World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:9, No:09, 2015

Rheological Properties of Dough and Sensory Quality of Crackers with Dietary Fibers

Authors : Ljubica Dokić, Ivana Nikolić, Dragana Šoronja–Simović, Zita Šereš, Biljana Pajin, Nils Juul, Nikola Maravić

Abstract : The possibility of application the dietary fibers in production of crackers was observed in this work, as well as their influence on rheological and textural properties on the dough for crackers and influence on sensory properties of obtained crackers. Three different dietary fibers, oat, potato and pea fibers, replaced 10% of wheat flour. Long fermentation process and baking test method were used for crackers production. The changes of dough for crackers were observed by rheological methods of determination the viscoelastic dough properties and by textural measurements. Sensory quality of obtained crackers was described using quantity descriptive method (QDA) by trained members of descriptive panel. Additional analysis of crackers surface was performed by videometer. Based on rheological determination, viscoelastic properties of dough for crackers were reduced by application of dietary fibers. Manipulation of dough with 10% of potato fiber was disabled, thus the recipe modification included increase in water content at 35%. Dough compliance to constant stress for samples with dietary fibers decreased, due to more rigid and stiffer dough consistency compared to control sample. Also, hardness of dough for these samples increased and dough extensibility decreased. Sensory properties of final products, crackers, were reduced compared to control sample. Application of dietary fibers affected mostly hardness, structure and crispness of the crackers. Observed crackers were low marked for flavor and taste, due to influence of fibers specific aroma. The sample with 10% of potato fibers and increased water content was the most adaptable to applied stresses and to production process. Also this sample was close to control sample without dietary fibers by evaluation of sensory properties and by results of videometer method.

Keywords : crackers, dietary fibers, rheology, sensory properties
Conference Title : ICAFE 2015 : International Conference on Agricultural and Food Engineering
Conference Location : Berlin, Germany
Conference Dates : September 14-15, 2015