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Study of Effectiveness of Surface Sterilized Methods in Plant Tissue Culture of *Curcuma longa* (Haldi)

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Abstract: *A highly effective micropropagation method for turmeric (Curcuma longa Linn.) using rhizome bud explants has been developed. The woody plant was supplemented with various concentrations of BAP alone to initiate shoots in MS medium. Additionally, the explants were treated with different concentrations of bavistin (1%, 2%, and 3%). Among the different concentrations tested, 3% bavistin showed the highest survival rate (90%), followed by 2% (70%), while the control explants showed no survival. The impact of mercuric chloride ($HgCl_2$) on the explants was also studied, using a 0.1% concentration for different time intervals. Explants treated for 10 and 8 minutes with 0.1% $HgCl_2$ showed the highest survival rates (100% and 70% respectively). Browning was observed in explants treated for 8-10 minutes, so 6 minutes was determined as the optimal treatment time. Contamination-free explants were then inoculated onto MS media containing 2 mg/l of BAP to initiate shoot growth. After 28 days of inoculation, shoots were successfully initiated from the explants.*

Keywords: Micropropagation, *Curcuma longa,* PTC, Bavistin, $HgCl_2$, MS media