the standardization of the best medium for its rapid growth. Explants were cultured in MS media containing combinations of kinetin + NAA (naphthalene acetic acid, a synthetic form of auxin) and BAP (6-benzyl amino purine, a synthetic form of cytokinin) + NAA. It was found that 1 mg/l kinetin + 0.5 mg/l NAA was the best medium for shoot bud regeneration from the leaf explants within short time. In the medium containing BAP + NAA combination of hormones, 2.5 mg/l BAP + 0.5 mg/l NAA showed satisfactory results. However, it took longer time for the growth response in the explants. Media with kinetin showed response within four days, whereas it took more than ten days in case of the media with BAP. It was also observed that when the explants were cultured in the media containing 2 mg/l kinetin + 2 mg/l NAA, the explants showed callus formation. The result indicates that culture media containing equal amount of kinetin and NAA, does not induce direct adventitious bud formation from the explants, but induces the callus formation.

Key words: *Nicotiana tabacum*, leaf explant, micropropagation, growth regulator, bud formation.