

Shelf-Life Stability of Oat Groats Processed with Superheated Steam

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The objective of this study was to develop process that uses superheated steam (SS) to condition oat groats and to determine processing parameters such as SS temperature, processing time, and SS velocity that produce oat groats with shelf-life stability of at least 6 months. Sample of approximately 13 g were processed in SS at previously predetermined as the best SS parameters such as 110°C steam temperature, 1.0 m/s steam velocity, and two processing times – 10 and 14 min. These parameters gave the pasting and sensory characteristics close to traditionally processed groats with final moisture in the desired level between 9.0 and 9.5% wb. The samples were stored at 21°C with the objective to obtain a product shelf-stable for at least 6 months. The pasting properties and the colour of stored groats remained stable throughout the storage period. Levels of hexanal release from samples processed with SS were lower than the levels tested in samples processed in a traditional kiln method. The content of the free fatty acid in samples processed with SS was higher than in the kiln-processed samples but remained at the same level throughout the storage. Sensory evaluation showed that all of the stored samples became more “bland” losing of toasted and oat flavour intensities, and it was increasingly more difficult to distinguish between samples as the storage time passed.