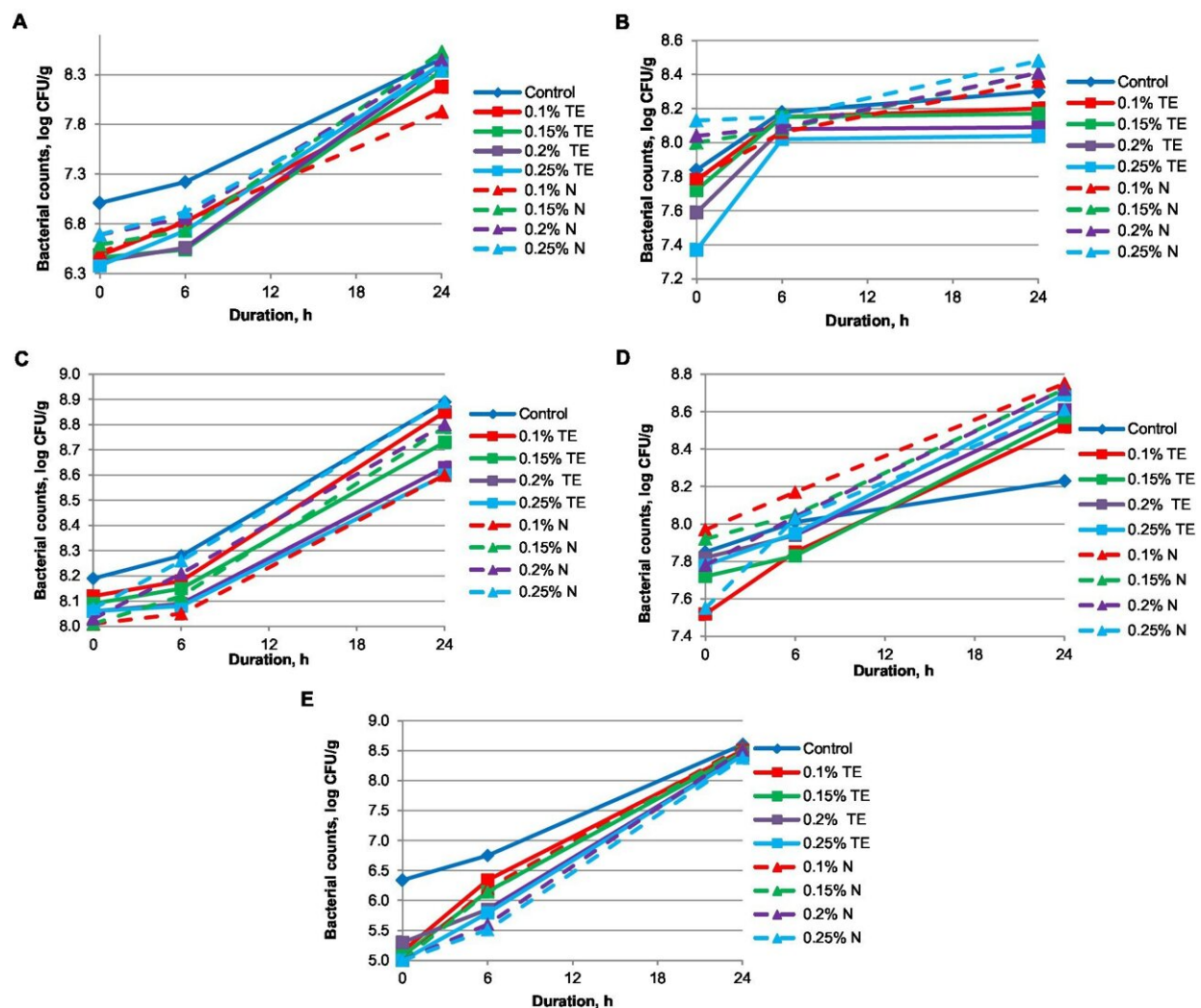


Purified curcumin instead of artificial additives can be used to preserve and enhance probiotic yogurt

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Growth dynamics of probiotic cultures. (A) yogurt cultures (*Streptococcus thermophilus* and *Lactobacillus delbrueckii* subsp. *bulgaricus*), (B) *Lactobacillus*

acidophilus LA-5®, (C) Lactobacillus casei 431®, (D) Lactobacillus johnsonii La 1, (E) Bifidobacterium animalis subsp. lactis BB-12. Credit: *Frontiers in Nutrition* (2023). DOI: 10.3389/fnut.2023.1118752

Researchers have succeeded for the first time in adding a highly purified form of curcumin to yogurt in a way that ensures it remains dissolved in the dairy product and preserves it, while tasting good.

