Microplastic does not magnify the acute effect of PAH pyrene on predatory performance of a tropical fish (Lates calcarifer) - DTU Orbit (18/12/2018)

Microplastic (MP) leads to widespread pollution in the marine ecosystem. In addition to the physical hazard posed by ingestion of microplastic particles, concern is also on their potential as vector for transport of hydrophobic contaminants. We studied experimentally the single and interactive effects of microplastic and pyrene, a polycyclic aromatic hydrocarbon, on the swimming behaviour and predatory performance of juvenile barramundi (Lates calcarifer). Juveniles (18+ days post hatch) were exposed to MPs, or pyrene (100nM), or combination of both and feeding rate and foraging activity (swimming) were analyzed. Exposure to MPs alone did not significantly influence feeding performance of the juveniles, while a concentration-response series of pyrene showed strong effect on fish behaviour when concentrations were above 100 nM. In the test of combined MP and pyrene exposure we observed no effect on feeding while swimming speed showed a significant decrease. Thus, our results confirm that short-time exposure to pyrene impacts performance of fish juveniles, while additional exposure to microplastic influenced their activity but not their feeding rate at the given conditions. Further studies on microplastics and other pollutants outlining their combined effects on behaviour and survival of tropical fish are encouraged.

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