NoMy Japan Inc.

The Project of the business feasibility for mycelium based product in food processing industries

Purpose of the Project

This project aims to demonstrate the business feasibility of producing food from by-products and residual liquids that are currently regarded as “food waste” using fungi, contributing to improving Japan’s food self-sufficiency rate while building a circular economy rooted in natural cycles.

NoMy Japan KK (hereinafter referred to “NoMy”) provides a process that enables companies to establish a new revenue-generating business and gain economic returns by upcycling by-products and residual liquids discharged from food processing factories using fungi. These materials, currently considered as “waste,” are transformed into high-protein fungal mycelium and sold as high-value-added products.

Unlike conventional recycling, which typically involves breaking down materials into raw components for reuse, upcycling leverages unutilized original materials as they are, redefining them as resources. It overturns the very concept of “waste” itself.

Details of Demonstration

In July 2024, NoMy entered into a partnership with Nippon Beet Sugar Manufacturing Co., Ltd. (hereinafter referred to “Nitten”), Japan’s largest sugar manufacturer, to promote sustainable agriculture and address food security challenges. The collaboration leverages NoMy’s technology to upcycle by-products generated during the sugar production process into filamentous fungal protein, aiming to produce sustainable feed and food alternatives to animal-based protein.

NoMy’s technology transforms by-products into valuable food resources, not only reducing food waste but also minimizing greenhouse gas emissions through reduced energy and water usage. This joint initiative with Nitten, which is committed to tackling food loss and realizing a decarbonized society, will contribute to the development of innovative technologies and business models in the green sector.

Basic experiments were completed in 2024, and the testing of the mycoprotein production began in 2025. Currently, prototype development is underway. Going forward, NoMy will focus on assessing the environmental impact of mycoprotein production and scaling up its technology, so that future large-scale mycoprotein production can be carried out in a sustainable manner.

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Project Outcome

This demonstration aimed to achieve two main objectives:
1. Verification of market viability through techno-economic analysis
2. Evaluation of mycelial growth rate through multiple cultivation trials

Regarding the first objective, “techno-economic feasibility”, we confirmed economic viability based on the repeated experiments, in which sufficient amounts of mycoprotein were yielded, demonstrating that the technology can deliver economically rational outcomes.

For the second objective—mycelial growth rate—the initial trial began with cultivation at a scale of several liters. We gradually increased the culture volume, successfully achieving the planned scale-up within the demonstration period. The amount of protein harvested met our initial target, and the resulting mycoprotein showed a promising future with a neutral flavor, firm texture, and a mouthfeel very similar to meat. Based on these yield results, we also began estimating the appropriate size of future production facilities for mycoprotein. In parallel, we are currently engaged in discussions with multiple food manufacturers to secure distribution channels for the harvested mycoprotein.

Challenges and Solutions

The next challenge is to establish mycoprotein in the Japanese market. Since mycoprotein is not yet available in Japan, it is crucial to ensure strict compliance with regulations and maintain rigorous quality control. Additionally, efforts must be made to reduce the price as much as possible as a protein material. To lower the price, it is essential to reliably scale up the technology and prepare for mass production. At the same time, successful market introduction of mycoprotein will require strategic marketing to promote its unique characteristics and easy use. Ultimately, the goal is to cultivate a habit of eating mycoprotein on a daily basis.

Future Plans

From FY2025 onward, NoMy aims to expand into the market through strategic partnerships with food manufacturers. As part of our corporate strategy, we will quantify our contribution to sustainability, making our products more attractive to both companies and consumers. We will pursue high quality and taste that surpass those of other alternative proteins currently available in the market. By developing products that maximize the unique advantages of mycoprotein—neutral flavor, high protein content, and rich dietary fiber—we aim to firmly establish mycoprotein as a familiar and trusted food source in the Japanese market.