

Quality Comparison of Commercial Boiled-dried Anchovies by Different Catch Methods

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Introduction

Anchovies constitute one of the largest fish groups caught in the coastal waters of Korea. They are highly nutritive, depending mainly on essential amino acids, functional minerals(calcium and ferrious) and highly unsaturated fatty acid(eicosapentaenoic acid : EPA and docosahexaenoic acid : DHA). However, despite the abundant catch and the high nutritive quality of anchovy, it is difficult to utilize as a raw material for food processing due to the unique and specific characteristics that make it an unusual and often difficult material, namely : the tendency of anchovy freshness to decrease rapidly : occurrence of rapid post-mortem changes causing its protein to denature easily : high proportion of high proteolytic activity enzyme in anchovy viscera and muscle tissue accelerates autolytic degradation of tissue proteins. For these reasons, anchovies are mainly used as a raw material of boiled-dried product and fish sauce having quality stability in Korea. There is 160,000-250,000 ton catch each year in Korea. Most of them are usually caught by tow net, set net, lift net, etc. By the report on food standardization(KS) of processed seafood products, grading of boiled-dried anchovy was established as special grade and high grade regarding present distributional conditions. Quality criteria of sensory properties were established about its shape, color and flavor. Moisture content was limited to not less than 28%, and salt content not less than 8%. The maximum content of other size anchovy and broken anchovy in a single packaging unit were established not to exceed 5% in special grade and 10% in high grade. Also, acid-insoluble ash content was established not to exceed 1.0% in special grade and 1.5% in high grade. Among these quality criteria of boiled-dried anchovy, organoleptic properties were generally determined by catch condition(catch method, catch area and catch amount per day), drying condition(drying temperature, drying method and drying time) and storage condition(storage temperature, storage method and storage time). This study was conducted to compare the quality among the commercial boiled-dried anchovies caught by different methods.

Material and Methods

Commercial boiled-dried anchovy caught by tow net were purchased from Kumjeong Fisheries Inc.(Tongyeong, Korea), and Commercial boiled-dried anchovy caught by set net and lift net were purchased from Samjin Fisheries Inc.(Goseung, Korea). The raw anchovy of these commercial boiled-dried anchovy were caught on the sea near Ulsan in October. The quality among commercial boiled-dried anchovies caught by different methods was compared by determining proximate composition, salinity, total amino acids, mineral, fatty acid composition, Hunter's color value, peroxide value, volatile basic nitrogen and sensory evaluation.

Results

This study was conducted to compare the quality among the commercial boiled-dried anchovies caught by different methods. Regardless of catch methods, the moisture, salinity and acid-insoluble ash contents of the commercial boiled-dried anchovies ranged from 23.2-25.2%, 5.8-7.4% and 0.32-0.46%, respectively. By sensory evaluation, these anchovies were less than 5% in breakage, whitish or yellowish in color and had no foul smell. Judging from the above results by Korean standardization(KS), these anchovies were classified into special grade. There was no difference in total amino acid content, but there was a difference in a major mineral content among commercial boiled-dried anchovies caught by different method. The lipid oxidation of the commercial boiled-dried anchovy caught by tow net was inferior to the other products treated by short treatment time in catch and processing. Judging from the above results chemical analyses and sensory evaluation, the product caught by tow net was the worst quality among the commercial boiled-dried anchovies. No difference in quality were found between the products caught by lift net and the set net.

Reference

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