Development of a phosphomannose isomerase based *Agrobacterium* mediated transformation system for watermelon

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In traditional selection system, for many plants transformation either antibiotics or herbicide have been widely used as selection agents to identify transformants. A new selectable marker system has been adapted for use in *Agrobacterium* mediated transformation of Watermelon. This selection system utilizes the *pmi* gene encoding for phosphomannose–isomerase that converts mannose–6–phosphate to fructose–6–phosphate. Only transgenic plants were able to metabolize the selection agent, mannose, into a usable source of carbon, fructose. Cotyledon explants from 4–day–old seedlings with 2 days pre–culture were infected with *Agrobacterium tumefaciens* strain LBA4404 harboring a new constructed vector pNWB–JMT containing plant defense responses related jasmonates inducing protein (JMT) gene with full codon modification. After culture and selection on MS medium supplemented with 0.5 mg/l Zeatin, 0.4% mannose, 2.0% sucrose, 10 plantlets were regenerated. Polymerase chain reaction and Southern blotting analysis were used to identify and characterize the transgenic plants with the integrated JMT gene. Transgenic plants have been established at soil in the greenhouse.

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