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EFFECT OF IBA ON *IN VITRO* ADVENTITIOUS ROOT FORMATION IN TUBER EXPLANTS OF POTATO (*Solanum tuberosum* L.)

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ABSTRACT

Potato (*Solanum tuberosum* L.) is one of the most economically valuable crops which consumed widely in the world. In developing countries, many cultivars have undesirable traits which reduce their market value. Mutation induction in potato produces mutants for diverse traits. Mutants can be produced in potato by mutagenic treatment of tuber buds of potato. Adventitious buds that arise from adventitious roots of *in vitro* explants of tuber disc are used for mutation breeding of potato. In this aspect, this study was carried out to determine the optimum concentration of IBA for induction of *in vitro* adventitious root formation in potato tuber disc. A preliminary study was done to determine the morphogenic response of the potato tuber discs which were in 0, 50 and 100 mg/l IBA concentrations. It was noted that higher concentration (100 mg/l) of IBA did not induce callus formation in tuber discs and the cultured explants at the concentration of 100 mg/l IBA turned into brown colour. In addition, it did not show any response to form adventitious roots. Therefore, the tuber discs were cultured in MS medium supplemented with 0-50 mg/l concentrations of IBA (5, 15, 25, 50 mg/l) to induce adventitious roots. Results revealed that IBA concentration significantly ($P < 0.05$) affected the tested parameters such as days taken for root formation, root length, root diameter, number of roots, root formation percentage as well as amount of callus formed and time taken for callus initiation in granola potato variety. IBA at 25 mg/l IBA concentration gave the best performance for root initiation and amount of callus formed in potato tuber disc explants compared to all other treatments. Hence, it could be concluded that 25 mg/l IBA concentration is the most favorable concentration for *in vitro* adventitious root formation in tuber disc explants of potato cv granola.

Keywords: *Adventitious root, IBA, in vitro culture, potato tuber explants*