MICROPROPAGATION OF *PAULOWNIA ELONGATA*

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Abstract. Stem apex explants including two or three nodes were taken from year-old *Paulownia elongata* [1] stock plants and placed onto culture media that differed in auxin and cytokinin concentrations. Basal culture medium was Murashige and Skoog (1962 Physiol Plant 15:473-497), the auxin was naphthaleneacetic acid (NAA), and the cytokinin was benzylaminopurine (BAP). The NAA:BAP concentration (mg/1) combinations tested were: 0:1.0, 0.2:2.0, 0.2:4.0, 1.0:5.0. Four weeks after culture initiation the 0 NAA:1.0 BAP treatment was clearly inferior to the others as judged by the number of shoots produced per explant. After subculture and an additional four weeks of growth the number of shoots suitable for rooting (i.e. > 0.5 cm) was greatest on 0.2 NAA:4.0 BAP and differed significantly among all treatments ($p < 0.01$). Shoot proliferation varied greatly among genotypes within treatment. The bases of shoots ranging from 0.5 to 1.5 cm were dipped into rooting powder consisting of 0.2% NAA. Rooting took place in the tissue culture growth room in plastic boxes containing a peat-based, soilless rooting medium. Rooting frequency of over 95% was obtained within two weeks regardless of the tissue culture medium upon which the shoots were produced. Transfer of rooted shoots to the greenhouse resulted in a plantlet mortality rate of <1%. An additional two subcultures using nodal segments from a subset of genotypes on 0.2 NAA:2.0 BAP or 0.2 NAA:4.0 BAP showed that it is possible to routinely produce >100 rootable shoots per explant after three 4-week periods in culture. However, the number of shoots produced per nodal segment decreases with each subculture.

Treatment NAA:BAP (mg/l)	Shoots/Explant Week 4	Shoots/Explant Week 8	# Shoots to Root	% Root
0 : 1.0	2.9 b	6.6 d	578	96
0.2 : 2.0	3.7 a	17.2 b	1152	100
0.2 : 4.0	4.2 a	21.3 a	2002	98
1.0 : 5.0	3.9 a	9.9 c	1053	98

Values within a column followed by the same letter are not different at the 0.05 level according to Duncan's Multiple Range Test.

Keywords: Princess tree, tissue culture, vegetative propagation, rooting

[1] Plant material used is designated *Paulownia elongata carolinia* (patent pending) by Carolina Pacific International Inc. who provided the explants to conduct this research.