

Innovation of a New Plant Tissue Culture Medium for Large Scale Plantlet Production in Potato (*Solanum tuberosum* L.)

Authors : Ekramul Hoque, Zinat Ara Eakut Zarin, Ershad Ali

Abstract : The growth and development of explants is governed by the effect of nutrient medium. Ammonium nitrate (NH_4NO_3) as a major salt of stock solution-1 for the preparation of tissue culture medium. But, it has several demerits on human civilization. It is use for the preparation of bomb and other destructive activities. Hence, it is totally ban in our country. A new chemical was identified as a substitute of ammonium nitrate. The concentrations of the other ingredients of major and minor salt were modified from the MS medium. The formulation of new medium is totally different from the MS nutrient composition. The most widely use MS medium composition was used as first check treatment and MS powder (Duchefa Biocheme, The Netherland) was used as second check treatment. The experiments were carried out at the Department of Biotechnology, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh. Two potato varieties viz. Diamant and Asterix were used as experimental materials. The regeneration potentiality of potato onto new medium was best as compare with the two check treatments. The traits -node number, leaf number, shoot length, root lengths were highest in new medium. The plantlets were healthy, robust and strong as compare to plantlets regenerated from check treatments. Three subsequent sub-cultures were made in the new medium to observe the growth pattern of plantlet. It was also showed the best performance in all the parameter under studied. The regenerated plantlet produced good quality minituber under field condition. Hence, it is concluded that, a new plant tissue culture medium as discovered from the Department of Biotechnology, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh under the leadership of Professor Dr. Md. Ekramul Hoque.

Keywords : new medium, potato, regeneration, ammonium nitrate

Conference Title : ICPTCPR 2023 : International Conference on Plant Tissue Culture and Plant Regeneration

Conference Location : Paris, France

Conference Dates : July 10-11, 2023