

This thesis presents work that was done within the Swedish Centre for Resource Recovery (SCRR). Research and education performed within SCRR identifies new and improved methods to convert residuals into value-added products. SCRR covers technical, environmental and social aspects of sustainable resource recovery.



The food industry, one of the most important industrial sectors worldwide, generates large amounts of waste, which is mostly disposed of via environmentally sensitive routes (e.g., landfilling). Instead, these residues can be used for the production of new materials, such as food, animal feed, or bioplastics. Such approach recovers the nutrients present in the waste, reduces the environmental footprint of the industrial activity, improves global food security, and reduces the costs involved in the waste management.

Edible filamentous fungi constitute a group of microorganisms historically used for the production of fermented food. Additionally, they are commonly used for industrial applications because they can convert cheap materials into valuable chemicals. In this thesis, production of fungal biomass by filamentous fungi for further application as food, feed, and biomaterials was investigated using different byproducts of the food and drink industries. The removal of the organic load, the recovery of nutrients, and the improvement in low-quality by-products were observed as well as the change in the cost necessary for the management of the food wastes. These results indicate the ability of the filamentous fungi to convert resources wasted by the food industry into new products with positive impacts on the economy and the environment.

DOCTORAL THESIS

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Resource Recovery

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FUNGI-BASED BIOREFINERY MODEL FOR FOOD INDUSTRY WASTE

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Progress toward a circular economy



UNIVERSITY OF BORÅS

