



Influence of plant growth regulators and medium composition on shoot and root regeneration in rose

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ABSTRACT

Development of procedures for rapid *in vitro* clonal propagation of rose may be of great commercial value to the rose industry. In this context, an experiment was conducted to find out the effect of plant growth regulators and medium composition on shoot and root regeneration in Rose. The results revealed that shoot regeneration was maximum when the nodal segments were cultured on full strength MS medium supplemented with BAP 2.0 + IBA 0.5 mg^l⁻¹. This treatment also produced more number of lengthier shoots in a shorter duration. Maximum root regeneration with more number of lengthier roots were produced in half strength MS medium supplemented with IBA 0.5 mg^l⁻¹.

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Rose is a favourite plant cultivated for its beautiful flowers and fragrant essential oils. As a cut flower, it occupies top position in acreage, production and consumption. In India, it is cultivated mainly for cut flowers, both for traditional flower markets and contemporary florist shops on a commercial scale. Roses can be propagated by cuttings, layering and grafting. Although propagation by vegetative means is a predominant technique in roses; yet it does not ensure healthy and disease free plants. Moreover, dependence on season and slow multiplication rates are some of the other major limiting factors in conventional propagation. The demand for roses in floriculture trade is currently on the increase. Hence, it is desirable to multiply elite genotypes in large numbers. Therefore, there is a need to introduce efficient methods for faster propagation of roses. Tissue culture or more specifically micro propagation of *Rosa* spp offers an alternative method of multiplication (Pierick, 1987). *In vitro* propagation of rose has played a very important role in rapid multiplication of cultivars with desirable traits and production of healthy and disease free plants. Much of the research work which has been done on hybrid tea roses was to find out the effect of different hormones, their concentrations and combinations for callus initiation, its maintenance and regeneration of shoots and roots from callus and direct

organogenesis from nodal segments, lateral and axillary buds and shoot tips (Vijaya and Satyanarayana, 1991). However, research on these aspects with regard to scented roses is very limited. It has also been established that modification of the media by supplementing with growth regulators and growth adjuncts can lead to faster regeneration (George and Sherrington, 1984). Growth promoting effect of various growth regulators was reported to be crop specific and therefore, cannot be generalized; rather they need to be empirically determined for each species. With this background in view, the present investigation was undertaken in order to study the effect of plant growth regulators and medium composition on shoot and root regeneration in rose (*Rosa damascena*).

MATERIALS AND METHODS

Nodal segments of 0.5 to 1.0cm length were collected from stock plants. The excised nodal segments were thoroughly washed in running tap water and in detergent solution followed by washing with sterile distilled water thrice and then surface sterilized with 70 per cent ethanol for 30-40 seconds. They were then washed with sterilized distilled water thrice to completely wash off the alcohol. The explants were transferred into the culture vessels containing two different strengths of MS medium viz., full strength and half strength MS medium