

An easier way to go veggie: Vitamin B12 can be produced during dough fermentation

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Vitamin B12 is an essential micronutrient that is needed for functions such as maintaining the nervous system and forming blood cells. However, B12 is mainly found in food of animal origin. Those who

consume only small amounts of animal products or are vegan must therefore take B12 in the form of pills or eat food to which industrially produced B12 has been added.

"In situ fortification of B12 via fermentation could be a more cost-effective alternative. And as a commonly consumed [staple food](#), grains are excellent vehicles for enrichment with micronutrients," explains Chong Xie from the Faculty of Agriculture and Forestry, University of Helsinki, about the background of his doctoral dissertation.

Xie used 11 different grain-based materials and fermented them with *Propionibacterium freudenreichii*—the only B12-producing microorganism accepted for food products.

Propionibacterium freudenreichii, the essential microbe in Emmental cheese, produced nutritionally significant amounts of vitamin B12 in most of the fermented grain materials. During the three-day fermentation process, rice bran and buckwheat bran had the highest B12 production. The addition of *Lactobacillus brevis* was able to dominate indigenous microbes during fermentation and greatly improved microbial safety during the fermentation process.

More information: Xie, Chong. In situ fortification of vitamin B12 in grain materials by fermentation with *Propionibacterium freudenreichii*. Academic dissertation, Department of Food and Nutrition, Faculty of Agriculture and Forestry, University of Helsinki. 2020. ISBN 978-951-51-6355-4 (paperback), ISBN 978-951-51-6356-1

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