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Multiplication by micropropagation of gerbera from axillary bud explants

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SUMMARY

One of the major areas in which plant biotechnology has begun to manifest its potential in India is micropropagation with tissue culture (Doreswamy *et al*. 1983; Vuyisteke and De Langhe, 1985). The work on micro propagation of Gerbera has been reported by Murashige *et al*. 1974); Pierik (1979); Hdtrich (1979); Schiva *et al*. (1982); Petru and Matous (1984), in *Gerbera jamesonii* L. The present investigation reports the response of axillary bud in *in-vitro* culturing in gerbera (*G. jamesonii* L.).

Key words : Micropropagation and Axillary bud.

The importance of flowers in socio cultural and religious life of the people can hardly be exaggerated. India is known for growing of traditional flowers such as jasmine, tuberose, crossandras, aster. Commercial cultivation of cut flowers – roses, orchids, gladiolus, gerbera-has also become popular. The important flower growing states are Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, West Bengal, Sikkim and Jammu and Kashmir. The availability of flowers has increased significantly in all the cities, as indicated by the growing florists and sizeable export of cut-and-dried flowers.

According to National Horticulture Board, Gurgaon, the area under flower cultivation and production is increasing for loose flowers and cut flowers having stems. Gerbera flowers are being grown both for exports and domestic markets. A significant aspect of flower trade in India has come out with the establishment of a large number of export-oriented cut flower units around Banglore, Pune, Delhi and Hyderabad.

MATERIALS AND METHODS

The present investigation was conducted during 1999-2000 in Plant Tissue Culture Laboratory, MSSCL, Akola. The experimental material comprised of Gerbera plants. The *in vitro* propagation of Gerbera was attempted by using different media treatments for establishment, initiation, for development of multiple shoots, rooting and hardening.

The axillary bud 0.5-1 cm. long were taken and treated with Tepol and after through washing under tap water, they were surface sterilized with 0.1 per cent $HgCl_2$. These sterilized axillary established on MS medium (Murashige and Skoog) supplementary with different concentrations of BAP (cytokinin) alone and incombination with auxin, Adenine Sulphate (Table 2 and 3) for multiple shoots.

The pH of the medium was adjusted to 5.8 and was autoclaved at the pressure 1.06 $kg.^{-1}$sq. cm. for 20 min. The cultures were incubated at 25 ± 2^0C under 16 hours light (2000 Lux) and 8 hours darkness. The explants (buds) were subcultured on the fresh medium 2-3 times to avoid the problem of phenolics in the medium. The observations were recorded on number of multiple shoot produced 30 days after inoculation.

For induction of roots, the shoots were separated and transferred to rooting medium. The MS media supplemented with Charcoal and NAA (Table 5) were used for rooting. The observations were recorded on rooting to the shootlets after 30 days after culturing. Completely rooted plantlets were transferred from test tube to pot using different hardening treatments (Table 6). The percentage of survival was recorded.

RESULTS AND DISCUSSION

The effect of different concentrations of cytokinin was tested on establishment medium. It was observed that optimum concentration of cytokinin for establishment of axillary buds was MS + BAP (1.0 mg. $Litre^{-1}$), followed by treatment MS+BAP (1.5 mg $litre^{-1}$) with establishment percent 80 and 70 respectively. It can be inferred that the effect of cytokinin treatment on establishmentof explants

Table 1 : Effect of cytokinin for the establishment of explants

Treatments	Treatments mg. $Litre^{-1}$	Establishment (%)
T_1	MS+BAP (0.5)	50
T_2	MS+BAP (1.0)	85
T_3	MS+BAP (1.5)	70
T_4	MS+BAP (2.0)	60

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