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Analysis of polybrominated diphenyl ethers in Swedish human milk. A time-related trend study, 1972-1997.

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Abstract: A previously described method for analysis of organochlorine compounds in human milk was adopted for analysis of brominated diphenyl ethers (BDEs) substituted with three to six bromine atoms. Analytes were extracted from human milk with the lipophilic gel Lipidex 5000. Further purifications were performed on partly deactivated aluminum oxide and silica gel columns, followed by gel permeation chromatography. The concentrations of BDEs were determined by gas chromatography/mass spectrometry (GC/MS). The average recoveries of 2,2',4-triBDE (BDE-17), 2,4,4'-triBDE (BDE-28), 2,2',4,4'-tetraBDE (BDE-47), 2,3',4,4'-tetraBDE (BDE-66), 2,2,3,4,4'-pentaBDE (BDE-85), 2,2',4,4',5-pentaBDE (BDE-99), 2,2',4,4',6-pentaBDE (BDE-100), 2,2',4,4',5,5'-hexaBDE (BDE-153), and 2,2',4,4',5,6'-hexaBDE (BDE-154) added to the samples before extraction ranged from 86% to 102%. Pooled samples of breast milk, collected at eight time periods between 1972 and 1997, were analyzed for PBDEs. BDE-47 was the most abundant PBDE congener in all samples. In total, eight PBDE congeners were identified in the milk. The sum of the concentrations of BDE congeners in human milk increased from 0.07 to 4.02 ng/g lipids during the 25-yr period studied.

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