Effect of UV filters, Benzophenone-3, Octocrylene, and 2-Ethylhexyl 4-methoxycinnamate on the Harpacticoid Copepods Tigriopus japonicus and Tigriopus kingsejongensis

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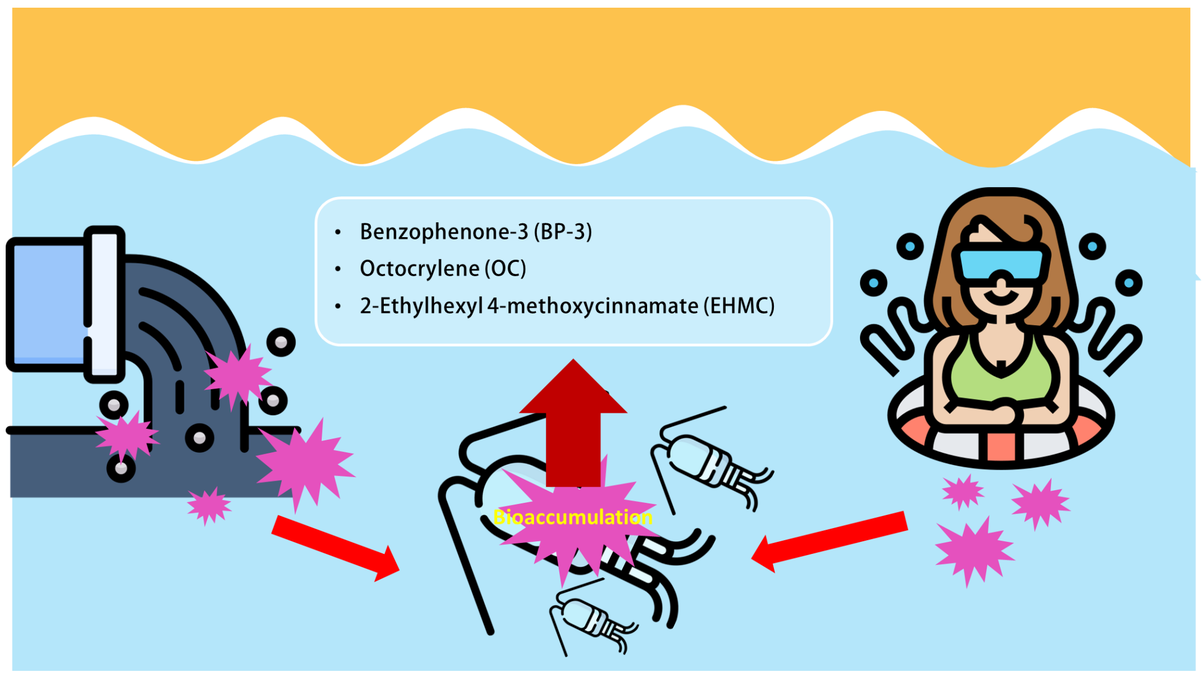
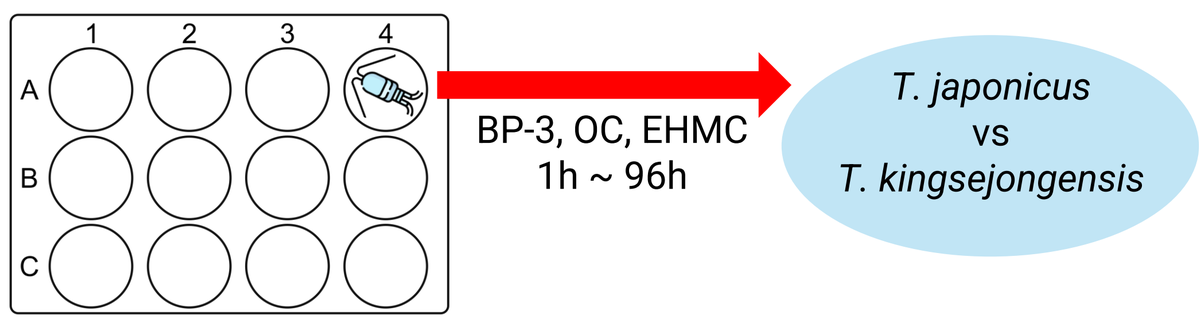
Introduction



Objective

This study aims to fill this gap by investigating the effects of UV filters on aquatic invertebrates, thereby contributing to a more comprehensive understanding of their environmental impact.

