

Title Changes on bioactive amines and physico-chemical and microbial characteristics in pork meat during storage at 5 ± 1 °C and -18 ± 1 °C

Author M. B. A. GLÓRI , F. B. Custadio

Citation Book of Abstracts, 2004 IFT (Institute of Food Technologists) Annual Meeting and Food Expo, 13-16 July 2004, Las Vegas, Nevada, USA. 321 pages.

Keywords pork; amine; spermine; agmatine; spermidine

Abstract

Meat is very susceptible to microbial growth and deterioration, what makes it unsuitable for consumption. The most common method to assess the quality of fresh meat is by means of sensory evaluation. However, it is a subjective method and can only detect late stages of deterioration. Bioactive amines have been suggested as useful indices of quality of fresh meat and of the hygienic conditions prevalent during its processing. Furthermore high levels of amines can be of toxicological significance. The objective of this study was to investigate the profile and levels of amines and the physico-chemical and microbial characteristics in fresh pork meat and the changes occurring during refrigerated and frozen storage. The pH, total volatile bases (TVB), the mesophilic and psychrotrophic counts and the levels of bioactive amines were determined in pork meats, leg and loin, 24 h after slaughter and during storage at 5 ± 1 °C and -18 ± 1 °C. During storage at 5 ± 1 °C, there were 4 and 5 log cycles increase on mesophilic and psychrotrophic counts, respectively; significant difference on pH values was observed only in the 16th d; and no significant difference was observed in TVB. During storage at -18 ± 1 °C, no significant difference was observed for pH and TBA values. Agmatine, spermine, and spermidine were detected in pork meat 24 h after slaughter. No significant change was observed on amines levels during frozen storage. However during storage at 5 ± 1 °C, there was formation and accumulation of putrescine, cadaverine and histamine. The levels of these amines correlated significantly with microbial counts. The levels of bioactive amines can be used as quality control criteria for refrigerated pork meat, reflecting the associated microbial count.