

Seedless cherimoya, the next banana?

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Mark Twain called it "the most delicious fruit known to man." But the cherimoya, or custard apple, and its close relations the sugar apple and soursop, also have lots of big, awkward seeds. Now new research by plant scientists in the United States and Spain could show how to make this and other fruits seedless.

Going seedless could be a big step for the fruit, said Charles Gasser, professor of [plant biology](#) at UC Davis.

"This could be the next banana -- it would make it a lot more popular," Gasser said. Bananas in their natural state have up to a hundred seeds; all commercial varieties, of course, are seedless. A paper describing the work is published March 14 in the journal [Proceedings of the National Academy of Sciences](#).

Researchers José Hormaza, Maria Herrero and graduate student Jorge Lora at the Consejo Superior de Investigaciones Cientificas in Malaga and Zaragoza, Spain, studied the seedless variety of sugar apple. When they looked closely at the fruit, they noticed that the ovules, which would normally form seeds, lacked an outer coat.

They looked similar to the ovules of a mutant of the lab plant *Arabidopsis* discovered by Gasser's lab at UC Davis in the late 1990s. In *Arabidopsis*, the defective plants do not make seeds or fruit. But the mutant sugar apple produces full-sized fruit with white, soft flesh without the large, hard [seeds](#).

The Spanish team contacted Gasser, and Lora came from Malaga to work on the project in Gasser's lab. He discovered that the same gene was responsible for uncoated ovules in both the Arabidopsis and sugar apple mutants.

"This is the first characterization of a gene for seedlessness in any crop plant," Gasser said.

Seedless varieties of commercial fruit crops are usually achieved by selective breeding and then propagated vegetatively, for example through cuttings.

Discovery of this new gene could open the way to produce seedless varieties in sugar apple, cherimoya and perhaps other fruit crops.

The discovery also sheds light on the evolution of flowering plants, Gasser said. Cherimoya and sugar apple belong to the magnolid family of plants, which branched off from the other flowering plants quite early in their evolution.

"It's a link all the way back to the beginning of the angiosperms," Gasser said.

Provided by University of California - Davis

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