Improvement of Efficiency for Macro-propagation and of Quality for Cut Flower in Rose

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Efficiency of macro-propagation was studied in several variety of *Rosa hybrida* L. The shoot growth from axillary buds of rose grown in agar-hardened medium containing murashige and skoog(MS) salts, pH5.8, supplemented with 3ppm BA and 0.5ppm 2,4-D was determined. And the rooting of those emerging shoot also determined in agar-hardened medium containing MS medium, pH5.8, supplemented with 0.5ppm 2,4-D. The rose variety of *roseyumi, charming* and *cardinal* induced more efficiently shoot growth as compared with the variety of *limona, conpeti* and *circus*. The polyamines putrescine, spermidine and spermine are ubiquitous in living organisms and there is direct evidence that they are essential for the growth, development, aging defense against stresses and senescence. There are three key regulated enzymes in the pathway of polyamine biosynthesis, arginine decarboxylase, ornithine decarboxylase and *S*-adenosylmethionine decarboxylase(SAMDC). The treatments with spermidine and spermine at 1mM increased the vase life of several varieties of rose cut flowers by two days. To improvement the quality of cut flower with long vase-life, we used to produce the transgenic rose plants expressing *SAMDC* gene by Agrobacterium-mediated transformation. The petioles from grown shoots were maintained in the dark at 28±2℃ on pre-culture(P) medium containing of MS salts, pH5.8, supplemented with 5ppm 2,4-D and 300mgl^{-1} L-proline and 4gl^{-1} agarose. After 14d culture, explants were transferred to embryo proliferation(EP) medium of the same composition as P medium, but containing 3ppm 2,4-D, and were maintained under identical conditions. Proliferating calli were subcultured by division every 28d onto EP medium. Somatic embryogenesis occurred after 42-56d repeated subculture. This transgenic rose plants will promote to freshness of cut flowers with raising production in floriculture.

Keywords: Polyamine, SAMDC, Transformation, Rose