

green queen

Home > Alt Protein >

Finnish Researchers Develop Fungi-Based Egg White Alternative

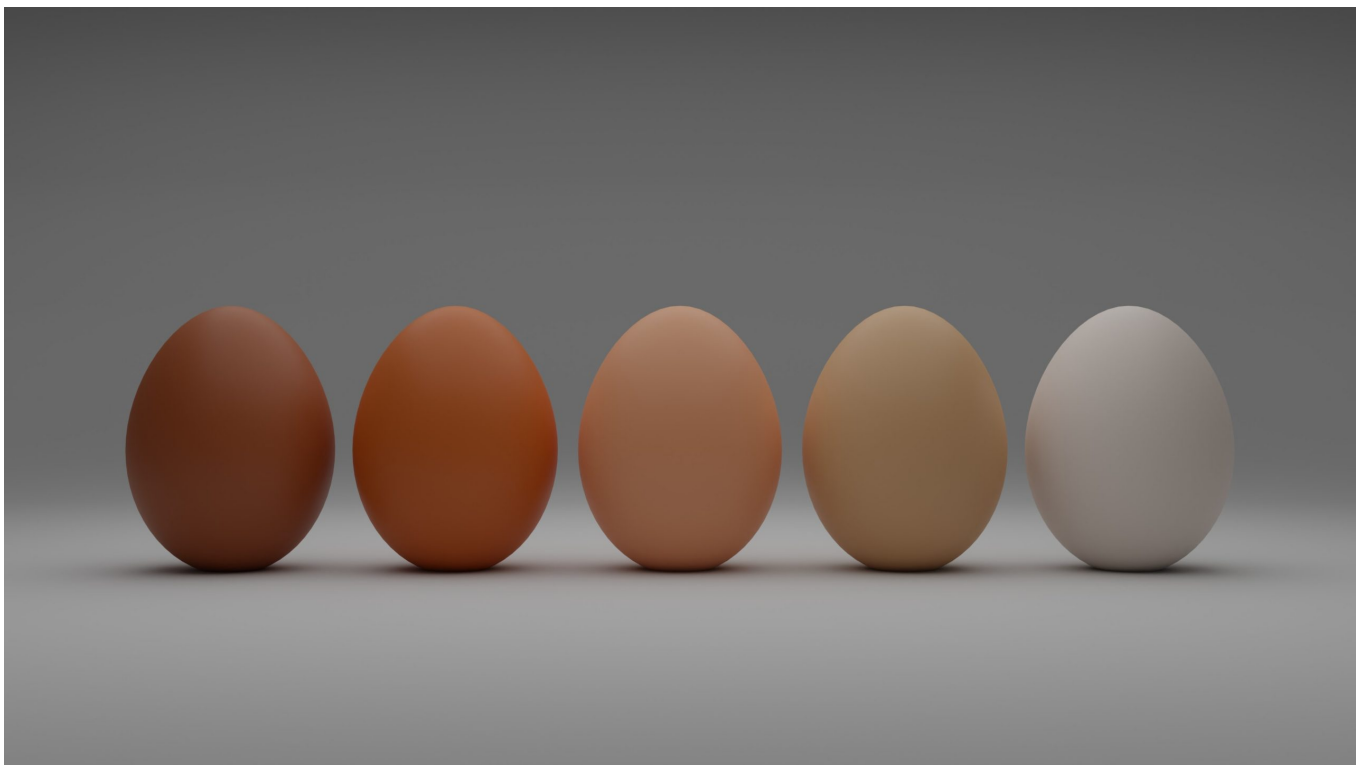


By **Amy Buxton**

ALT PROTEIN FERMENTATION-BASED ALT PROTEIN FOOD & NUTRITION

Published on **Jan 19, 2022**

Last updated **Jan 19, 2022**



3 Mins Read

As innovators and scientists race to develop animal-free alternatives to chicken eggs, a research team in Finland has created a new egg white alternative made from fungi; the development could represent the first of its kind. Like The Every Company, precision fermentation was used to create the

sustainable, animal-free albumin. The product requires up to 90 percent less land than conventional chicken egg farming. The vegan eggs will also produce 55 percent fewer greenhouse gasses.

Egg white powder was identified by the Future Sustainable Food Systems research group as a key food industry ingredient, with its hefty environmental footprint underlining a need for sustainable alternatives. The team behind the fungi-based egg whites is looking to meet protein requirements without the planetary impact.



A collaborative approach

The Future Sustainable Food Systems research group, based at the University of Helsinki, joined forces with Finland's VTT Technical Research Centre. *Trichoderma reesei* was identified as a suitable fungi strain for development, resulting in a new powdered egg white substitute. The researchers claim that it is suitable for industrial-scale production.

The powder has eliminated the risk of salmonella contamination and antibiotic exposure. Both are concerns with conventional eggs.

"VTT has succeeded in producing ovalbumin with the help of the filamentous ascomycete fungus *Trichoderma reesei*," Dr. Emilia Nordlund of the VTT Technical Research Centre said in a statement. "The gene carrying the blueprints for ovalbumin is inserted by modern

biotechnological tools into the fungus which then produces and secretes the same protein that chickens produce. The ovalbumin protein is then separated from the cells, concentrated and dried to create a final functional product.”

Tr-OVA, as the powder has been dubbed, can be used to create foam. This offers potential for the professional baking and dairy sectors, with meringues, puddings and cakes. The research team is hopeful that its product will perform as a direct substitution for conventional egg whites in almost all applications.

Pilot stage developments have not allowed for commercial-scale environmental impacts to be calculated.



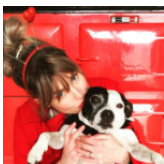
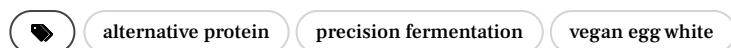
Eliminating the need for animal eggs

Alternatives to chicken eggs are a focal point in the global foodtech sector. A number of food alternatives, such as Crack'd and JUST, aim to replace eggs as a meal option. Industrial ingredients are being developed in the background, replacing eggs on a commercial level.

Israel's InnovoPro announced at the end of last year that it has developed a professional egg white alternative. The chickpea-based product, called CP-Foam 1001, is said to have a strong structure and neutral taste that makes it ideal for professional cooking. The company claims to have reached price parity with conventional egg whites, with superior shelflife and ease of use. Commercial baking is cited as an industry that will benefit from the ingredient.

Singapore has revealed an egg-related breakthrough. Scientists from the Nanyang Technological University have reported success in synthesising a plant-based emulsifier. The development has the potential to replace eggs in food applications. It also has the potential to enrich cosmetic and pharmaceutical products as well. The ingredient has been developed from spent brewing grains, contributing to food waste reduction targets. A vegan mayonnaise has been created using the emulsifier. The research team claim that taste was identical to conventional options, but with less fat and calories and improved nutrients.

All images courtesy of Unsplash.



Amy Buxton - 171 Posts

A long-term committed ethical vegan and Green Queen's resident plant-based reporter, Amy juggles raising a family and maintaining her editorial career, while also campaigning for increased mental health awareness in the professional world. Known for her love of searing honesty, in addition to recipe developing, animal welfare and (often lacklustre) attempts at handicrafts, she's hands-on and guided by her veganism in all aspects of life. She's also extremely proud to be raising a next-generation vegan baby.