

MEASUREMENTS OF POLYCYCLIC AROMATIC HYDROCARBON (PAH) BIOACCESSIBILITY AND THEIR USE IN THE ASSESSMENT OF HUMAN HEALTH RISK

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Smith, R.P., Robertson, A.M. and Watchel, C.J. 2008. Measurements of polycyclic aromatic hydrocarbon (PAH) bioaccessibility and their use in the assessment of human health risk. *Geoscience in South-West England*, **12**, 27-31.

Both road traffic and the combustion of domestic fuels are considered by many to be the main sources of polycyclic aromatic hydrocarbons (PAHs) in urban and industrial areas. A recent pollution survey of UK soil and herbage indicated approximately 5-7 times greater concentrations of benzo(a)pyrene in urban and industrial soils than in rural soils. The incorporation of bioaccessibility data is a valuable tool in the assessment of human health risk in regard to polycyclic aromatic hydrocarbon soil contamination.

This study has shown that the RIVM method is a suitable technique for the bioaccessibility testing of polycyclic aromatic hydrocarbons. The bioaccessibility results obtained for all three soils in this study were in general found to agree with previously published values as well as predicted values based on relative fugacities. These predicted bioaccessibilities were calculated using published relative fugacities and the measured benzo(a)pyrene bioaccessibility of a spiked standard soil. Fugacity was shown to be a good indicator of bioaccessibility relative to benzo(a)pyrene.

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Keywords: Polycyclic aromatic hydrocarbons, bioaccessibility.