Method

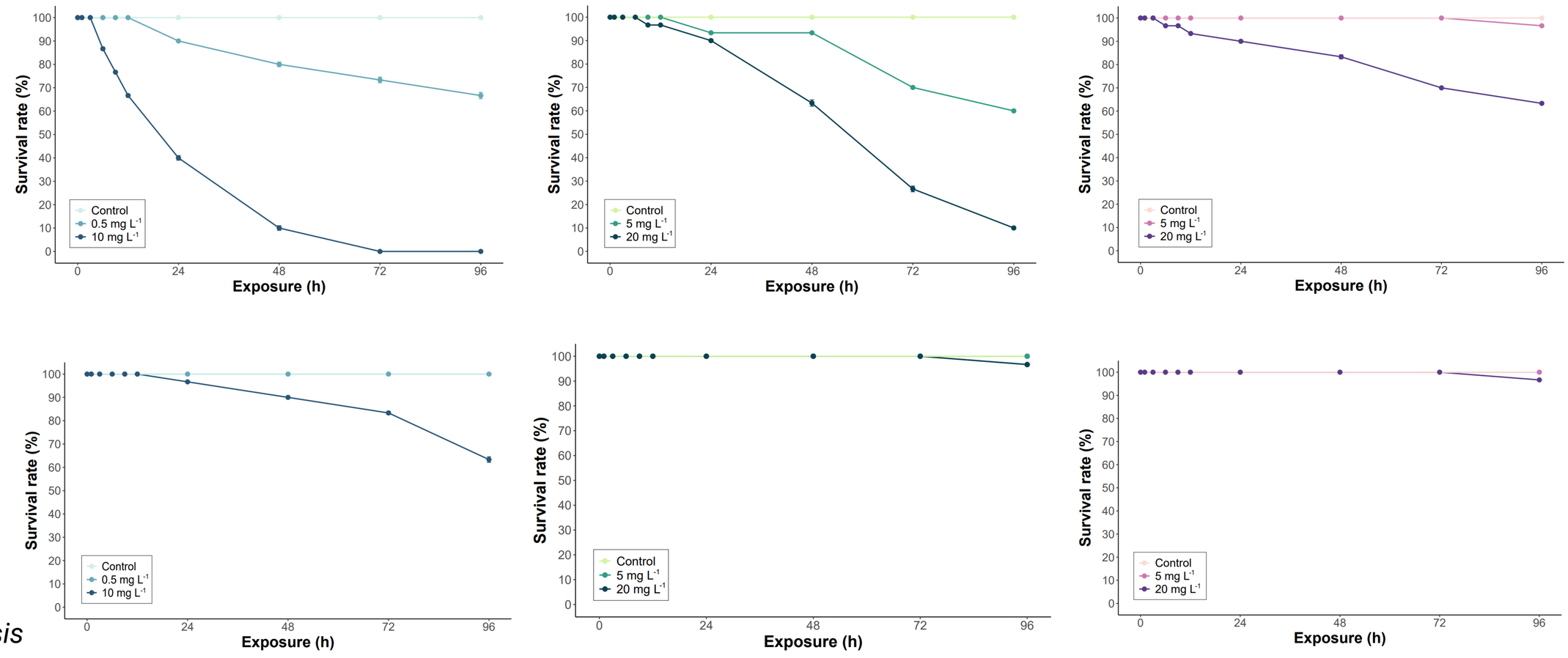


Results

BP-3 at 0.5, 10 mg L^{-1}, OC and EHMC at 5, 20 mg L^{-1} were exposed to *T. japonicus* and *T. kingsejongensis* for 96 h.

T. japonicus

T. kingsejongensis



After exposure to BP-3 at a concentration of 10 mg L^{-1}, *T. japonicus* had a 0% survival rate, while *T. kingsejongensis* had a 60% survival rate. OC and EHMC at a concentration of 20 mg L^{-1} also resulted in 10% and 60% survival rates for *T. japonicus* and over 90% survival rates for *T. kingsejongensis*.

Discussion

In previous studies, higher water temperatures tend to increase contaminant toxicity to aquatic organisms. This was explained by the increased metabolic activity of the organisms due to the increased temperature, which increases the toxic effects. *T. kingsejongensis* is more than twice the body size of *T. japonicus*, so it may be more resistant to toxicity.

Conclusion

All of BP-3, OC, and EHMC were more toxic to *T. japonicus* than to *T. kingsejongensis*. Additionally, *T. japonicus* was most affected by BP-3, followed by OC and EHMC. These results suggest that continuous exposure to increasing levels of UV filters could impact *T. japonicus* populations and that *T. kingsejongensis* in Antarctica may also be affected at the molecular level.

Reference

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