

Extending Shelf-life of Crop Plants by Reducing Steroidal Glycoalkaloids Production (Yissum)

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Background

The development is an innovative technique to cost-effectively preserve and prolong shelf-life in crop-plants.

A wide range of agricultural crops such as tomato, potato, eggplant and other Solanaceous species overcome oxidative stress by the producing steroidal glycoalkaloids (SGAs) and steroidal saponins. Although SGAs contribute to plant's resistance to a wide range of pathogens and predators, some are considered as toxic to humans.

Our Innovation

This innovative technology offers an improved nutritional composition and prolonged shelf-life of Solanaceous crop-plants widely consumed worldwide.

Advantages

- Prolongs shelf-life by preventing post-harvest elevated toxicity levels.
- Reduces undesired anti-nutritional alkaloids, without affecting other biological plant pathways.
- Helps avoiding spoilage and toxicity of plants during storage and processing.

Technology

The invention relates to key genes and enzymes on the biosynthesis pathway converting cholesterol to SGA. Biosynthesis involves an array of genes. Modulation of specific regulatory, transcription factor genes had enabled strict control of the production of steroidal alkaloids and glycosylated derivatives therefore.

Opportunity

Modification of steroidal glycoalkaloids and steroidal saponins compounds in plants can be used for two main purposes:

- Widely used crop-plants from Solanaceae species with reduced anti-nutritional components. Leading to a longer shelf-life of crop-plants with safer nutritional compounds.
- Highly resistant modified plant with enriched toxic steroidal glycoalkaloids content for non-edible usage.

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