In vitro tuberization of Chlorophytum borivilianum Sant & Fern (Safed musli) as influenced by sucrose, CCC and culture systems

ABSTRACT

This study focuses on the establishment of in vitro tuberization of Chlorophytum borivilianum using solid and liquid culture systems. A high in vitro tuberization rate on solid and stationary liquid Murashige and Skoog media was observed in the presence of 60 g lī 1 sucrose with 950, 1,265 and 1,580 µM 2-chloroethyl-trimethylammonium chloride (CCC). Application of a higher sucrose concentration of 90 g lī 1 showed a negative interaction with CCC on in vitro tuber number and days to in vitro tuber induction. For economic feasibility, 950 µM CCC with 60 g lī 1 sucrose was chosen as the best combination for in vitro tuberization in both solid and stationary liquid media. For optimization of in vitro tuber production, a comparison between solid, stationary liquid and shake liquid culture was carried out. Liquid culture with shaking at 80 r.p.m. resulted in a >2.5-fold increase in in vitro tuber production compared with solid culture.

Keyword: Chlorophytum borivilianum; Hyperhydricity; In vitro tuberization; Liquid culture; Solid culture