International Journal of Plant Sciences, **Vol. 3 No. 2 : 622-623 (July, 2008)**

Rescue of *in vitro* shoot tip necrosis in *Lagerstroemia indica* L.

M.H. NIRANJAN[1]*, M.S. SUDARSHANA[1], DHARMENDRA[1] AND S.T. GIRISH[2]
[1]Plant Tissue Culture Lab, P.G. Department of Botany, Manasagangothri, University of Mysore, MYSORE (KARNATAKA) INDIA
[2]Department of Biotechnology, J.B. Campus, Bangalore University, BANGALORE (KARNATAKA) INDIA

(Accepted : June, 2008)

SUMMARY

In vitro adventitious shoots of *Lagerstroemia indica* were regenerated from nodal segements on MS medium containing BA (1.0 mg l^{-1}). These shoots underwent necrosis when they attained 1-2 cm in length. Necrosis could be prevented by using certain additives such as calcium, sulphur, 2-(N-morpholino) ethane sulphonic acid or by using fructose. Fructose (20 mg l^{-1}) was found to be more suitable additive in controlling the necrosis.

Key words : Micropropagation, Necrotic, Nodal culture.

Lagerstroemia indica (L) is a handsome deciduous small tree, native of China commonly cultivated in gardens throughout India for beautiful flowers (Anonymous, 1962). The bark of the plant is considered stimulant and febrifuge. Bark, leaves and flowers are said to be used in Indo-china as purgative and hydragogue (Chopra *et al.*, 1956). The roots are astringent and used as gargle, the seed contain a narcotic principle (Kirtikar and Basu, 1935). Application of tissue culture techniques for micropropagation of this small tree is seriously hampered by necrosis of the shoot tips in culture. Shoot tip necrosis or apical necrosis is a phenomenon in which the terminal portion of the shoot becomes dark brown and dies. It is reported to cause severe loss of cultures in some herbaceous plants such as potato (Sha *et al.*, 1985) and *Gerbera jamesonii* (Kataeva *et al.*, 1991) but more commonly in trees, *Malus domestica* (Standardi and Romani, 1990; Kataeva 1986), *Pistacia vera* (Rugini *et al.*, 1986; De Block, 1990) *Populus spp* (De Block, 1990), *Quercus spp* (Vieitez *et al.*, 1988), *European chestnut* (Vieitez *et al.*, 1988) and rose wood (Lakshmi Sita and Raghavan Swamy, 1993).

MATERIALS AND METHODS

Nodal segments from healthy plants of *Lagerstroemia indica* were collected from the university campus, washed thoroughly under running tap water, surface sterilized with mercuric chloride solution (0.1 w/v) for 3 min and washed thrice with sterile distilled water under aseptic conditions. Nodal segments (1.5cm) were cultured on MS medium (Murashige and Skoog, 1962) supplemented with benzyl adenine (BA, 1.0 mg l^{-1}).

One set of experiments was conducted with 20 mg l^{-1} fructose as an additive in the medium and the other set without fructose. Each experiment had 10 replications and was repeated thrice. The cultures were incubated in a culture room at a temperature $25^0 \pm 2^0$C and 16 hr light period of 50-70 mmole $\mu^{-2}S^{-1}$ (Philips cool white fluorescent tubes).

RESULTS AND DISCUSSION

2-4 multiple shoots were induced from single nodal segment on MS medium supplemented with 1.0 mg l^{-1}BA, irrespective of the presence or absence of fructose. The number of multiple shoots was not affected by the addition of fructose. As the shoots attained 1-2 cm length, the tips of 90% of the shoots turned brown and became necrotic on fructose-free medium (Fig. a). Necrosis of shoot tips was arrested in 95% of the shoots when fructose was incorporated in the medium.

There was a slight leaching of phenolics from the

Fig. a : Necrosis of shoot tips on medium lacking fructose

* Author for correspondence.