[ID-P#114] Environmental and Health Implications of PAH Contamination in Surface Sediments of Sohar, Oman

Mohammed Alkasbi[a], Yasar Nelliyot Kavil[b], Hassan Alshemmari[c], Saeed Alelyani[d], Mohammed Orif[e], Ebtesam Al-Hulwani[a], Suleiman Al-Shukaili[a] and Paromita Chakraborty[f]

[a]Department of Chemical and Waste Management, Environment Authority, Oman; [b]Stockholm Convention Regional Center for Capacity-Building and the Transfer of Technology for West Asia (SCRC-Kuwait); [c]Kuwait Institute for Scientific Research, Kuwait; [d]Renewable Environment Company for Environmental Consulting (REC), P.O. Box 80207, Jeddah 21589, Saudi Arabia; [e]King Abdulaziz University; [f]SRM Institute of Science and Technology, Kattankulathur 603203

Objective: This study aims to evaluate the levels of polycyclic aromatic hydrocarbons (PAHs) in surface sediments from the coastal region of Sohar, Oman, and to assess the associated health risks. The objective is to understand the distribution patterns of PAHs, their correlation with organic carbon content, and potential health implications, providing a basis for environmental management and policy recommendations.

Methods: Surface sediment samples were collected from various locations along the Sohar coast. The samples were analyzed for 16 priority PAHs using gas chromatography-mass spectrometry (GC- MS). Health risk assessment was conducted using standard methods to evaluate the potential risks posed by PAHs to human health.

Results: The concentration of the sum of 16 PAHs in the surface sediments ranged from 1.8 ng/g to 23.6 ng/g. The sediments were found to have significant levels of organic carbon, which potentially influences the distribution and persistence of PAHs in the environment. The health risk assessment indicated that the PAH levels in the sediments are within the safe range for human health. However, due to the presence of significant organic carbon and the potential for accumulation, continuous monitoring of PAH levels is recommended to ensure the long- term safety of the coastal environment and public health.

Conclusion: The study highlights that while the current levels of PAHs in the surface sediments of Sohar are within safe limits, the presence of significant organic carbon warrants continuous monitoring. This proactive approach will help in early detection of any potential increase in contamination, thereby protecting both the environment and human health. The findings underscore the importance of regular environmental assessments and the implementation of effective management strategies to mitigate the risks associated with PAH contamination.