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In-store hygiene evaluation and its relationship with microbiological indices of some foods, sold in different retail market places in Lithuania

Aiste Kabašinskiene and **Aleksandr Novoslavskij**
Lithuanian University of Health Sciences, Lithuania

Poor hygiene is one of the most relevant problems in retail market, closely related with the quality and safety of the food. The aim of the work was to evaluate in-store hygiene conditions (up to 28 points) of minced meat (chicken, pork, beef and turkey meat; n=96), cold and hot smoked fish (*Salmo salar, Clupea harengus membras, Abramis brama, Scomber scombrus;* n=96) and fresh coleslaw (n=40), sold in three different retail market places (supermarkets, medium size shops and farmers markets; in total 15 places). Additionally the relationship of microbiological quality (Aerobic colony count (ACC), Coliforms and E. coli) and safety (*Salmonella spp., L. monocytogenes*) criteria and in-store hygiene condition was evaluated. The results have shown that the most often found hygiene violations were improper storage conditions of the food, cross contamination and poor personal hygiene (improper washing of hands, dirty clothes, etc.). Hygiene of the farmers market was evaluated as insufficient (12 points out of 28), whereas the highest hygiene level (28 points out of 28) was assured in supermarkets. ACC of the analyzed samples ranged from 2.9 log CFU g-1 (in coleslaw from supermarkets) to 8.18 log CFU g-1 (in turkey meat from farmers market). The highest amounts of coliforms were found in coleslaw (5.21 log CFU g-1) and beef (6.85 log CFU g-1) bought in farmers markets. *E coli* were not found neither in coleslaw or in pork samples from supermarkets, whereas contamination of turkey meat from farmers market was the highest (4.56 log CFU g-1). However no significant differences were found between the products. *Salmonella spp*. and *Listeria spp*. were absent in all samples. The results have also shown a significantly reliable influence (r=0.44, p<0.05) of the hygiene conditions of farmers markets on the ACC of the products.

Recent Publications

1. Wojtacka J, Wysok B, Kabašinskienė A et al. (2017) Prevalence of *clostridium botulinum* type A, B, E and F isolated from directly sold honey in Lithuania. Journal of Agricultural Science and Technology 19:335-343.
2. Šlapkauskaitė J, Sekmokienė D, Kabašinskienė A et al. (2016) Influence of lactic acid bacteria–fermented *Helianthus tuberosus L*. and *Lupinus luteus* on quality of milk products. CyTa- Journal of Food 14:482-488.
3. Kabašinskienė A, Liutkevičius A et al. (2015) Evaluation of the physicochemical parameters of functional whey beverages. Food Technology and Biotechnology 53:110-115.
4. Šlapkauskaitė J, Kabašinskienė A et al. (2014) Antimicrobial activity perspectives of plant extracts and esential oils in in food industry. Food Chemistry and Technology 48:93-104.
5. Novoslavskij A, Kabašinskienė A et al. (2010) Prevalence of *Yersinia enterocolitica* and *Yersinia pseudotuberculosis* in slaughtered pigs within 5 months period in Lithuania. Veterinary and Zootechnics 51(73):30-35.

Biography

Aiste Kabašinskiene is a full time Associate Professor of a Department of Food Safety and Quality of Lithuanian University of Health Sciences. The main focus is teaching of Food Hygiene and Microbiology subjects. Currently, she is highly interested in the microbiological analysis of retail food, especially RTE food.

aiste.kabasinskiene@lsmuni.lt