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Acute Toxicity of Daphnia magna Neonates Exposed to Single and Composite Mixtures of Four Emerging Contaminants

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Abstract

The effects of emerging contaminants on environmental health are of high concern, especially those potentially induced by mixtures . We assessed single and composite mixtures of triclosan (T), 17β-estradiol (E2), sulfamethoxazole (SMX), and nicotine (N) at various concentrations, on neonates of Daphnia magna . When used in single exposure, T and N induced high toxicity (100% immobility, each one), compared to SMX and E2 (2.5% and 10% immobility, respectively). When T, E2, SMX and N

were in mixture , T had the highest contribution to the overall toxicity in mixture exposures. The N toxicity lowered when in a fourfold exposure (85% immobility in fourfold exposure). Due to the high toxicity of T and N, both alone and in the mixtures , our results can serve as a warning about the use of these substances and their release in the aquatic ecosystem. © 2022, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

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17β-estradiol; Antagonistic effects; Nicotine; Sulfamethoxazole; Synergic effects; Triclosan

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