

Results report: BioTip's freshness sensor performance on refrigerated vacuum-packed salmon

Experiment details

Conducting date	26.3.2024
Target	Validate that BioTip freshness sensor changes color in accordance with the international microbial load recommendations.
Product	Salmon
Treatments	Five different batches of sensors, produced by BioTip were tested on Vacuum packed salmon.
Repeats	8 repeats per batch
Storage temperature	Stored at 4°C until sensor changed color.
Measurements	Total aerobic count (CFU)

Results

According to international standards 10^7 CFU/gram is the maximal level recommended for quality fish products [1,2]. Therefore, the sensor was designed to change color when the total microbial count of the product is 5×10^6 - 10^7 CFU/gram.

Table 1: Total Aerobic count at day0 and when sensor changed color:

CFU/gram (Log) for Salmon at Day0 (Average)	Repeats	StdDev	Storage	Batch	Repeats	CFU/gram (Log) for Salmon at sensor color change (Average)	StdDev
3.9	3	0.2	4°C	49	8	6.7	0.4
				50	8	6.6	0.6
				51	8	6.8	0.3
				52	8	6.6	0.6
				53	8	6.8	0.5

Conclusions:

BioTip freshness sensor constantly changed color when microbial load of the product reached $5 \times 10^6 - 10^7$ CFU/gram, at the different production batches.

References

1. <https://www.fda.gov.ph/wp-content/uploads/2022/12/FDA-Circular-No.2022-12-2.pdf>
2. ICMSF, Microorganisms in Foods.Vol.2, 1986.

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