

## ABSTRACT

### Studies on the *In vitro* Propagation of *Mussaenda erythrophylla* 'rosea'

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Investigations to determine a suitable medium for the *in vitro* propagation of *Mussaenda* revealed that of the macro-element formulations of MS, Anderson and Heller, that of MS appeared to be the most suitable for the growth and multiplication of shoots. Compared with kinetin and 2iP, 6-BAP enhanced the elongation of stage 1 buds and promoted shoot proliferation. 5.0 and 10.0 mg/l 6-BAP promoted the multiplication process, but better quality shoots resulted at concentrations of 1.0 - 2.5 mg/l. The presence of a cytokinin in Stage 1 may be inessential since shoots formed in primary medium containing GA<sub>3</sub> produced an acceptable rate of proliferation in Stage II.

Two temperature regimes of 27°C and 31°C were tested. The elongation of buds in Stage 1 was significantly increased at 31°C. There was no apparent effect of temperature on the multiplication process.

Explants derived from nodal positions 1-4 were compared. Shoots produced in nodes at positions 2 and 3 were significantly longer than those in other positions. The rate of multiplication was significantly less in shoots derived from nodes at position 1.

Attempts to elongate proliferated shoots were unsuccessful. Shoots did not produce roots *in vitro*. Rooting *extra vitrum* appeared to be more promising.

The problem of vitreous shoot formation was encountered. The disorder was promoted in the presence of Heller's macro-elements. MS macro-nutrients (full-strength) appeared to be more suitable since leaves thus produced were anatomically similar to those formed *in vivo*. The disorder was promoted when sucrose was increased from 30 g/l to 50 g/l, or when the concentration of NH<sub>4</sub>NO<sub>3</sub> in MS salts was reduced to one-third. Vitrification was less of a problem when culture vessels were left untaped, but could be reduced in taped vessels by increasing the agar level from 0.8 - 1.1 per cent and incorporating a desiccant. Phloroglucinol in culture medium could also reduce the advent of vitrescence.