

PolyU researchers develop novel fungus-based fat replacer AkkMore

23 May 2024 | News

This replacer not only helps lower the calorific content of food but also extends the shelf life of cream products



This replacer not only helps lower the calorific content of food but also extends the shelf life of cream products

A research team from the Research Institute for Future Food (RiFood) and the Department of Food Science and Nutrition (FSN) of The Hong Kong Polytechnic University (PolyU) has successfully developed AkkMore, a novel fungus-based fat replacer which is effective in preventing obesity and metabolic diseases, enhancing gut health, modulating immune response and relieving anxiety. This replacer not only helps lower the calorific content of food but also extends the shelf life of cream products. In the long term, it can reduce dairy consumption and food waste, providing innovative ESG (Environmental, Social and Governance) solutions in the food industry.

A PolyU research team led by Dr Gail CHANG, Core Member of RiFood and Research Assistant Professor of FSN together with Dr Amber CHIOU, Associate Director and Associate Professor of RiFood, and Associate Head of FSN has extracted the functional component of AkkMore from natural fungus to develop the replacer and has conducted three phases of animal experiments.

The study has found that mice which had been administered the AkkMore formula had a healthier gut microbiota with a higher density of Akkermansia, lower Firmicutes/Bacteroidetes ratio, lighter adipose tissue and suppressed neuroinflammation when compared to the control group. This indicates the effectiveness of the formula in managing weight, enhancing gut health, modulating immune and metabolic diseases and relieving anxiety. This research won a Silver Medal at the 2022 International Exhibition of Inventions Geneva and its application for health benefits has entered the patent substantive examination stage.

Making use of the thickening, emulsifying and stabilising properties of AkkMore, the team has developed Cream Mate, an AkkMore-based cream substitute. Cream Mate can be used in conjunction with traditional cream to reduce the amount of cream used in desserts. Not only does it decrease the fat and calorific content of food while maintaining the quality of taste and texture, but it also significantly extends the shelf life of cream-based products. In the long run, this could lead to reduced consumption of dairy products and food waste, reducing carbon emissions and profitability of production.

Dr Chang stated, "This collaboration is a testament to the successful translation of a research outcome. Moving forward, we will further explore the application of the AkkMore formula in innovative health foods and put greater efforts into the identification of mushroom strains with better functions and standardisation of the cultivation process."