

Effect of argon-enriched atmospheres on the spoilage process of modified atmosphere packaged poultry

U. List¹, B. Petersen², J. Kreyenschmidt²

¹VION Fresh Meat North GmbH, Bad Branstedt, ulrike.list@vionfood.com

²Universität Bonn, ITW, Präventives Gesundheitsmanagement

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Modified atmosphere packaging (MAP) is widely used to maximize shelf life and to improve meat quality and safety. Currently three different gas types are used commercially: nitrogen, oxygen and carbon dioxide. In the field of modified atmosphere packaging the application of argon and other noble gases received an increasing interest amongst food researchers, meat industry and gas producers. Compared to nitrogen, argon shows certain advantages because of its physical properties. But nearly no investigations about the effect of argon on the spoilage parameters of modified atmosphere packaged poultry are published in the scientific literature.

Research objective of the study was to evaluate the influence of different gas compositions on the development of meat spoilage microorganisms, chemical and sensory parameters with special regard to the noble gas argon as a component in the packaging atmosphere.

Double breast filets were divided into single filets and inoculated with a cocktail of four specific microorganisms associated with meat spoilage (Lactic acid bacteria, *Pseudomonas* sp., Enterobacteriaceae, *Brochothrix thermosphacta*). Half of each double breast filet was packaged in an atmosphere containing argon; the other half was packaged in a nitrogen-enriched atmosphere and stored at 4°C. Additionally, a particular focus of the investigations was laid on the development of sensory parameters. For that purpose samples packaged in argon and nitrogen atmospheres were evaluated by a developed sensory scheme according to the Quality Index Method for fish.

The presence of argon in the packaging atmosphere barely affected the microbiological growth of all investigated microorganisms in comparison to nitrogen. But the sensory evaluation indicated a beneficial effect of an argon-enriched atmosphere on particular sensory parameters during the first nine days of storage.

Data will be published soon