

Scientists find a way to reduce sugar in drinks

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Research has shown that increasing the pH level of water could help tackle obesity and health problems caused by high sugar content in drinks.

Scientists at De Montfort University Leicester (DMU) have been working with University of Sheffield, Innovate UK and WET Group Ltd to find a way to create drinks that do not need [sugar](#) or additives.

To do this, they looked at why sugar is added to drinks in the first place and found that the [water](#) purification process known as Reverse Osmosis (RO) can reduce the liquid's pH level to values of 6.1 or lower—compared to water's neutral pH level of 7.

RO removes dissolved salts (ions) and unwanted bacteria from drinking water by pushing it under pressure through a semi-permeable, thin membrane with tiny pores that restrict larger molecules and impurities from getting through.

However, researchers found that this process causes the liquid to become more acidic through uptake of atmospheric carbon dioxide, leaving a salty, bitter taste. As a result, sugar is added to drinks to cover up this adverse flavour.

Professor Martin Grootveld, professor of Bio-analytical Chemistry and Chemical Pathology at DMU, said: "Our study shows that in order to reduce the amount of sugar in drinks, we need to look at the way we treat the water beforehand.

"Sugar is being used to disguise the acidity in drinks, rather than improve

the flavour, and actually adding sugar causes the pH value of water to decrease even further—we found some drinks had a highly acidic pH level of 2.5."

Existing water treatment techniques are unable to alter the pH value of RO-treated water. However WET Group, a water enhancing technology business, has created its patented AES technology for drinks and beverage businesses.

The AES machine from WET Group turns source water into super-premium alkaline water through a process of filtration, re-mineralisation and alkalisation. Its creation of water with a high, stable pH of 10.5 has been proven through academic testing to maintain this alkalinity—even after adding flavours.

Dr. Ahmed Abbas Mohamed, director of research and development at WET Group, said: "We carried out the research to develop a method that creates drinks which do not need sugar or additives. Realising that sugar is not used for flavour but to cover up the loss of flavouring due to extreme acidity was a big step, which set us on the path to developing the AES machine to solve the issue."

The study showed that water treated by the AES facility retained a pH value greater than 9, even after flavours were added.

The drinks created maintained the higher pH value and showed no microbial growth when exposed to 12 weeks of accelerated shelf-life testing at ambient and abusive temperatures of 20°C and 30°C. The drinks also contained less than 0.1 g of sugar per 100ml.

DMU researchers have confirmed the treated water is safe for human consumption, after conducting a clinical trial studying blood, urine and saliva samples taken from participants who had been drinking it on a

regular basis.

Kathryn Miller, Innovation Lead—Food and Nutrition, Innovate UK, said: "With a rapidly growing global population, there is an increasing need for innovation if we are to meet the demand for more efficiently produced, healthier and traceable food."

The AES machine from WET Group is a first in the market and has been awarded the Seal of Excellence by the European Commission for eliminating sugars in drinks and the best technology innovation 2019 for beverages by the global beverage experts, Zenith.

Provided by De Montfort University

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