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Effect of Cultural Environment on Mass Propagation of *Climacium japonicum* Lindberg Moss

Md. Giush Uddin Ahmed, Yound Deug Chang, Cheol Hee Lee*
Dept. of Horticulture, Chungbuk Nat'l Univ., Cheongju 361-763, Korea
*Corresponding author. Tel: 043-261-2526, E-mail: leech@chungbuk.ac.kr

The gametophyte tip of *Climacium japonicum* was cultivated using different sterilization, propagation system, inoculums density, culture medium, sucrose concentration, nitrogen concentration, light intensity, temperature and liquid culture condition. The maximum survivability and moderate contamination was shown using 1% NaOCl for 2 minutes on gametophyte tip culture and 1 minute on leaves culture. Protonema were not observed in cultures of leaves. The highest gametophyte number, maximum number of gametophyte/flax, was produced using 0.4 g inoculums density and the percentage dry weight was increased in 0.1 g inoculums density on suspension culture comparatively gametophyte tip and leaves culture. Among seven nutrient media, Knop (1865) macro salts with Nitsch and Nitsch (1956) trace element was best with regards to all characteristics. With respect to sucrose concentration, the number and height of gametophyte was increased on 1% sucrose. The 10 mM nitrate nitrogen was beneficial to growth. Light intensity of 4000 lx showed the highest positive influence on gametophyte length, fresh weight, number of gametophyte and propagation efficiency of plantlets. Temperature markedly promoted *in vitro* moss growth and the optimum temperature was 20℃. Compared with agar and liquid media, the production of gametophytes was improved using semisolid media in terms of quality and number of gametophytes. Irrespective of culture environment, gametophyte tips was adapted to a semisolid medium in order to increase the number of gametophytes.