

Photodynamic Inactivation of *Escherichia coli* on Sea Bass Fillets

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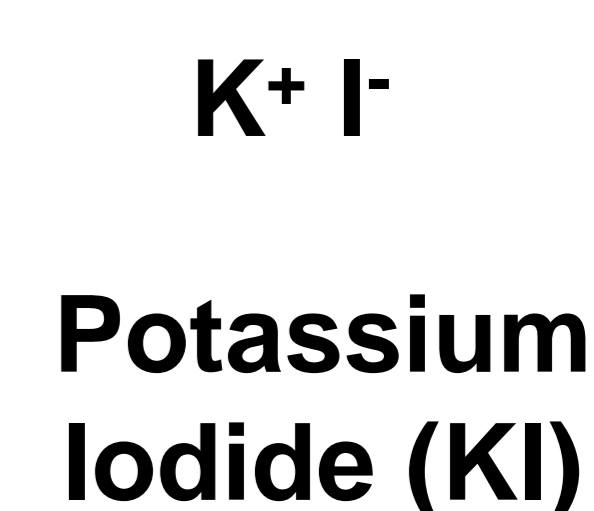
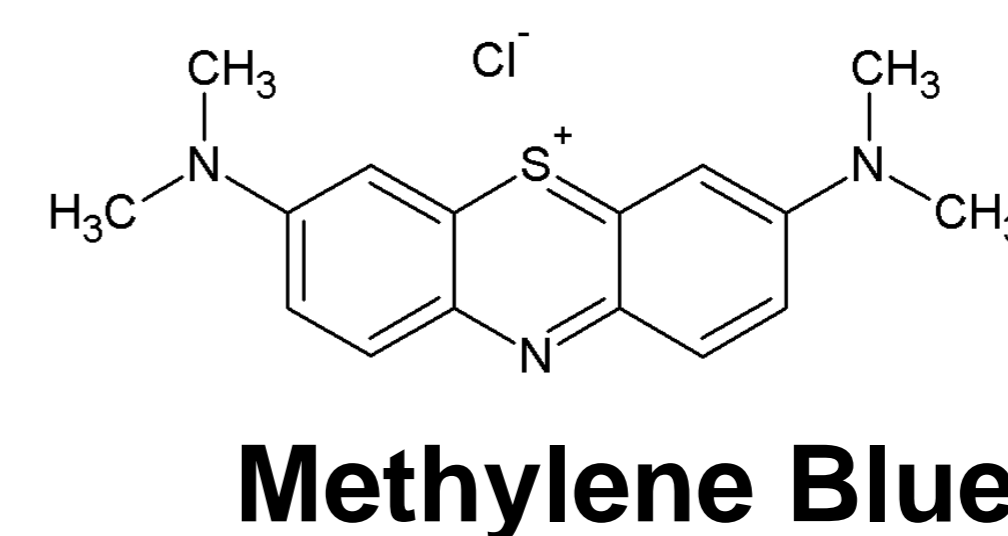
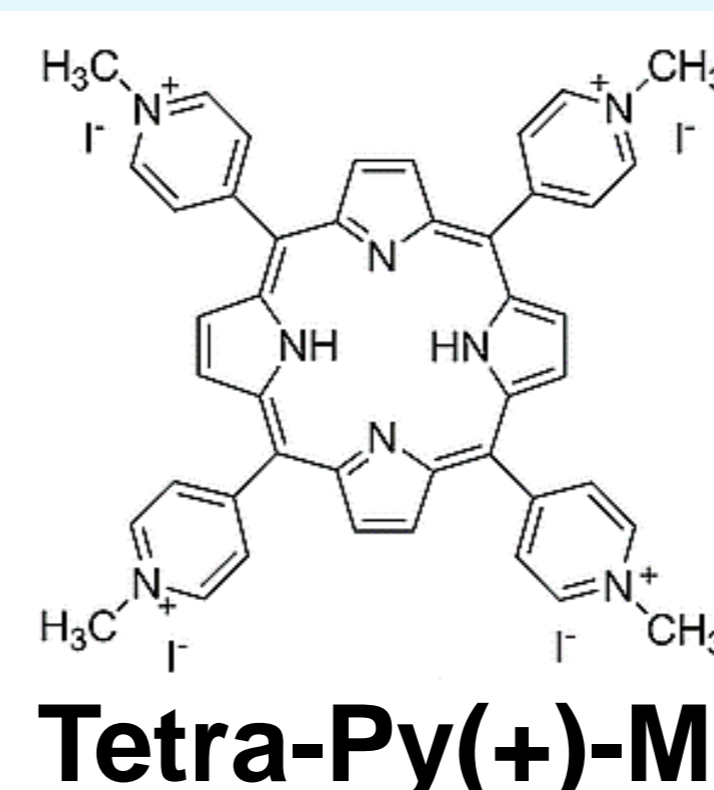
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Introduction

