



Laimburg Research Centre announces a PhD scholarship for the PhD program "Food Engineering and Biotechnology" in collaboration with the Free University of Bozen-Bolzano, under the supervision of Prof. Matteo Scampicchio and Dr. Peter Robatscher, on the following topic:

Identification of Biomarkers for Determining Varietal Authenticity and Functional Quality of Wheat

Description of the topic:

The variety of wheat has a large influence on the milling properties of wheat flour and the baking quality of the resulting flour. Traditionally, the protein content of wheat grain is measured as the main quality parameter. However, also the varietal composition of a grain mixture has a big influence on the baking quality, therefore measurement of the protein content as the sole parameter can be misleading. Ideal blending of wheat varieties is key in achieving flours of high quality.

Therefore, the University of Bolzano and Laimburg Research Centre in collaboration with a local flour producer will develop new analytical methods that allow for the determination of the varietal composition of wheat that is delivered to the mill on a big scale. In particular, the project aims at the identification of molecular markers, that can be used to track down the identity of wheat varieties and moreover be used to evaluate the composition of mixtures thereof.

The main methodologies that will be used are nuclear magnetic resonance spectroscopy (NMR) and high performance liquid chromatography paired with mass spectrometry (HPLC-MS). Both techniques can be used to determine an overall profile of biomolecules present in a grain sample (metabolome) and are also suitable for the quantification of identified compounds. The ratio between selected biomarker might be a good indicator for the varietal composition of a wheat sample.

The work will be performed at the laboratories of the University of Bolzano and Laimburg Research Centre, located at the NOI Techpark in Bolzano. Sampling will be performed in close collaboration with a local flour producer.

Contract duration: 36 months, full time, Start in autumn 2025

Applications must arrive by and not later than: 11.06.2025 – 12 am under:

<https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/phd-in-food-engineering-and-biotechnology/>

Additional information:

A major part of the work for this PhD scholarship will be carried out in the Laboratory for Flavours and Metabolites, located at NOI TechPark (Bolzano).

For further information about the PhD programs and the application procedure, please visit the correspondent website of the Free University of Bozen-Bolzano:

<https://www.unibz.it/en/applicants/phd-programmes/>

For questions regarding Laimburg Research Centre, please contact jennifer.berger@laimburg.it.