



MODELLING FOR THERMAL DEGRADATION OF THIAMIN (B1) IN FLAT ARABIC BREAD

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ABSTRACT

Flat Arabic bread was prepared from 40.4 ppm thiamin- fortified patent, straight and whole wheat flours, by the straight dough method. Doughs were fermented for three fermentation times and baked at five temperatures for three different times each. The so-obtained bread was analyzed for its thiamin content using HPLC method. A predictive mathematical model using multivariate stepwise regression analysis with % thiamine retention as dependent variable, and baking conditions of fermentation time, baking temperature and time as independent variables, was constructed. Results indicated that regardless of the flour type, the process of baking resulted in about 21-24% loss of the vitamin, with baking temperature as the most significant variable affecting its degradation in this type of bread, followed by baking time. Fermentation time, on the other hand, had no significant effect on the retention of this vitamin. The model also showed that baking temperature is responsible for as much as 76% of variation in the thiamin change during baking.

KEYWORDS: Arabic bread, Multivariate stepwise regression, Thermal degradation, Thiamin

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