

Improved production of β -sitosterol from transgenic calli of *Chrysanthemum coronarium* L.

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Abstract

β -sitosterol is a plant sterol that reduces cholesterol levels and the growth of human prostate and colon cancer cells. We describe the optimal production of β -sitosterol from normal and transgenic calli of *Chrysanthemum coronarium* L. Normal calli were induced on Murashige and Skoog medium containing 2, 4-D from *C. coronarium* L. A suspension culture was established and the effects of the seeding density and nitrogen, phosphate and carbon sources on β -sitosterol production from the suspension culture were studied. Conditions for air-lift bioreactor culture were optimized for β -sitosterol production. The SMT gene encoding the key enzyme for β -sitosterol synthesis was cloned and transformed into the calli for overexpression of this gene using *Agrobacterium*-mediated transformation. We are currently investigating the integration and the expression of the SMT gene, and the level of β -sitosterol in transgenic calli. The potential of normal and transgenic calli of *C. coronarium* L. for β -sitosterol will also be examined. This work was supported by a grant from the Rural Development Administration through Bio-Green 21 Project.

References

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