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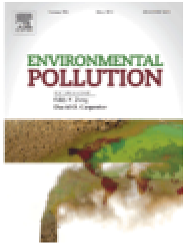

Abstract

The aim of this study was to assess, for the first time, the concentrations, sources, dry deposition and human health risks of polycyclic aromatic hydrocarbons (PAHs), aliphatic hydrocarbons (AHs), polychlorinated biphenyls (PCBs) and organochlorine pesticides (OCPs) in total suspended particle (TSP) samples collected in Bizerte city, Tunisia (North Africa), during one year (March 2015–January 2016). Concentrations of PAHs, AHs, PCBs and OCPs ranged 0.5–17.8?ng?m?3, 6.7–126.5?ng?m?3, 0.3–11?pg?m?3 and 0.2–3.6?pg?m?3, respectively, with higher levels of all contaminants measured in winter. A combined analysis revealed AHs originating from both biogenic and petrogenic sources, while diesel vehicle emissions were identified as dominant sources for PAHs. PCB potential sources included electronic, iron, cement, lubricant factories located within or outside Bizerte city. The dominant OCP congeners were p,p?-DDT and p,p?-DDE, reflecting a current or past use in agriculture. Health risk assessment showed that the lifetime excess cancer risk from exposure to airborne BaP was negligible in Bizerte, except in winter, where a potential risk to the local population may occur.