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Studies to evaluate the best combination of growth regulator on rooting of different cultivars of chrysanthemum and bougainvillea

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ABSTRACT

Experiment to study the combined effect of NAA and BAP on invitro propagation of different chrysanthemum and bougainvillea cultivars was conducted at National Botanical Research Institute (N.B.R.I) Lucknow, India. Among the different combinations T16 (1.0,4.0) produced good results in all the cultivars as compared to control.

Key words: NAA, BAP, Chrysanthemum, Bougainvillea.

Generally the ornamentals are propagated by mega propagation. This method, though in use yet is dependent over number of factors like type of root stock and scion, nature of plant, environment. Mega propagation could be under taken in a particular season and any untimely environmental change could be a limiting factor. By the use of tissue culture technique, it is now possible to propagate plants at any time from single cells. Tissue culture technique helps to propagate plants of economic importance in large quantities out of season. By this technique faster rate of growth, virus and disease free plantelets can be obtained with faster rate. Propagation of ornamental plants by tissue culture is gaining popularity, the demand of plants through tissue culture is gaining day by day and the plants propagated through tissue culture have high market demand. Since no work has been done on chrysanthemum and bougainvillea by standardizing this technique, so it was decided to standardize this technique for the commercial exploitation of chrysanthemum and bougainvillea with the objective of finding the best combination of NAA and BAP on rooting and shooting performances of chrysanthemum and bougainvillea cultivars.

MATERIALS AND METHODS

For tissue culture technique five varieties of chrysanthemum and two varieties of bougainvillea were taken from the field of NBRI, Lucknow. Shoot tips (1-1.5cm) with one or two nodes (Mendal and Datta 2002) are sterilized using 70% alcohol and 0.1% $HgCl_2$ for one and two minute respectively after thoroughly washing them with a liquid detergent. After sterilization the explants were washed with sterile double distilled H_2O for 5 minutes. For inoculation one explant was transferred into a culture tube containing steam sterilized agar, solidified MS media and the cultures were maintained at a constant temperature of 25+ 2C with number of shoots formed on each explant were counted after one week, two week and four weeks of inoculation from each flask. In the experiment four levels of NAA (0, 0.02, 0.5 and 1.0 mg/lt) and four levels of BAP. (0.5, 1.0, 2.0 and 4.0) were used in combination for chrysanthemum while as for bougainvillea five levels of NAA (0.0, 0.2, 0.5, 1.0, 2.0) and four levels of BAP(0.5, 1.0, 2.0 and 4.0) were used. The all possible combinations of growth regulators were T1(0.05), T2(0, 0.1), T3(0, 2.0), T4(0, 4.0), T5(0.2, 0.5), T6(0.2, 1.0), T7(0.2, 2.0), T8(0.2, 4.0), T9(0.5, 0), T10(0.5, 1.0), T11(0.5, 2.0), T12(0.5, 4.0), T13(1.0, 0.5), T14(1.0, 1.0), T15(1.0, 2.0), T16(1.0, 4.0).

RESULTS AND DISCUSSION

The results from the experiment reveal that different cultivars of chrysanthemum responded differently to different concentration of NAA and BAP. Increase in the concenrtration of growth regulators leads to an increase in the proliferation frequency and number of shoots/responding explant. All the explant showed 100% rooting in every medium but the roots in T16 became thick with stunted growth.

Different cultivars of chrysanthemum showed different proliferation frequency to different combinations. Maximum proliferation frequency was shown by T16