

TECH OFFER

Egg Alternative from Rice Bran Protein



KEY INFORMATION

TECHNOLOGY CATEGORY:
Sustainability - Food Security
Foods - Ingredients

TECHNOLOGY READINESS LEVEL (TRL): **TRL7**
COUNTRY: **THAILAND**
ID NUMBER: **TO175017**

OVERVIEW

Eggs are a widely popular protein source, however, egg production requires a significant amount of natural resources. Hence, this technology aims to substitute chicken eggs with plant-based alternatives, which would lead to a reduced environmental impact.

Rice bran is the hard outer layer of rice, a byproduct of the rice milling process which is pressed for oil and then discarded. Using rice bran as a source of protein reduces waste and increases resource efficiency, making it a strong potential candidate as an alternative protein source to be produced in Thailand, which is the 6th largest rice producer according to the FAO.

This product is high in protein (comparable to chicken eggs), which is hydrolyzed to increase bioavailability, and does not contain cholesterol and saturated fat. It is fit for health and fitness enthusiasts, vegetarians, flexitarians and people with an egg allergy.

TECHNOLOGY FEATURES & SPECIFICATIONS

- Proprietary precision hydrolysis and subcritical water technology is used to extract the protein.
- The carbohydrates are hydrolysed, and separated from the proteins under specific pressure and temperature
- Proteins are then hydrolysed and spray dried into final product, which is a powder that requires reconstitution
- This process has already been scaled up to commercial scale for B2B customization

POTENTIAL APPLICATIONS

- Culinary applications e.g. omelette, tamago
- Egg replacer e.g. in waffles, certain bakery products
- High protein supplementation in food

MARKET TRENDS & OPPORTUNITIES

MarketsandMarkets shows that the total global plant-based egg replacer market is valued at \$831M USD, with the APAC market consuming around 20% of that market share. A large majority of these products are made using mung bean or other legumes, which can confer a beany taste or contain allergens. Rice-based products are very familiar to the Asian market, and hence are more likely to be adopted.

UNIQUE VALUE PROPOSITION

- Hydrolyzing proteins produces smaller chains of amino acids or peptides which increases absorption by the body and improves muscle recovery.
- This rice bran protein has a lighter color, no bitterness, and salty taste as compared to other rice bran proteins.
- Clinical studies have been conducted on this rice bran protein to show that the peptides are nutraceuticals with antihypertensive and antioxidants properties