Influence of the storage method on the quality of Norway lobster (*Nephrops norvegicus*)

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Norway lobster (Nephrops norvegicus), as many other seafood products, is a very perishable food item. Therefore, optimal handling and storage practices, at sea and ashore, are essential components in the quality management to realize a maximum return on national and international markets. In Ireland, Norway lobster is stored on board in a stacked way: a layer of ice is placed in a box, followed by Norway lobsters, a bag with fine meshes and on top again a layer of ice. This method has the advantage that the fine mesh protection minimizes damage to limbs as it provides a protective cover when ice is removed during sorting and also helps prevent bleaching. At ILVO, an experiment was conducted to test which influence this method has on the quality of Norway lobster and its utility for Belgian fishermen was evaluated as an alternative to the traditional icing of Norway lobster (ice between the Norway lobsters). The difference between the two storage methods was assessed by using microbiological (Total Viable Count on Marine Agar and Iron agar, H2S-producing bacteria, Pseudomonas spp.), sensory (Quality Index Method) and chemical parameters (Total Volatile basic Nitrogen) during a 14-day storage experiment.

The first 5 days of the experiment, there was no difference in sensory, chemical and microbiological parameters between the storage methods. From day 6 of storage, a significant higher amount of bacteria was observed on the Norway lobster stored in the Irish way for total viable count on Marine Agar and H2S-producing spoilage bacteria. However, no significant difference could be observed for the other microbiological parameters or for the sensory and chemical parameters. The amount of Total Volatile Basic Nitrogen started to increase from day 7 of storage. This coincided with the growth of Pseudomonas spp., which are known spoilage bacteria of Norway lobster (Boziaris *et al.*, 2011). The direct contact with ice of the traditional Belgian storage method clearly limits growth of microorganisms. On the other hand, great variations in results between individuals, probably due to their position in the boxes, can explain that the other parameters did not differ significantly. To conclude, for short fishing trips as is the case in Ireland, the use of the meshed bag for storage of the Norway lobster cannot be considered as disadvantageous. However, this storage method is not applicable to the Belgian situation due to longer sea trips. Therefore, we advise the fishermen to continue storing the Norway lobsters in the traditional way.

References

Boziaris I.S., A. Kordila, and C. Neofitou. 2011. Microbial spoilage analysis and its effect on chemical changes and shelf-life of Norway lobster (*Nephrops norvegicus*) stored in air at various temperatures. International Journal of Food Science and Technology 46(4):887-895.