OPTICAL TECHNOLOGIES FOR THE CONTROL OF THE PROCESSING OF FISH AND DERIVATIVES

1. INTRODUCTION

Objective → identify problems in fish processing that can be optimized or eliminated with optical technologies applied online

Methodology → Bibliographic search and classification of technologies and applications

Applications
- Majority component contents
- Specific components
- Internal temperature of the product
- Surface alteration of the product
- Microbial spoilage prediction

2. TYPES OF TECHNOLOGIES

Spectroscopy VIS-NIR → Technologies from 600 to 1100 nm wavelength
- Majority composition

Spectroscopy MIR → Multivariable analysis from 2500 to 16666 nm wavelength
- Specific compounds

- Provide data very quickly
- Cheap
- Generally non-destructive
- Applicable to a process control

Synchronous fluorescence spectrophotometry front-face → Excitation wavelength from 210 to 450 nm. △λ 75 nm
- Microbial spoilage prediction

3. APPLICATIONS

Determination of histamine

Spectroscopy MIR + Fluorescence spectrophotometry → Determination:
- Histamine
- Prediction of microbial contamination

→ Adjust expiration

Surimi gelling

Spectroscopy NIR → Determination of internal temperature during heat treatment → Stop the process when the product has already received the appropriate treatment

Salt control in desalted cod loins

Spectroscopy VIS - NIR → Determination % of salt during desalting → Stop the process at the optimum salt point

Yield of semi-preserved cephalopod

Spectroscopy VIS - NIR → Determination of water content → Stop the process at the optimal point

4.CONCLUSIONS

They prove to be applicable for a production process in order to implement a process control and for a quality characterization

Allow to obtaining analytical results in a fast and low-cost way

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