

Food Losses Reducing by Extending the Minimum Durability Date of Thermally Processed Products

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Abstract : Minimum durability date (MDD) labeled food is known to have a long shelf life. A properly stored or transported food retains its physical, chemical, microbiological, and sensory properties up to MDD. The aim of the study was to assess the sensory quality and microbiological safety of selected thermally processed products, i.e., mayonnaise, jam, and canned tuna within and after MDD. The scope of the study was to determine the markers of microbiological quality, i.e., the total viable count (TVC), the Enterobacteriaceae count and the total yeast and mold (TYMC) count on the last day of MDD and after 1 and 3 months of storage, after the MDD expired. In addition, the presence of Salmonella and Listeria monocytogenes was examined on the last day of MDD. The sensory quality of products was assessed by quantitative descriptive analysis (QDA), the intensity of differentiators (quality features), and overall quality were defined and determined. It was found that during three months storage of tested food products, after the MDD expired, the microbiological quality slightly decreased, however, regardless of the tested sample, TVC was at the level of $<3 \log \text{ cfu/g}$, similarly, the Enterobacteriaceae, what indicates the good microbiological quality of the tested foods. The TYMC increased during storage but did not exceed 2 logs cfu/g of product. Salmonella and Listeria monocytogenes were not found in any of the tested food samples. The sensory quality of mayonnaise negatively changed during storage. After three months from the expiry of MDD, a decrease in the "fat" and "egg" taste and aroma intensity, as well as the "density" were found. The "sour" taste intensity of blueberry jam after three months of storage was slightly higher, compared to the jam tested on the last day of MDD, without affecting the overall quality. In the case of tuna samples, an increase in the "fishy" taste and aroma intensity was observed during storage, and the overall quality did not change. Tested thermally processed products (mayonnaise, jam, and canned tuna) were characterized by good microbiological and sensory quality on the last day of MDD, as well as after three months of storage under conditions recommended by the producer. These findings indicate the possibility of reducing food losses by extending or completely abolishing the MDD of selected thermal processed food products.

Keywords : food wastes, food quality and safety, mayonnaise, jam, tuna

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