Alkylphenol (AP) Contamination in the Different Characterized Environmental Matrices in Water Treatment Effluent Outlets of the Marseille Coastal Area, France

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Abstract	In this study, concentrations of alkylphenolic (AP) compounds were measured and quantified in sediments, soil and aerosols collected in the vicinity of Cortiou Creek in the coastal area of Marseilles directly downstream of wastewater treatment plants (WWTPs). The three isomers of the nonylphenols (NPs), i.e. NP1, NP2 and NP3, were detected in sediments throughout the plume with average concentrations at each station of 62.93 mu g.kg(-1), 28.09 mu g.kg(-1), and 117.58 mu g.kg(-1), respectively. The stations beyond the plume measured levels of 33.67 mu g.kg(-1), 11.11 mu g.kg(-1), and 23.89 mu g.kg(-1), respectively. These chemicals were also found principally in soil samples with average concentrations of each isomer distributed at 6 stations at amounts of 48.08 mu g.kg(-1), 19.49 mu g.kg(-1) and 339.13 mu g.kg(-1) exposed to the prevailing wind, while at stations protected from predominantly high winds, concentrations ranged from 5.8 mu g.kg(-1) to 41.41 mu g.kg(-1). The most wide-ranging measurement is for the occurrence of these APs in aerosol samples, which were detected at levels of 0.81 to 8.46 ng.m(-1). In addition, 4 tert-OP and 4 n-OP were not detected in these samples. The most elevated isomers found in this study were NP1 (28.44%) and NP3 (57.54%) within the three different matrices. According to the predicted no-effect concentrations (PNECs), these concentrations in the sediments exceeded the PNEC value, which indicates that they are likely to exert an adverse effect on benthic organisms.
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