

In vitro shooting of cotyledon explants of *Zizyphus mauritiana* Lamk

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Received : January, 2010; Revised : April, 2010; Accepted : July, 2010

SUMMARY

The predominant *Zizyphus* tree species can survive well in high temperature, slight frost and low rainfall. Their roots penetrate deeply in to ground water level and so they do not compete for water with the crop plants. In contrast, reduction in leaf CO₂ inforporation was noticed in crop plants subjected to soil water logging or anaerobic conditions (Ta and Ho, 2001). Tremendous pressure exerted by both man and animal, resulted in complete removal of superior germplasm or in some cases plant species have become threatened (Ramawat and Nadwani, 1991). The situation has become compounded by various inherent biological problems. One third of India's population is dependent on wood fuel for cooking their daily meals, which generates tremendous pressure on the scanty vegetation. Although we have modern technologies and fast developing industrial sector, gas and electricity are neither available nor affordable for this large section of the population.

Venkateshwarlu, M. (2011). *In vitro* shooting of cotyledon explants of *Zizyphus mauritiana* L. *Internat. J. Plant Sci.*, 6 (1): 31-33.

Key words : *Zizyphus mauritiana*, *In vitro* Shooting, Cotyledon explants, Regeneration

The improvement of *Zizyphus* through transformation with the help of selectable marker genes will depend upon advances in research on cloned genes having horticultural importance. The biotechnological approaches for fruit crop plants improvement will have to be *in vitro* selection techniques which have been successfully attempted in mango (Litz *et al.*, 1991) for recovery of anthranose resistant somatic embryos after dual culture of embryogenic suspensions with culture filtrates of *Collectrotrichum gloeosporiodes* obtained from infected leaves and fruits. In view of the limitations of conventional breeding techniques, it may not be possible to achieve breeding objectives prioritized for *Zizyphus mauritiana*. L. For production of homozygous breeding lines the potential of haploid regeneration for another culture or from irradiated ovules should be explored.

The use of *in vitro* techniques for collecting and storing rapidly vanishing fruit crop plant *Zizyphus* HELP markers need be identified to link with morphological as well as horticultural attributes. Although isozyme markers have been identified for taxonomical studies in *Zizyphus*. HELP markers need be identified to link with morphological as well as horticultural attributes. Chlorophyll is also used in preparation of medicines, candles, soaps, tooth paste and oil (Kadam and Ahire, 2006). Cooker and Camper (2000) who reported higher

percentage of explants displaying callusing in 2.0 mg/L – 1 of both Kn and NAA in *Echinacea purpurea*. The untreated control of shoot cutting shows 38 per cent rooting and 48 per cent survival on their out planting. It indicates easy-to-root nature (Pal. 1988). The propagation of geranium by single node stem cutting Bhattacharya and Rao, (1998) and petioles cultured *in vitro* (Stephaniak and Zenkteler, 1982) have been reported.

MATERIALS AND METHODS

Experiments with *Zizyphus* cotyledon explants using nutrients medium developed in to normal plants when placed in hormone MS medium. Still a large number of species are not amenable by these methods. In brief, present efforts on selected species led to the limited success in these species. It's because of variation between the interspecific species that the results obtained with one material are not replicated for another material.

RESULTS AND DISCUSSION

The *Zizyphus* cotyledon explants used for initiation of callus were obtained from *in vitro* grown sand were inoculated on MS medium fortified with 1.0 mg/l BAP and 0.5 Kn could initiate green callus. Majority of the reports describe development of biotechnology for rapid mass multiplication, and the improvement of trees. Most of the tree species are grown from seeds and are wild population with inter specific variation. Though a considerable progress has been made in tissue culture of tree species, the methods is not widely applicable in its

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