

# Drink made from berry wine may provide tasty drug for diabetes

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In evaluating the bioactive compounds of Illinois blueberry and blackberry wines, University of Illinois scientists have found compounds that inhibit enzymes responsible for carbohydrate absorption and assimilation. And that could mean a tasty way to help people with diabetes decrease their blood sugar.

"We're thinking about a dealcoholized fermented fruit beverage that would optimize the inhibition of the alpha-amylase and alpha-glucosidase enzymes and also make use of the wines' other healthful [bioactive components](#)," said Elvira de Mejia, a U of I professor of [food chemistry](#) and food toxicology.

Graduate student Michelle Johnson evaluated the [nutritional value](#) of 19 Illinois wines, deciding on a [blueberry](#)-blackberry blend for maximum effectiveness.

In the in vitro study, the scientists compared the anti-carb effects of the alpha-amylase and alpha-glucosidase enzymes with acarbose, an anti-[diabetes drug](#). The carb-degrading enzymes were inhibited in a range of 91.8 percent for alpha-amylase compared to acarbose and 103.2 percent for alpha-glucosidase compared to acarbose, de Mejia said.

The study is the first to assess the effect of berry [fermentation](#) at different temperatures on these carb-inhibiting enzymes. At both room and cold (4°C) temperatures, berry wine retained the ability to degrade the enzymes, she said.

In a second study, Johnson quantified the antioxidant, polyphenol, and anthocyanin content of blueberry and blackberry wines. Her proposed blend contains an abundance of these [bioactive compounds](#), which add to its healthful properties.

The researchers are particularly interested in the ability of anthocyanins to reduce inflammation, which contributes to the development of many chronic illnesses, including cancer, metabolic disease, and cardiovascular disease. To that end, they are experimenting with the berries' effects on inflammatory cells, and they have found that anthocyanins reduce markers associated with the inflammatory response.

"Preliminary studies have indicated that anthocyanins may have a positive effect on cognition and overall brain health while protecting against some of the effects of aging, such as Alzheimer's disease and memory loss. These berries have some very intriguing components," de Mejia said.

A food chemist, de Mejia would like to remove the alcohol from the wines, leaving the carb-degrading enzyme compounds, the inflammation-fighting anthocyanins, and other beneficial bioactive components in a functional and flavorful drink for diabetics and others.

The bioactive ingredients could also be added to any prepared beverage to give it color, flavor, and nutritional punch, making them useful to the food industry, she said.

**More information:** Studies detailing this research were published in a recent issue of the *Journal of Food Science*.

Provided by University of Illinois at Urbana-Champaign

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