

Fungi and mycoprotein

Fungi, including mushrooms, are foods that are high in protein, rich in amino acids, contain little fat.



Since the 1960s, the protein of fungi (mycoprotein) has been produced through fermentation. Mycoprotein can be used for a wide variety of products including burgers, nuggets, fillets, pieces and protein bars, because it is neutral in taste and can be made to mimic the taste of meat.

This protein has gained popularity in recent years, particularly through the brand Quorn™, which produces meat substitutes and has been trading all over Europe. While fewer people have allergic responses to mycoprotein compared to dairy and common plant proteins like gluten and soy, instances of allergic reaction have been observed.

At the same time as the growth of mycoproteins, there has also been more and more attention on medical mushrooms that are mostly used as dietary supplements. Examples include chaga, reishi, cordyceps, and lion's mane.

These mushrooms have been found to have anti-cancerous properties. They are primarily found in powdered or pill form, as well as tea or coffee alternatives. While these mushrooms may not be suitable for protein diversification due to the small amounts that are consumed, the parallel growth of the two streams (medicinal and mycoprotein) could benefit each other.

The healthiness of mycoprotein and associations with nutrition could be the biggest motivation to try.

The biggest driver of willingness to try, buy, and even pay a premium for mycoprotein has been found to be its healthiness and nutritional benefits.

This is particularly true for omnivores rather than flexitarians and vegetarians, who perhaps have similar or lower expectations of the nutritional value of mycoprotein compared to plant-based proteins.

Fungal protein is generally perceived positively from a sustainability perspective, which is a benefit but not the main driver in product acceptance. It was found that sustainability, expressed in carbon dioxide emissions, of the product Quorn™ was seen as a motivation to try and buy, but not a motivation to pay a premium.

Lack of awareness of mycoprotein as well as negative taste associations are a common barrier to trying:

- Mycoprotein is not (yet) a widely known or available alternative protein, and it is generally (perceived as) more expensive than meat, making it less accessible to many consumers.
- Consumers generally do not expect mycoprotein to be tasty or taste similar enough to meat to replace it. This is a big barrier for consumers who have never tried mycoprotein before and have low expectations, as well as for people who value the taste of meat greatly.
- Consumers also often have negative associations with fungus and mould, which make them less likely to want to try mycoprotein, particularly when it is communicated with those or similar words.

Mycoprotein is interesting for consumers who are already familiar with mycelium and fermentation in food products

- Young consumers and urbanites have been found to be more likely to want to try mycoprotein, as are consumers who are interested in reducing their meat consumption.
- Consumers who do not like the taste of mushrooms do not expect to like mycoprotein and are less likely to try it.

- Consumers who are more familiar with mycelium and fungi and how they are used in food, for example mushrooms, but also blue cheese, or tempeh, are more likely to have positive attitudes towards mycoprotein.

Strategies for increasing demand:

- Focus on promoting the healthy and natural elements of mycoprotein: while it is a 'processed' food, it is created through the process of fermentation and does not contain other ingredients. While this may not qualify it as a whole food, it can provide a 'clean label' for the product.
- Leverage the increasing popularity of medicinal mushrooms to increase acceptance of 'classic' mushrooms as well as mycoprotein.
- Avoid the words fungus or mould when promoting mycoprotein, as they are associated with causing spoilage in foods, producing toxins, causing allergic reactions, and can cause general distaste.
- Be fully transparent and provide information on potential allergies and other health-related issues that can be caused by eating mycoprotein.



Extra resources:

[Understanding Key Factors Influencing Consumers' Willingness to Try, Buy, and Pay a Price Premium for Mycoproteins](#)
[Should I really pay a premium for this? Consumer perspectives on cultured muscle, plant-based and fungal-based protein as meat alternatives](#)

[Factors affecting consumer attitudes to fungi-based protein: A pilot study](#)

[Food for our future: the nutritional science behind the sustainable fungal protein – mycoprotein. A symposium review](#)

[Chaga mushroom: a super-fungus with countless facets and untapped potential](#)