Their discovery, which is published today (April 3) in *Frontiers in Nutrition*, makes it possible to create a probiotic [yogurt](#) that contains no artificial preservatives but that still has a long shelf life and properties that may enhance [good health](#).

Curcumin is a naturally-occurring chemical that provides the yellow color in turmeric. Studies have shown that it has anti-inflammatory and anti-oxidative properties, that it can inhibit the growth of bacteria and fungi, and may be able to boost the immune system.

First author of the study, Dr. Magdalena Buniowska-Olejniak, from the Institute of Food Technology and Nutrition at the University of Rzeszow, Poland, said, "It is well known that [curcumin](#) has anti-microbial, anti-inflammatory and immune-boosting effects. However, it is insoluble in water, which is one of the main reasons why our bodies are not able to absorb sufficient amounts for it to have a biological effect. We wanted to see if it was possible to create a dairy product containing curcumin in a bioavailable form that would also appeal to the consumer."

The researchers developed a probiotic yogurt containing a form of curcumin called NOMICU L-100, which could dissolve well in water and could be easily absorbed by the body. They compared it with a

yogurt containing a standard turmeric extract to see how effective it was at inhibiting the growth of yeast, fungi and bacteria over a period of 28 days. They evaluated the color of the yogurts and tested the taste on a panel of expert tasters.

"We found that NOMICU L-100 was better at inhibiting the growth of yeast fungi and bacteria than the standard turmeric extract," said Dr. Buniowska-Olejniki. "It maintained the recommended levels of the 'good' [lactic acid bacteria](#) that are contained in fermented, live yogurts.

"Yogurt containing the standard turmeric extract was slightly better at remaining in a homogenous form without a layer of water developing on the top. However, it tasted bitter and the taste deteriorated after the first week of storage in the fridge, so it did not appeal to the tasting panel. In addition, its color was towards the green end of the yellow spectrum, whereas NOMICU shifted the color towards the red end, making it look more attractive. NOMICU imparted a sweet, rich, creamy flavor to the yogurt, which remained stable to the end of the 28 days storage in the fridge."

Maciej Banach, Professor of Cardiology at the Medical University of Lodz, Poland, and Adjunct Professor at the Ciccarone Center for the Prevention of Cardiovascular Disease, Johns Hopkins University School of Medicine, led the research together with Dr. Jakub Urbanski, CEO of Dairy Biotechnologies Ltd. He said, "NOMICU is the first highly purified curcumin available in the market that does not contain any other artificial additives, and which has one of the best bioavailability due to the fact it dissolves well in water. We expect it may have health properties in addition to those of other probiotic dairy foods, including anti-inflammatory and antioxidant effects, and beneficial effects on fats and sugars in the blood.

"In [our previous meta-analysis](#), the largest one we know of, we found

that consumption of fermented yogurt was associated with a significantly lower risk of deaths from any cause or from diseases of the heart and blood vessels, such as stroke and coronary heart disease.

"As a cardiologist, I consider that a yogurt enriched with a nutraceutical, which has been shown to be effective and safe, has potential for improving [population health](#), especially when taking into account how often yogurts are consumed in everyday diet. What is more, by adding an effective nutraceutical to the yogurt, we have created a kind of 'polypill' or healthy product that contains a combination of elements that may be good for human health. This might mean that people would be more likely to adhere to it than if they consumed the two products separately. In consequence, we might expect to see better health results.

"This is especially important now, in post-pandemic times, when around 70% of the population is overweight, obese or suffer from disorders of the gut, and are at high risk of chronic diseases, including two of the biggest killers—cardiovascular disease and cancer, which are responsible for over 30 million deaths per year worldwide."

The researchers plan to research the effects of curcumin in other dairy products, especially those where its anti-microbial properties can extend the shelf life of products, or significantly reduce the risk of uncontrolled growth of yeast and mold.

More information: The influence of curcumin additives on the viability of probiotic bacteria, antibacterial activity against pathogenic microorganisms and quality indicators of yogurt, *Frontiers in Nutrition* (2023). [DOI: 10.3389/fnut.2023.1118752](https://doi.org/10.3389/fnut.2023.1118752)

Provided by Polish Lipid Association

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