A comparative morphological study between tomato plant and plantlets cv. MT1

Abstract

Tomato *Lycopersicon esculentum* is a member of the Solanaceae family. Most of the studies on micropropagation of tomato used stem, hypocotyl, leaf disc and cotyledon as the explant instead of young shoot apical meristem (SAM). Therefore, the suitability of young SAM as explant to regenerate tomato plant *in vitro* was studied. SAM was isolated from 6-days-old germinating tomato seedling and was then inoculated into liquid MS medium supplemented with different concentrations of Indole Acetic Acid (IAA) and Kinetin (KIN) respectively and a combination of both hormones in the ranges of 0.1-0.2 mg/l while semi-solid MS medium alone served as control. Results showed that SAM was able to regenerate to an entire plant in all treatments. However, the best treatment was semi-solid MS medium supplemented with combination of 0.05 mg/L IAA + 0.1 mg/L KIN with an average plant height (4.6 cm), number of leaves (9) and number of roots (7). Our findings also indicated that the morphology of all tomato plantlets were almost similar with tomato plant. Therefore, it was concluded that SAM serves as a suitable explant that can regenerate true plantlets.

Keywords: *Lycopersicon esculentum*; Shoot apical meristem; *In vitro*; Morphology; Anatomy