

SUPPORTING INFORMATION

Brominated and Chlorinated Flame Retardants in Tree Bark from Around the Globe

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Experimental Details

Quality Control. Three quality control criteria were used to ensure the correct identification and quantitation of the target compounds: (a) The GC retention times matched those of the standard compounds within ± 0.1 minutes; (b) the signal-to-noise ratio was greater than 3:1; and (c) the isotopic ratios for selected ion pairs were within $\pm 15\%$ of the theoretical values. The method detection limit (MDL) values for the flame retardant measurements ranged from 0 to 1.25 pg and averaged 0.15 pg. BDE-77 and 166 and $^{13}\text{C}_{12}$ -BDE-209 were added as recovery standards to each sample before extraction. The recoveries for surrogate standards were (mean $\pm$ standard deviation) were $86 \pm 4\%$, (mean $\pm$ standard error), $54 \pm 3\%$, and $37 \pm 3\%$ for BDE-77, BDE-166 and $^{13}\text{C}_{12}$ -BDE-209, respectively. At least one laboratory blank was included in each batch of extracted samples. The blanks consisted of approximately 20 g of Na_2SO_4 that had been spiked with the same amount of recovery standards as the samples. All the compounds in the blanks were less than 15% of the average value measured in the tree bark samples, except for PBEB which was 35% of the average concentration detected in the bark samples. None of the results have been blank or recovery corrected.

Materials. A PBDE standard mixture (BFR-PAR) was purchased from Wellington Laboratories (Guelph, ON). This solution contained all the BDE congeners of interest as well as 2,2',4,4',5,5'-hexabromobiphenyl (BB-153), decabromodiphenylethane (DBDPE), hexabromobenzene (HBB), and pentabromoethylbenzene (PBEB). The following compounds were added individually to the calibration standard mixture: *syn*- and *anti*-DP, pentabromobenzene (PBBz), tetrabromo-*p*-xylene (pTBX), and ^{13}C -BDE-209 from Wellington Laboratories, α -HBCD and BDE-118 from AccuStandard (New Haven, CT).

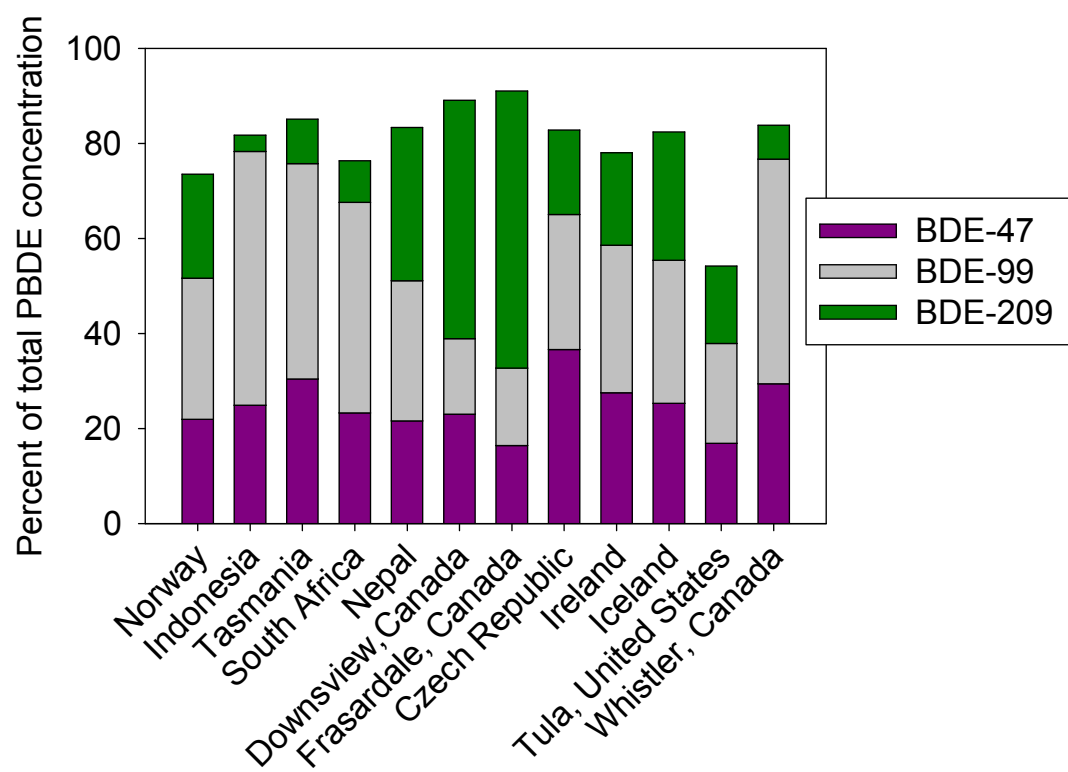


FIGURE S1. Percent of total PBDE concentrations of BDE-47, BDE-99, and BDE-209.