

GMO cassava could alleviate B6 deficiency in developing nations

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In sub-Saharan Africa, cassava is a staple. But the roots have a disadvantage: although rich in calories, they contain only few vitamins, especially Vitamin B6.

Vitamin B6 deficiency is prevalent in several African regions where cassava is the staple in people's diet. Diseases of the cardiovascular and nervous systems are associated with vitamin B6 deficiency.

Plant scientists at ETH Zurich and the University of Geneva set out to find a way to increase vitamin B6 production in cassava.

In the journal *Nature Biotechnology*, the scientists present a new genetically modified cassava variety that produces several-fold higher levels of this important vitamin.

The basis for the new GM cassava was developed by Teresa Fitzpatrick at the University of Geneva. She discovered the biosynthesis of vitamin B6 in the model plant *Arabidopsis thaliana*. With the introduction of the corresponding genes into the cassava genome, the researchers produced several cassava lines that had increased vitamin B6.

Previously, the researchers had measured B6 content in several hundred different cassava varieties from Africa – none had a level as high as the genetically modified variety.

Vitamin B6 from the GM varieties is bioavailable, which means that humans can absorb it well and use it.

It is unclear when and how vitamin B6-enhanced cassava will find its way to farmers and consumers. The method for increasing vitamin B6 has not been patented because the gene construct and technology should be available freely to all interested parties.

“There are at least two obstacles: legislation for transgenic crops...and implementation of a cassava seed system to give all farmers access,” says Hervé Vanderschuren, who led the cassava research programme at ETH Zurich.

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