

# Discovery in orange cauliflower may lead to more nutritious crops

June 4 2007

---



Orange cauliflower. Credit: Cornell University

While orange cauliflower may seem unappealing to some, it has distinct nutritional advantages. Now, Cornell researchers have identified the genetic mutation behind the unusual hue. The finding may lead to more nutritious staple crops, including maize, potato, rice, sorghum and wheat.

The genetic mutation recently isolated by Cornell plant geneticist Li Li and colleagues -- and described in the December issue of *The Plant Cell* -- allows the vegetable to hold more beta-carotene, which causes the orange color and is a precursor to the essential nutrient vitamin A. While cauliflower and many staple crops have the ability to synthesize beta-

carotene, they are limited partially because they lack a "metabolic sink," or a place to store the compound.

Developing staple crops with more vitamin A is important because vitamin A deficiency, common in developing countries, leads to compromised immune systems and is the leading cause of blindness in children.

"A large percentage of the human population depends on staple crops for nutrition," said Li, an adjunct assistant professor in the Department of Plant Breeding and Genetics and a scientist at the U.S. Department of Agriculture -- Agricultural Research Service's U.S. Plant, Soil and Nutrition Laboratory at Cornell. "The research provides a possible new technique for genetically modifying staple crops to increase their ability to store beta-carotene and increase nutritional content in staple crops."

Other researchers have created "golden rice" by inserting several genes that increases the synthesis of beta-carotene. But this technique has proved less effective in many plants. Li's research, which increases a plant's ability to store beta-carotene, may offer an alternate and complementary technique for making staple crops more nutritious.

Li, in collaboration with Joyce Van Eck from the Boyce Thompson Institute for Plant Research at Cornell, is currently working on transgenic potatoes, altering genes to increase both the metabolic sink and beta-carotene synthesis.

Orange cauliflower was first discovered in a farmer's white cauliflower field in Canada about 30 years ago and is now available at supermarkets.

Source: Cornell University

Citation: Discovery in orange cauliflower may lead to more nutritious crops (2007, June 4)  
retrieved 25 April 2024 from

<https://phys.org/news/2007-06-discovery-orange-cauliflower-nutritious-crops.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.