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Supporting information

Organophosphorus Flame Retardants and Plasticizers in Marine and Fresh Water Biota and Human Milk from Swedish Women

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Supporting information (3 pages), provides more details regarding instrumental analysis, method performance evaluation and standard deviations (Figure S1)

Method Performance Evaluation

The efficiency of the ASE extraction method used was compared to that of a column extraction method. Muscle tissue from perches (211 g) was homogenized and divided into six replicates, three of which were freeze-dried and then extracted using ASE. The other three were homogenized once more with Na_2SO_4 and then extracted in columns with 200 mL ethyl acetate:cyclohexane (5:2) followed by 150 mL cyclohexane:diethylether (9:1) and finally 150 mL of dichloromethane. Internal standards were added to all samples before extraction. The results of the two methods were almost identical in terms of efficiency of lipid extraction, recovery of IS and levels of OPs. However, since the ASE method consumes less solvent it was chosen for extracting the biotic samples.

Instrumental Analysis

The samples were analysed using a GC-HRMS high resolution system consisting of an Agilent Technologies 6890 GC equipped with a CTC Analytics autosampler and coupled to a Micromass AutoSpec-Ultima mass spectrometer. The system was tuned to a resolution of 8000 or higher for the different OPs. One μL of each sample was injected into the GC, which was operated in splitless mode (2 min splitless time). The injector temperature was set to 250 °C and gas chromatographic separation was carried out using a DB-5 fused silica capillary column (length 30 m, i.d. 0.25 mm, film thickness 0.25 μm) from J&W Scientific (Folsom, CA). The GC oven was initially held at 80 °C for 4 min, increased to 190 °C at a rate of 15 °C min^{-1}, then at 10 °C min^{-1} to the final temperature, 310 °C, which was maintained for 4 min. Helium was used as carrier gas at a flow rate of 1.3 mL min^{-1}. The MS was operated in selected ion monitoring (SIM) mode with electron ionization at 36.5 eV.

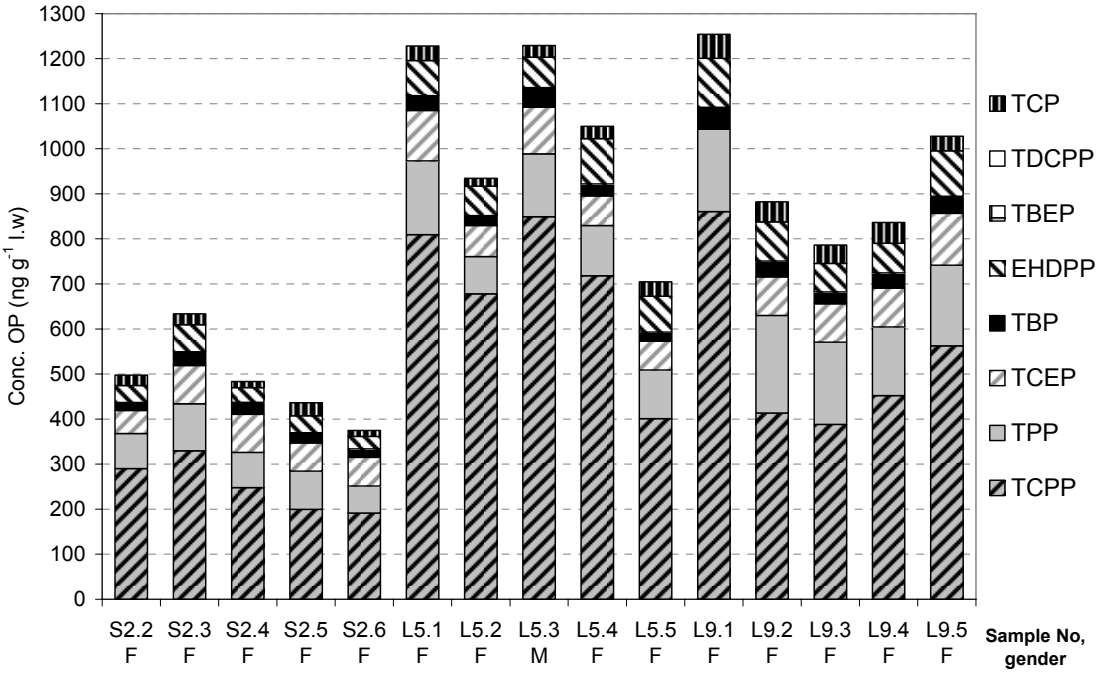

FIGURE S1. Concentrations of OPs in ng g^{-1} lipids in individual perch from the same sample location; sample nos. 2 (20-21 cm), 5 (21-23 cm) and 9 (23-25 cm), respectively. The averages of the total OP concentrations in perch from sampling location 2, 5 and 9 were 490, 1000 and 960 ng g^{-1} l.w, respectively and the relative standard deviation was 20% within each group. No differences in OP levels between females and males were detected. F (female) and M (male).