Contribution of NMR methods to characterize starch, gluten and water in cereal products

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Time-domain Nuclear Magnetic Resonance (NMR) at low field and Magnetic Resonance imaging are potential techniques for monitoring the behavior of flour constituents (starch and gluten) as well as the migration and distribution of water during the processing or storage of cereal products. The aim of the poster will be to emphasize the potentials of NMR techniques for the quantitative characterization of water transfers in model dough systems on different length scales. Most dough processing methods involve heating or cooling in the presence of moisture. Examples will be chosen to emphasize the performance of NMR for analyzing the changes that occur at microscopic and macroscopic scales, to deepen the knowledge of the structure-function relationship between starch and water, gluten and water, each playing a particular role in the mechanical properties of dough affecting its nutritional, physical, and sensorial properties.