

Sweet, tasty and healthy—the new essence of juice?

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A mix of stevia, lime and fibre can make juice healthy and tasty. Credit: Colourbox

Lime, fibre and stevia provide a cocktail of ingredients that can be added to fruit juice to increase its nutritional value and promote the sensory experience of the juice.

Do you have a sweet tooth but need to keep a wary eye on your weight and [blood sugar level](#)? Then a new cocktail consisting of lime, stevia and β -glucans may be the answer to your prayers. In a study at Aarhus University the effect on the sensory experience of adding these three ingredients to juice was investigated. This trinity of ingredients means it is possible to make a tasty fruit beverage that is both low in sugar and high in fibre.

Many people like drinking [fruit juice](#), which is both a good and bad thing. Fruit juice contains a number of beneficial vitamins but often has high sugar and low fibre contents. The challenge is to increase the [nutritional value](#) of the juice without spoiling the taste. A team of scientists that included researchers from Aarhus University devised a solution to the problem of combining sweetness with healthiness by adding stevia for sweetness and β -glucans for fibre with a dash of lime to adjust the taste.

Super sweetness joins fibre for health

A high intake of sugar is one of the factors contributing to obesity and lifestyle diseases, but cutting out sugar can be difficult. To satisfy our desire for something sweet while limiting our consumption of sugar, a natural sweetener called stevia can be used.

"Stevia is the only approved natural sweetener in Europe. From a health and technological viewpoint, the effects of using stevia have been purely positive," explains postdoc Line Holler Mielby from the Department of Food Science at Aarhus University.

Unfortunately, a characteristic of stevia is its effect on taste. Juice containing stevia has a tendency to leave a bitter aftertaste.

Earlier research results have shown that fibre in [food](#) has a number of health-promoting effects. Fibre products that have a positive effect on health include β -glucans - which are naturally occurring in oats, for example. However, β -glucans also have an adverse effect on flavour in that they give the food product a slightly metallic and stale smell.

The sensory experience is important

Foods should not only be healthy in order for consumers to buy them. They should also give the consumer a good sensory experience.

"Foods should have satisfying sensory characteristics, since these characteristics will determine whether the consumer will buy the product again. The product should leave a good all-round impression," explains Line Holler Mielby.

Adding healthy fibre and low-calorie sweeteners to food will not work if they have a negative effect on the flavour. A remedy has to be found for this and in this instance the choice fell on lime. In the study the scientists used an apple-cherry juice to which varying quantities of lime, β -glucans and stevia were added. The aim was to characterise the sensory experience of the juice.

The results showed that the addition of lime to the apple-cherry juice could counterbalance the adverse impact on taste of the stevia and β -

glucans. The taste of [lime](#) in the juice concealed not only the aftertaste of stevia but also the smell of staleness and metals imparted by the β -glucans and improved the experience of drinking fruit juice containing β -glucans.

"With the increasing popularity of functional food, it would be relevant to examine the effects in other food products such as breakfast cereals that have a high [sugar](#) and low fibre content. In relation to the addition of β -glucans to food it would also be relevant to examine other eating experiences, for example satiety," says Line Holler Mielby.

More information: Line H. Mielby et al, Changes in sensory characteristics and their relation with consumers' liking, wanting and sensory satisfaction: Using dietary fibre and lime flavour in Stevia rebaudiana sweetened fruit beverages, *Food Research International* (2016). [DOI: 10.1016/j.foodres.2016.01.010](https://doi.org/10.1016/j.foodres.2016.01.010)

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