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Establishment of cell suspension cultures of *Morinda elliptica* for the production of anthraquinones

ABSTRACT

Morinda elliptica (Rubiaceae) cell suspension cultures were established in shake flask system for the production of anthraquinones. The optimized medium formulation for cell growth and anthraquinone production is proposed. Murashige and Skoog's basal medium (MS) was found to be the best medium, used in combination with 0.5 mg l⁻¹ NAA and 0.5 mg l⁻¹ kinetin. At the range of sucrose concentration tested (3-8% w/v), 8% was the best in enhancing both cell growth and anthraquinone production. A strategy to formulate growth and production medium by manipulating culture age and inoculum age, the type of medium formulation used to grow inoculum, incubation temperature and light intensity was established. By using 18 month old culture and 7 day old inoculum at incubation temperature of 27 ± 3°C, anthraquinone yield of 2.9 g l⁻¹ and 4.5 g l⁻¹, under illumination of 1200 lux and in the dark was obtained, respectively.

Keyword: ; Auxin; Cytokinin; Inoculum age; Medium optimization; *Morinda elliptica*