

## Abstract

Experiments were conducted to study plant regeneration through direct somatic embryogenesis using mature zygotic embryo and cotyledonary explants from seeds of *Melia volkensii* stored for <3 and >12 months. Explants were cultured on Murashige and Skoog (MS) medium supplemented with BAP, NAA and 2,4-D (0.5, 1.0 and 2.0 mg l<sup>-1</sup>) alone, and BAP (0.5, 1.0, 2.0 and 4.0 mg l<sup>-1</sup>) in combination with 2,4-D or NAA (0.2 and 0.5 mg l<sup>-1</sup>). After 4 weeks in culture, up to 60% of cotyledonary explants from the seeds stored for <3 months produced direct somatic embryos on BAP (0.5–4.0 mg l<sup>-1</sup>) in combination with 2,4-D (0.2 mg l<sup>-1</sup>). The number of somatic embryos ranged from 5 to 14 per explant in BAP (0.5 mg l<sup>-1</sup>) and 2,4-D (0.2 mg l<sup>-1</sup>) combination. Only 20% of cotyledonary explants from seeds stored for >12 months produced somatic embryos. Mature zygotic embryos failed to produce any somatic embryos. Subcultures of somatic embryos from cotyledonary explants of seeds stored for <3 months formed clusters of shootlets on semi solid MS and 1/2 MS media. After 6 weeks of subculture on multiplication MS media augmented with BAP (0.5 mg l<sup>-1</sup>) and IAA (0.2 mg l<sup>-1</sup>), 70% of the shoot tips formed 4–7 shoots per explant. Up to 33% of the multiplied shoots were rooted in MS medium supplemented with 2.0 mg l<sup>-1</sup> IBA. Plantlets developed normally into seedlings in the greenhouse.