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Papaya genome bares evolution's secrets

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WASHINGTON (Reuters) - Papayas have extra copies of genes that make them sweet and nutritious, researchers reported on Wednesday in a study that can help shed light on how flowering plants evolved.

They published the complete genetic sequence of the "SunUp" papaya, a tree genetically engineered to be virus resistant.

Writing in the journal *Nature*, they said the plant has fewer genes than the more thoroughly studied weed *Arabidopsis*, yet has a longer DNA sequence.

They believe they have pinpointed genes responsible for helping tree-like plants evolve, and genes that helped make it smell and taste so good, attracting animals and people to spread its seeds.

Papayas have extra genes that appear to code for these aromas and for storing starch, presumably in the fruit.

"This also foreshadows what we might expect to discover in the genomes of other fragrant-fruited trees, as well as plants with striking fragrance of leaves (herbs), flowers or other organs," Maqsudul Alam of the University of Hawaii and colleagues wrote.

"Papaya is an exceptionally promising system for the exploration of tropical-tree genomes and fruit-tree genomics," they added.

"Arguably, the sequencing of the genome of SunUp papaya makes it the best-characterized commercial transgenic crop."

The fruit is commercially valuable.

"Papaya is ranked first on nutritional scores among 38 common fruits, based on the percentage of the United States Recommended Daily Allowance for vitamin A, vitamin C, potassium, folate, niacin, thiamine, riboflavin, iron and calcium, plus fiber," they wrote.

"Consumption of its fruit is recommended for preventing vitamin A deficiency, a cause of childhood blindness in tropical and subtropical developing countries."

(Reporting by Maggie Fox, Editing by Sandra Maler)

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