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Genetically modified tomatoes contain more vitamin D, say scientists

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Scientists have found a way to edit the genetic makeup of tomatoes to become a robust source of vitamin D.



A research team at the John Innes Centre in Norwich, UK, have been working on the newly designed tomatoes to help people receive appropriate amounts of the vital vitamin.

Vitamin D regulates nutrients like calcium that are imperative to keeping bones, teeth and muscles healthy. Although it is created in our bodies after exposure to sunlight, its major source is food, largely in dairy and meat. Low vitamin D levels affect roughly 1 billion people.

Low vitamin D levels – associated with a plethora of conditions from cancer to cardiovascular disease – affect roughly 1 billion people globally, the researchers said.

Tomato leaves naturally contain one of the building blocks of vitamin D₃, called 7-DHC. Vitamin D₃ is considered best at raising vitamin D levels in the body.

Convincing people to buy ‘wonky’ vegetables could help reduce food waste This rickshaw driver is keeping customers cool with a roof of lettuce and tomatoes

So how did scientists gene-edit the tomatoes?

The team used the Crispr tool – which is designed to work like a pair of genetic scissors – to tweak the plant's genome such that 7DHC substantially accumulates in the tomato fruit, as well as the leaves.

When leaves and the sliced fruit were exposed to ultraviolet light for an hour, one tomato contained the equivalent levels of vitamin D as two medium-sized eggs or 28 grams of tuna, the researchers wrote in a paper published in the journal Nature Plants.

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The scientists are now evaluating whether sunshine, instead of ultraviolet light, can effectively convert 7-DHC to vitamin D₃.

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Why is this new form of vitamin D vegan?

Most vitamin D₃ supplements come from lanolin, which is extracted from sheep's wool. Since the sheep stays alive, it works for vegetarians, but not vegans.

And common foods with high levels of the vitamin, like eggs and tuna, are not vegan either.

But it could be some time before the gene-edited tomatoes are ready to hit supermarket shelves.

To close the current gap in the intake of vitamin D from dietary sources, two medium sized geneedited tomatoes should be enough, said the study's lead author, Jie Li, adding that it is hard to tell a gene-edited tomato apart from a wild tomato.

"They taste like tomatoes," added Cathie Martin, another study author.