

Cheesemaking may hold the key to healthier babies and fighting disease

August 26 2022



Credit: University of Melbourne

Researchers from the University of Melbourne have developed a process to harvest key ingredients from whey, which could be used as precursors not only to provide cheap nutritious baby food but to develop antiviral

drugs at an industrial scale.

The core ingredients, including bioactive peptides and lactose contained in whey, the watery byproduct of cheesemaking, can be utilized as starting materials for production of sugars similar to the unique sugars contained in human milk which play a key role in infants' growth and immune system development.

They are also similar to carbohydrates recently discovered with potential for universal antiviral treatment.

"The commercial production of these carbohydrates for either purpose has been hindered by a lack of scale in supply," says Masih Karimi Alavijeh, a chemical engineering researcher at the University of Melbourne. "But whey, is plentiful and cheap—Australia produced more than three million tons of the stuff in 2020."

Masih and his colleagues discovered the [commercial potential](#) for whey following an analysis of existing production strategies.

They then identified and developed a method using enzymes to increase production of the target carbohydrate.

"We added enzymes and [metal ions](#) commonly found in whey to regulate the conversion reaction to produce more of this sugar," says Masih.

He and his colleagues also developed [computer simulations](#) to show a large-scale manufacturing plant with a sufficient capacity to cover Australian demand was possible.

"As Australia is a major cheese producer, the huge amount of whey annually generated in Australia could be converted to these value-added ingredients, leading to another income stream for dairy producers as well

as more jobs," he says.

A cheap source of ingredients to enrich baby formula to be more like breast milk would have global impact. The World Health Organization says more than 800,000 child deaths a year could be prevented if breast milk was universally used to feed babies.

Provided by Freshscience

Citation: Cheesemaking may hold the key to healthier babies and fighting disease (2022, August 26) retrieved 27 June 2024 from <https://phys.org/news/2022-08-cheesemaking-key-healthier-babies-disease.html>

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