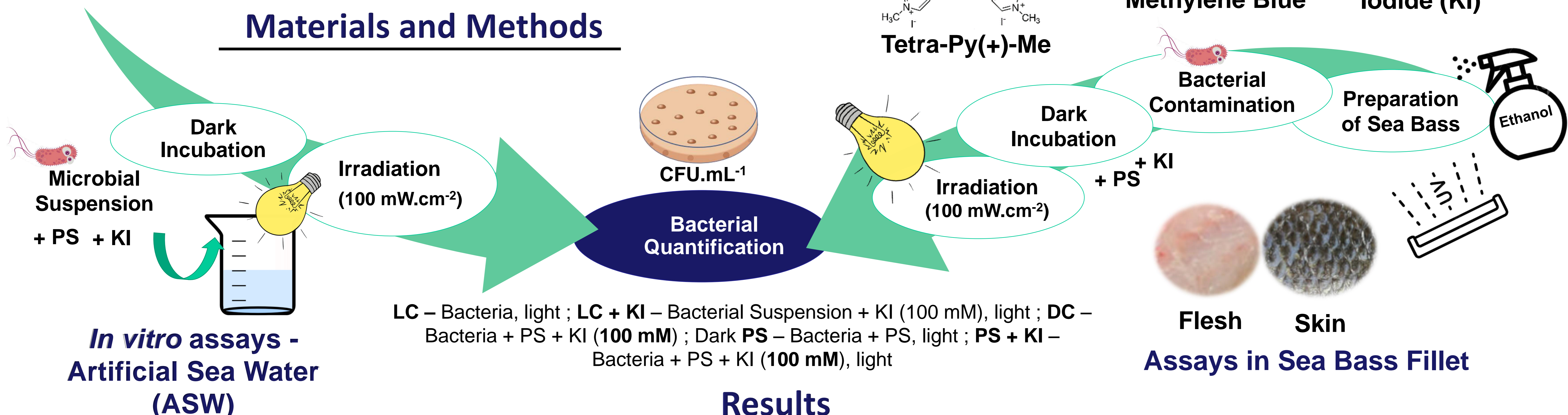
- ❖ Fish is an important source of high-quality protein and essential nutrients [1];
- ❖ However, the introduction of pathogenic bacteria during the production and processing of fish can lead to deterioration of the food products and endanger the consumers [2];
- ❖ To address this challenge is necessary to develop novel antimicrobial approaches to efficiently disinfect fish products.

Goals

Evaluate the Photodynamic Inactivation (PDI) of *Escherichia coli* in Sea Bass Fillet, in the presence of the photosensitizers (PS) **Tetra-Py(+)-Me** and **Methylene Blue**, and the coadjuvant **potassium iodide (KI)**.

