

Abstract

Consumer Acceptance and Nutritional Expectations of Microalgae Protein Products: Insights from a Cross-European Study [†]

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Alternative proteins, such as microalgae proteins, have the potential to mitigate climate change impacts and foster sustainable development. Microalgae proteins offer several advantages over traditional animal proteins, including comparable nutritional quality, lower environmental footprint, and higher production efficiency. Consumer acceptance is key to the successful development of microalgae proteins and is examined in this study. Within the EU-funded “ProFuture” project (H2020), a large-scale cross-sectional consumer survey was conducted in Germany, Hungary, Italy, Spain, and the Netherlands ($n = 3027$) [1,2]. The study investigated consumers’ willingness to try (WTT) food products with microalgae proteins and the potential determinants related to health, nutrition, sustainability, and product attributes. WTT was measured in general and based on various product types (bread, energy bars, pasta, plant-based sausage, plant-based cream, and soup) and microalgae species (*Chlorella*, *Spirulina*, and *Tetraselmis chui*). Consumers were categorized into three groups: ‘enthusiast’ ($n = 1142$), ‘uncertain’ ($n = 830$), and ‘uninterested’ ($n = 1055$) based on their WTT. Multinomial logistic regression with bootstrapping was used to identify the attitudinal determinants of consumers’ WTT for products with microalgae proteins, with a special focus on the role of nutrition-related expectations (Pseudo $R^2 = 25.1\%$). Generally, consumers were willing to try food products containing microalgae proteins. Key determinants differentiating the three groups included perceived product pleasantness and naturalness, general health interest, sustainability, and animal friendliness for food choice motives. In terms of nutrition-related expectations, perceiving products as rich in vitamins, minerals, and protein increased the likelihood of being an ‘enthusiast’ rather than ‘uninterested’; the perception of products as high in fiber decreased the likelihood of being ‘uncertain’ compared to ‘uninterested’. Comparing the nutritional profiles of ProFuture microalgae products with similar market products yielded insufficient evidence to conclude that microalgae products offer better nutritional profiles. Therefore, marketing messages for microalgae protein products should address environmental benefits rather than nutritional quality. Product reformulation and marketing communication to improve both perceived and actual nutritional profiles could enhance consumer WTT and eventually drive the market success of alternative proteins.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

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