Thidiazuron: An efficient plant growth regulator for enhancing Agrobacterium-mediated transformation in Petunia hybrida

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Abstract

Efficient shoot regeneration and Agrobacterium-mediated genetic transformation systems were developed for Petunia hybrida cv. Mitchell. Leaf explants of petunia were cultured on Murashige and Skoog (MS) medium with different concentrations of thidiazuron (TDZ) without auxin. The highest frequency of shoot regeneration (52.1%) and mean number of shoots per explant (4.1) were obtained on medium containing 2 mg l^{-1} TDZ. Leaf explants inoculated with Agrobacterium tumefaciens strain EHA101/pIG121Hm harboring ß-glucuronidase (uidA) and hygromycin resistance genes developed putative transformant shoots. The highest frequency of shoot regeneration (22.5%) and mean number of transformant shoots per explant (2.4) were obtained on a selection medium consisting of the above described regeneration medium and containing 25 mg l^{-1} hygromycin as the selection agent. Approximately 95% of putative transformant shoots expressed the uidA gene following histochemical ß-glucuronidase (GUS) assay. These were confirmed to be transgenic by PCR analysis and Southern blot hybridization.

Author keywords

Agrobacterium; Co-cultivation; GUS expression; In vitro; Petunia hybrida; Thidiazuron; Transformation

Indexed keywords

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