APPLICATION OF SOMATIC EMBRYOGENESIS AND BIOREACTOR TECHNIQUES IN MICROPROPAGATION OF TROPICAL LILY CONCA D’OR (ORIENT X TRUMPET)

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Summary

Lily is considered as one of the highest value cutting flowers as well as popular to the majority thanks to pure beauty, passionate perfumes and long shelf life. Bulbs were imported from the Netherlands with the expensive price and it is difficult to sell commercial lily flowers in the domestic market and international trade. This study focused on mass producing the source of somatic embryos with high regeneration ability, using for the lily micropropagation. According to the results, internodes were cultured on MS medium supplemented with 0.1 mg/l BA và 0.5 mg/l NAA to induce callus and embryogenic cells reached the highest value at 98.2%. The appropriate medium for the proliferation of embryogenic cells were MS supplemented with 0.1 mg/l BA and 0.5 mg/l NAA gave fresh weight of embryogenic cell 2719.7 mg/cluster, proliferation rate 2.6 fold and number of shoot per cluster 2.7 shoots/cluster after 5 weeks of culture. The suitable media for regeneration of embryogenic cells were MS supplemented with 0.5 mg/l BA and 0.25 mg/l NAA gave shoot number 3.7 shoots/cluster, shoot height 87.3 mm, leaf number 7.7, leaf diameter 11.3 mm after 5 weeks of culture. Embryogenic cells were used as materials for lily micropropagation. Multiple shoots regenerated from embryogenic cells were used as materials for micropropagation. Results showed that the highest data for multiple shoot multiplication were on semi-solid MS supplemented with 0.2 mg/l NAA and 0.5 mg/l BA gave proliferation rate 6.7 shoots/cluster, shoot height 96.7 mm and leaf number 7.7. In bioreactor culture, results were reached shoot height 100.25 mm, shoot number 7.1 shoot/cluster and fresh weight of shoots 1470.94 mg/cluster. For rooting were on MS medium supplemented with 0.5 mg/l NAA a system for lily micropropagation via somatic embryogenesis and bioreactor techniques was set up.

Keywords: Conca D’or, bulb, somatic embryo, induction, proliferation, regeneration.