

# Tequila plant is possible sweetener for diabetics—helps reduce blood sugar, weight

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A sweetener created from the plant used to make tequila could lower blood glucose levels for the 26 million Americans and others worldwide who have type 2 diabetes and help them and the obese lose weight, researchers said here today.

The main reason it could be valuable, they explained, is that agavins, a natural form of sugar found in the agave plant, are non-digestible and can act as a dietary fiber, so they would not raise [blood glucose](#). Their report was part of the 247th National Meeting of the American Chemical Society (ACS).

The meeting, attended by thousands of scientists, features more than 10,000 reports on new advances in science and other topics. Being held at the Dallas Convention Center and area hotels, it continues through Thursday.

"We have found that since agavins reduce [glucose levels](#) and increase GLP-1, they also increase the amount of insulin," said Mercedes G. López, Ph.D. GLP-1 (glucagon-like peptide-1) is a hormone that slows the stomach from emptying, thereby stimulating production of insulin. She added, "Agavins are not expensive and they have no known side effects, except for those few people who cannot tolerate them." In addition, agavins, like other fructans, which are made of the sugar [fructose](#), are the best sugars to help support growth of healthful microbes in the mouth and intestines, she said.

López, who is with Centro de Investigación y de Estudios Avanzados, Biotechnology and Biochemistry Irapuato, Guanajuato, Mexico, also noted that agavins can help people feel fuller, which could help them eat less.

Agavins contain fructoses, which begs the question: Are agavins like high-fructose corn syrup, a processed sweetener that has gotten a lot of bad press recently? López pointed out that, indeed, high-fructose corn syrup is loaded with fructose sugars and, therefore, can raise [blood sugar levels](#). But agavins are fructans, which are fructoses linked together in long, branched chains. The human body can't use them in that configuration, so they don't affect [blood sugar](#), she explained. Agavins also sometimes get confused with agave nectar or agave syrup, which appears on many health-food store shelves. These products contain fructans that have been broken down into individual fructoses, so they are much more similar to high-fructose corn syrup.

Also, she and her team said agavins are better than artificial sweeteners, which are absorbed by the body and can cause side effects, like headaches. "One slight downside, however, is that agavins are not quite as sweet as their artificial counterparts," she said.

Of course, the agave's claim to fame is as the plant from which tequila is made. López explained that agavins are the only carbohydrates used to produce the drink. All ethanol in tequila comes from the fermentation of glucose and fructose generated after agave pines are cooked. But because the agavins are converted to ethanol, agavins are not found in the finished product.

López said that in the study, her team fed a group of mice a standard diet and added agavins to their daily water. They weighed the mice daily and checked their glucose blood levels weekly. Most mice that drank agavins ate less, lost weight and their [blood glucose levels](#) decreased when

compared to other sweeteners such glucose, fructose, sucrose, agave syrup and aspartame.

"This study represents the first attempt to evaluate agavins as sweeteners in spite of their lower sweetness compared to sugar," she said.

**More information:** Agavins as potential novel sweeteners for obese and diabetic people:

### **Abstract**

Agavins are fructans contained in most Agave species. Fructans are polysaccharides with a wide range of applications in food items, among their more relevant uses are as prebiotics, soluble fiber, and indigestible carbohydrates, to mention some. Inulin from chicory (*Cichorium intybus*) has been in the market for decades, it is well known prebiotic and it has been deeply investigated, a large number of research paper have confirmed many of the kindness of this carbohydrate. However, most of these applications are as a supplement, agavins are been now used as supplements too but, what about their use as sweeteners? In spite of the many efforts done to perform more research in agavins, their similarities with inulins have been a stumbling block. Therefore, we believe that agavins have a great potential as light sweeteners since they are sugars, highly soluble, have a low glycemic index, and a neutral taste, but most important, they are not metabolized by humans. This puts agavins in a tremendous position for their consumption by obese and diabetic people. We housed male mice of the line C57BL/6J, mice were fed a standard diet; agavins with different polymerization degrees (DP) obtained from different Agave species, were added in their daily water. Mice were weighed daily and their glucose blood levels check weekly. Most mice that drank agavins independently of their DP reduced their food intake and lost weight, a reduction on the glucose levels in blood was also observed. This study represents the first attempt to evaluate agavins as sweeteners in spite of their lower sweetness compared to

sugar table. Moreover, agavins as other fructans are the best sugar for oral and intestinal microbiota.

Provided by American Chemical Society

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