Examination of changes in cell wall structure in bran after enzyme treatment

Cereals belong to the most important staple foods in the world. Wheat, barley, oat and rye are the common grains eaten in Sweden. Grains can be used as whole but are mostly processed and milled before they serve as human food.

Research to refine the side-stream and exploit it on a level for food industry next to animal feed is imperative, in order to increase profitability, minimize the environmental impact and create new healthy foods. However, currently bran cannot be exploited fully as it is expensive and difficult to break down bran effectively and thus access its various valuable components.

Enzymatic extraction is one way to processing and refining bran, but better understanding how different enzymes decompose bran is important for optimisation of the refining process.

In this project, the aim is to investigate the change in the cell wall microstructure and protein release in bran before and after enzyme treatment.

Bran samples will be treated with selected enzymes to degrade the cell walls and to release the proteins within the cells. The samples will be examined using immuno-labelling, confocal microscopy (CLSM) as well as light microscopy (LM). Methods will be optimized within this project.

A suitable background for this project is chemical engineering, biotechnology or food chemistry.

The project will last for twenty weeks from January to June 2017 at SP Agrifood and Bioscience in Gothenburg.

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