Abstract

A basic factor for successful large scale micropropagation and genetic tranformation of ornamental plants is regeneration. In order to produce healthy propagules of *Rosa damascena* Mill. in large scale, a new cost-effective method of tissue culture has been established. Thin Cell Layering (TCL) technique, is a new introduction of micropropagation effeicinecy in producing mass scale of crops. The horizontally placed TCL explants (tTCLs) were examined in VS basal medium in combination with different plant Adjuvants (Proline, Glutamic Acid, Casein Hydrolysate) in experiment one to investigate their effect on shoot regeneration of plantlets. The results indicated the positive effect of Proline (0.5 gr/l) and Glutamic Acid (300 mg/l) in callus induction and regeneration stage. Also in rooting phase, different concentrations of IBA and NAA (0, 0.3, 0.6, 0.9 mg/l) in two basal media (VS and ½ VS) were tested. It was observed that the best results were related to 0.6 – 0.9 mg/l IBA. The effect of different concentrations of BAP and zeatin were tested to analyze the best results on shoot proliferation, but the results werent acceptable. In other experiments the effect of different concentrations of BAP in liquid and semi solid medium with explant type (node and inetrnode) were tested. The results showed the best results in semi-solid medium in node explants. Also 4 mg/l BAP was the best conecntration for TCL of *Rosa damascena* in vitro culture. Also 95% of rooted plantlets of *R.damascena* were adapted successfully in the greenhouse.

Keywords: Thin Cell Layering (TCL), Transversally, Proline, Glutamic Acid, Casein Hydrolysate.

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Application of Thin Cell Layering Technique (TCL) for *in vitro* generation of *Rosa damascena* Mill.

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