In vitro culture of Pogostemon cablin Benth. (Nilam Plant): the effect of NAA and BAP on embryogenic call us proliferation and subsequent somatic embryogenesis

---

Abstrak

An experiment to investigate the somatic embryogenesis from shoot-derived callus of Pogostemon cablin (nilam plant) has been conducted at the Plant Biotechnology Laboratory, Agricultural Faculty, University of Jambi from January through to July 2004. Callus proliferation was induced on explants taken from young shoots cultured on solid MS medium supplemented with phytohormones NAA (0.8, 1.1, 1.4, and 1.7 ppm) and BAP (1.1, 1.4, 1.7, and 2.0 ppm) under in vitro conditions. Cultures were maintained at 25  1 oC, light intensity 50 &#65533;?&#65533;mol m-2 s-1, and 16 hours photoperiod. The results indicated that all cultured explants showed positive responses on callus proliferation on all treatments within two weeks of culture initiation. The effect of phytohormones, however, was unspecific as all callus showed similar properties, from non-embryogenic to embryogenic. The addition of NAA and/or BAP to the culture medium was not significantly affected the number of days to callus proliferation. Callus fresh weight was significantly affected by NAA (P = 0.01) or BAP (P = 0.05), but the interaction of these phytohormones resulted in a non-significant effect on callus fresh weight (P = 0.18). Also, BAP significantly affected callus dry weight (P =0.03). However, neither NAA nor its interaction with BAP significantly affected callus dry weight (P = 0.07 and 0.16, subsequently). Embryogenic and non-embryogenic callus were subcultured separately onto new fresh media with the same composition as for callus induction. Following this subculture, embryogenic callus regenerated somatic embryos within ten days, whereas non-embryogenic callus did not show any symptom of embryogenesis, and lost their proliferative capacity after six weeks of subculture. The regenerated somatic embryos continued to grow to form profuse mass of young plantlets ready for in vivo acclimatization.