

Micro4Food: Production of edible microbial protein by *Yarrowia lipolytica* from fruit peels

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The global animal and plant-based protein supply chains are susceptible to the effects of climate change, require large areas of arable land and their increased demand intensifies crop fertilization, contributing negatively to greenhouse gas emissions. The development of microbial protein contributes to easing the burden on animal- and plant-based proteins, providing protein-rich food replacement. Production of single-cell protein (SCP) by GRAS-status microorganisms is an efficient technology for the large-scale production of food-grade protein and has several advantages over traditional protein sources: high protein content; rich in essential amino acids; lower cholesterol, fat, and sugar levels and higher fiber and vitamins content.

The Micro4Food project aims to exploit the potential of *Yarrowia lipolytica* to produce SCP from inexpensive and food-grade feedstocks, aiding to reduce the by-products surplus in a cost-effective way. Specifically, fruit peels are used as low-cost raw materials to produce edible SCP through solid-state fermentation. As a result of the project activities, an integrated process from fruit peels to SCP will be obtained. All final fermented solids (fruit peels+yeast) will be used for the formulation of a novel food product (Protein bar) enriched in protein, gluten-free, with no sugars added and with a high nutritional value.

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