

Comparison of OXITEST and RANCIMAT methods to evaluate the oxidative stability in frying oils

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ABSTRACT

The oxidation of fatty acids in the presence of atmospheric oxygen is recognized as one of the main factors affecting the shelf life of oils and fats causing rancidity by the formation of off-flavors due to aliphatic aldehydes or other volatile compounds. Therefore, the oxidative stability is one of the most important parameters to be evaluated in the formulation of commercial frying oils. In this regard, the induction period of 15 frying oils has been measured using two different methods of accelerated oxidation, OXITEST and RANCIMAT, and correlated to their fatty acid content previously detected by gas chromatographic technique. Frying oils containing high contents of saturated fatty acids mainly from the palm oil achieved an improved oxidative stability by increasing their induction period. Moreover, the linear regression analysis showed a good correlation between the induction period values of the two instruments. Hence, the innovative OXITEST method may be an easy, fast, and eco-friendly alternative to the official RANCIMAT method for evaluating the oxidative stability in oil- and fat-containing products.

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