



UNIVERSITY OF CONCEPCION
Faculty of Pharmacy
Department of Food Science, Nutrition and Dietetics



“QUANTIFICATION OF PIGMENTS, ASTAXANTHIN AND IT ISOMERS, BY HPTLC IN SALMON FISHFEED.”

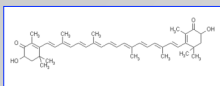
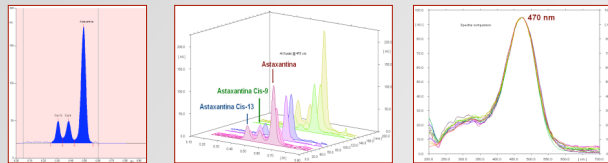
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Introduction

Chile is the second world producer of salmon and this item represents 5.1% of Chilean exportation. The importing markets that include Europe, USA and Japan among others, have very strict quality control parameters for the finished product. In Salmon, pigmentation of muscle it is one of them. Among the pigments used in salmon culture, astaxanthin is the most important.

Chromatogram



Astaxanthin

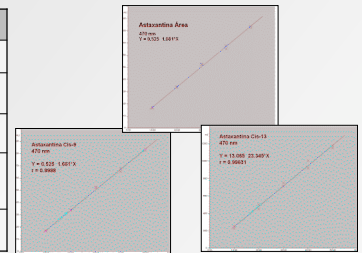
Astaxanthin is the pigment that gives the characteristic red color to salmon meat, it is a red xanthophylls incorporated to the feed in the oiling step and administrated to fish through the feed.



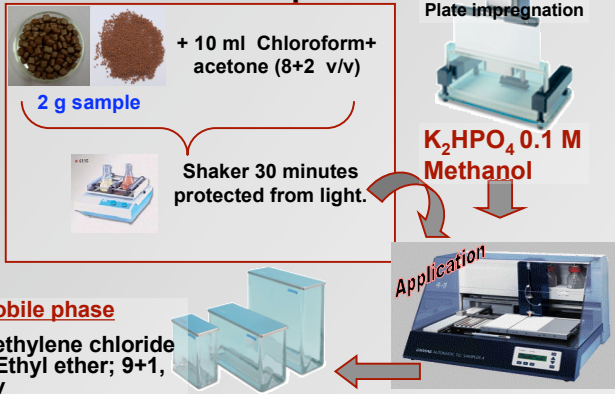
Validation Parameters

Parameters	RESULTS
RECOVERY	98 %
LINEARITY	0.9957
PRECISION	3.68 RSD
SENSITIVITY	LOD: 1.62 ppm LOQ: 3.95 ppm
REPEATABILITY	2.41 RSD

Calibration Curve

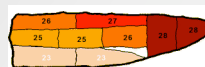


Extraction procedure

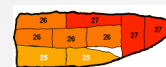


UTILITY *The Salmon color*

Color in Salmon muscle is one of the most important quality parameters for the consumer, because of this, Ewos® with other institutions have developed the “map of salmon quality”. This map allows to see the distribution of pigment at different stages of fish development. Pigment is delivered through the fish feed, its distribution is very important because it will allow to diversify the market of destiny and to optimize harvest times with the aim to obtain high quality parameters in the final product.



1 kg. fishes diet 60 ppm Astaxanthin



2 kg. fishes diet 80 ppm Astaxanthin



3 kg. fishes diet 90 ppm Astaxanthin

Conclusions

- HPTLC shows itself as an excellent tool for quality control in salmon industry.
- Its fastness and high throughput of samples allows to apply it during process control delivering precise data immediately.
- The importance to control process and because of this the final product, allows to ensure the quality of the product reducing the losses for over dosing or reject product.
- This method fulfills the parameters claimed for validation allowing quantification of commercial samples.

