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Evaluation of the oxidative stability of bakery products by OXITEST method and sensory analysis

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ABSTRACT

The lipid oxidation is considered the main cause of the deterioration of the food products with a high fat content. Lipid oxidation is associated with the formation of off-odor and off-flavor that compromise the acceptability of the products; moreover, this reaction affects the nutritional quality of foods, in particular the fatty acids content. In this work the stability of bakery products with a high fat content was monitored over a 12 months of storage, considering the lipid oxidation as the limiting factor for the shelf-life products. For this study the OXITEST has been used as innovative and promising instrument. The OXITEST reactor was used to monitor the oxidative stability of four different types of bakery products. The stability of the products was also monitored with the sensory and chemical analyses in order to support the instrumental analysis. The sensory analysis was useful to evaluate the perceptible changes occurring on the products during storage. Moreover, with the OXITEST an accelerated shelf-life test to predict the shelf life of each product has been performed. By physical–chemical data obtained during experimentation it was found that the products have a different stability to the oxidation reaction, depending on the type of fats used and on the composition of the products. The data obtained from the OXITEST were correlated with the sensory data. Furthermore, the OXITEST instrument can be utilized as rapid method for oxidative stability studies; anyway, a further research will be needed to confirm these results.