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Relationship of polycyclic aromatic hydrocarbons with algae-derived organic matter in sediment cores from a subtropical region

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The influence of algae-derived organic matter (AOM) and climate warming on the historical record of polycyclic aromatic hydrocarbons (PAHs) in the subtropical reservoir sediments was investigated. The profiles of PAH concentrations and AOM contents at the eutrophic and meso-eutrophic reservoirs are significantly elevated, and show good correlations with increasing mean air temperature during the past 60 years, suggesting that increasing temperature plays a significant role in increase of algal productivity and PAH deposition. Temperature-mediated AOM is suggested to enhance the deposition and accumulation of pyrogenic PAHs in the sediment cores, also implying an inaccurate estimation on the historical record for atmospheric deposition of PAHs in eutrophic and meso-eutrophic reservoirs. For an oligotrophic reservoir, PAHs decrease as the sediment depth decreases, and are less significantly related to AOM. As the oligotrophic reservoir is phosphorus-limited and its AOM is significantly oxidized, the effect of increasing temperature on AOM and PAHs is insignificant.

Biography

Yong Ran is a Principal Investigator or co-investigator for 18 research grants totaling 9 million Yuan (RMB) from the National Natural Science Foundation of China, Chinese Academy of Sciences and State Science and Technology Ministry of China. His recent research (1998-2015) has involved in distribution, source, sorption, bioaccumulation and bioavailability of organic contaminants in terrestrial and aquatic systems. His research was awarded with one national prize and one provincial prize. He has been the author of over 70 referred international and national publications.

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