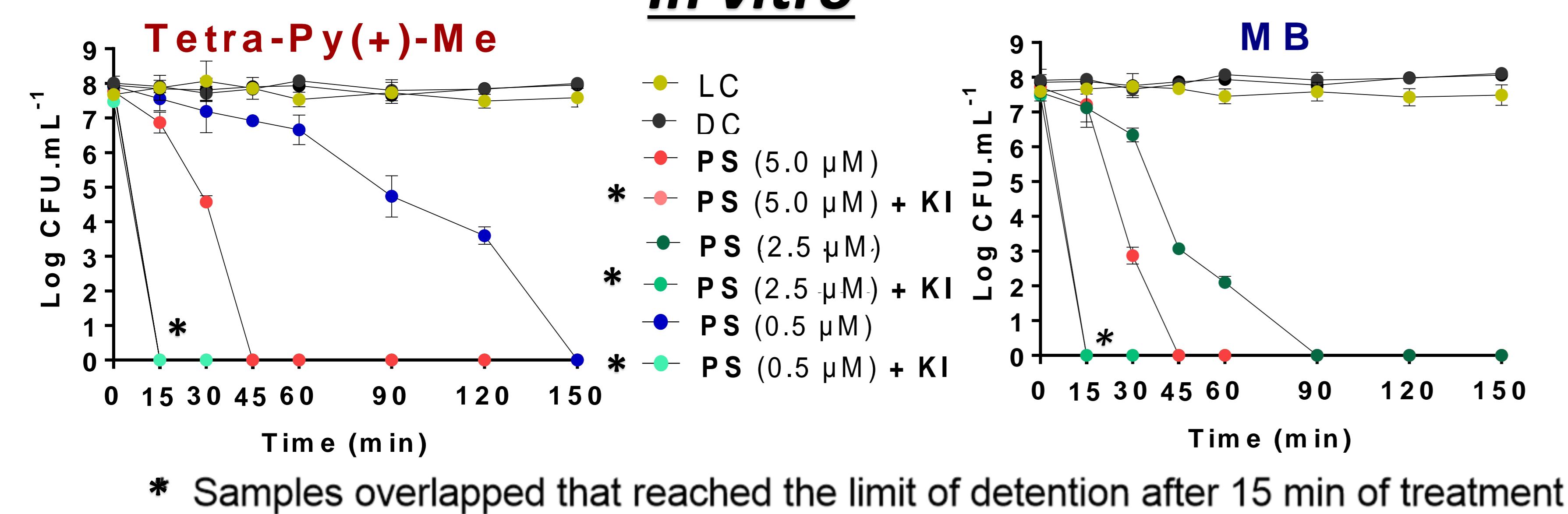


Materials and Methods



Results

In vitro

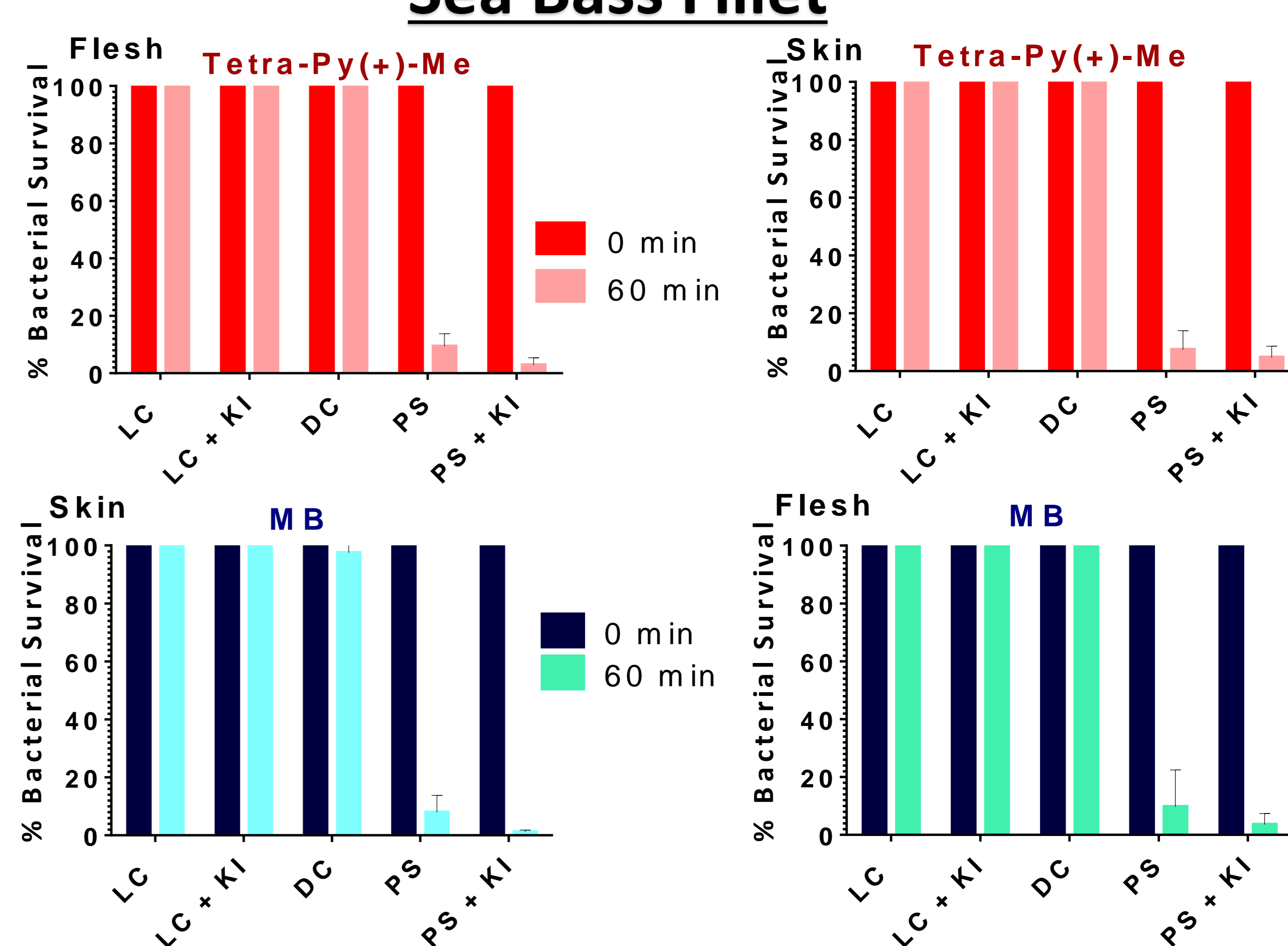


Conclusions

❖ **In vitro**, **Tetra-Py(+)-Me** and **MB** at **5.0 μM** promoted the photoinactivation of *E. coli* till the detention limit of the methodology (~ 8 Log of CFU.mL⁻¹ reduction) after 45 min of treatment. The application of **KI (100 mM)** improved the aPDT efficiency of both PSs, allowing the reduction of the treatment time to 15 min.

❖ **In Sea Bass Fillet**, both PSs at **50 μM** in combination with **KI (100 mM)** promoted a 95 to 99% reduction on *E. coli* survival. This results suggest that aPDT can be a promising approach to disinfect fish products and provide safe food to the consumer.

Sea Bass Fillet



Acknowledgments

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References

- [1] Costello, C., Cao, L., Gelcich, S. et al. *Nature*. 2020; 588: 95–100. <https://doi.org/10.1038/s41586-020-2616-y>; [2] Sheng, L., Wang, L. *Compr Rev Food Sci Food Saf*. 2021; 20: 738–786. <https://doi.org/10.1111/1541-4337.12671>