

Title Structural changes in sardine (*Sardina pilchardus*) muscle during iced storage: Investigation by DRIFT spectroscopy

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Abstract

Diffuse reflectance infrared Fourier transform (DRIFT) spectroscopy has been used for the first time to evaluate the postmortem changes in structure of components from sardine muscle in relation to quality loss. Sardines (*Sardina pilchardus*) were stored in ice for up to thirteen days. The spectroscopic study was focussed on the structural changes produced on the lipids and proteins.

The most significant results obtained from spectroscopic data are the following: (i) intensity decreasing of $\nu(\text{C}=\text{H})$ bands generated by olefinic bonds; (ii) protein structural changes involving mainly β -sheet formation; (iii) frequency increasing of the band near 1400 cm^{-1} , attributable to concentration decrease of salt bridges.

These results show that DRIFT spectroscopy is able to detect structural changes associated with deterioration in sardine muscle, even on the second day of storage. Some of those changes could be used in the development of applications for evaluation of the quality of sardines.