Effect of plant growth regulators on *in vitro* organogenesis inCherry tomato

**Abstract:**

Cherry Tomato is one of the most important vegetable crops cultivated for export in Egypt. *In vitro* cultureresponse was assessed in tomato (*Solanumlycopersicum L. var. cerasiforme*) cv. (S C) for optimum callus induction and plantlet regeneration. Callus induction was achieved within 8 to 12 days directly on the cut surfaces of hypocotyl, cotyledon and leaf disc explants cultured on Murashige and Skoog (MS) basal medium supplemented with various concentrations of Thidiazuron (TDZ)] and benzyl adenine (BA) alone and in compination, but not in hormone free-medium. The highest callusing index was obtained on hypocotyl explants cultured on MS medium supplemented with TDZ(2.0 mgl-1) followed by an index of 3.5 obtained from the same explant by using 0.5mgl-1BA. However, for the leaf disc explants, the highest callusing index was obtained on MS medium supplemented with BA at 2.0 mgl-1. After 8 weeks of culture, organogenesis was observed only on the explants cultured on medium containing different concentrations of TDZ and BA. The best shoot formation was obtained from leaf disc explant callus induced on MS medium containing TDZ. The highest number (13.4) of shootsexplant-1 was found when cotyledon explant callus was sub cultured on MS medium supplemented with 2.0 mgl-1BA. Half strength of MS was found to be the best rooting medium, however, addition of IAA at 1.0 mgl-1 and IBA at 2.0 mgl-1were found necessity to induce highest number of roots (22.5) and longer roots (11.0 cm), respectively. Acclimation of *in vitro* rooted plant is important for testing the post culture behavior of tissue culture regenerated plants.

***Keywords:*** *Solanumlycopersicum*L. var. *cerasiforme*, callus induction, organogenesis, TDZ, acclimatization