

Breakthrough could lead to healthier clear beverages, new cancer treatments

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Using a natural milk protein called casein, Technion (Israel Institute of Technology) researchers have created nanocapsules so tiny that they solve the longstanding problem of how to add nutrients to clear beverages without clouding or effects on taste or appearance.

According to lead researcher Dr. Yoav Livney of the Technion Faculty of Biotechnology and Food Engineering, the team combined casein with starchy maltodextrin to create the nanocapsules, which because of their small size do not scatter light. As a result, they can be filled with vitamins or anything else, and added to liquids without turning them cloudy.

“These nanocapsules,” Dr. Livney explains, “are mainly advantageous for clear-beverage enrichment, such as water, sports drinks, beer, hot or iced tea.” But their protective properties, he adds, would also mean they could be used for a wide range of foods and drinks – as well as a new generation of disease-fighting pharmaceuticals.

Experimenting with Vitamin D and EGCG, a disease-inhibiting component of green tea, the researchers also showed the nanocapsules could greatly extend the shelf life and protect the potency of vitamins and nutraceuticals from heat and cold. And this extra protection stays intact amid the harsh acids of the human stomach, allowing more vital substances to reach their desired target, the small intestine.

Dr. Livney and his team are now using the technology to develop target-oriented drug delivery, either oral or through the bloodstream, to identify and destroy cancer cells.

The findings were published in the journal *Food & Function*.

Provided by American Technion Society

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