

## Mycoprotein as a meat alternative

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The population of the world is growing rapidly and so is meat consumption, leading to adverse impacts on the environment, such as freshwater pollution, posing a threat to biodiversity, and contributing significantly to the climate crisis. The livestock sector is one of the biggest greenhouse gas emitters responsible for nearly half of the emissions produced by the agricultural and food sectors together. To put things in perspective, beef production needs approximately 20 times more land than that of mycoprotein. Moreover, it has been calculated that the mycoprotein's carbon and water footprints are 30 and 25 times smaller (respectively) compared to that of beef's. Mycoprotein is a non-animal source of protein, hence it can serve as a sustainable meat alternative with its chemical composition and sensory attributes resembling the animal product. It consists of filamentous fungal biomass, which imitates the taste and texture of meat. Mycoprotein is a healthy protein source, and contains essential amino acids, vitamins, carotenes and carbohydrates. The most popular fungus-derived (*Fusarium venenatum*) mycoprotein products are manufactured by Quorn and commercialised worldwide. The use of agro-industrial waste to produce mycoproteins is another great example of an environment-friendly solution to address the climate crisis as it helps reduce gas emissions and give an application to low-value waste, thereby turning it into a sustainable product. Although mycoproteins have been around for a long time, their niche is relatively small. Innovative technological solutions are needed to enhance the processes and diversify the product. Further research is required to develop novel and efficient methods for mycoprotein production.

*Keywords: Mycoprotein, Meat alternative, Fusarium venenatum, Quorn, Microbial protein, Edible filamentous fungi*

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