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Sequential fractionation procedure for the identification of potentially cytochrome P4501A-inducing compounds

W. Brack[a], T. Kind[a], H. Hollert[b], S. Schrader[c] and M. Möder[c]

[a] Department of Chemical Ecotoxicology, UFZ Center for Environmental Research, Permoserstrasse 15, D-04318, Leipzig, Germany
[b] Department of Zoology I, University of Heidelberg, Im Neuenheimer Feld 230, D-69120, Heidelberg, Germany
[c] Department of Analytical Chemistry, UFZ Center for Environmental Research, Permoserstrasse 15, D-04318, Leipzig, Germany

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Abstract

A multistep fractionation procedure for the separation of nonpolar aromatic compounds with respect to cytochrome P4501A induction is presented. Normal-phase HPLC on nitrophenylpropyl silica and cyanopropyl silica was tested for group-specific separation as a first fractionation step. Subsequent individual compound-specific PAH fractionation was done by means of reversed-phase HPLC. Electron-donor–acceptor HPLC and size-exclusion chromatography were applied to separate PAHs, PCBs, PCNs and PCDD/Fs according to their number of aromatic carbon atoms, their hydrophobicity, their degree of chlorination, their planarity and their molecular size. The method was validated for complex environmental mixtures on the basis of two sediment extracts.

Author Keywords: Cytochrome P4501A-inducing compounds

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