

Development of different strategies for the clean-up of polychlorinated biphenyls (pcbs) congeners using pressurized liquid extraction

Amel Al-Rashdan and Murad I.H. Helaleh
Kuwait Institute for Scientific Research, Kuwait

The extracted fish samples (w/w) using pressurized liquid extraction (PLE) were cleaned up by applying different adsorbent materials such as: combination of acidic/ basic silica and alumina, florisil, and silica gel either alone or in combination with another sort of sorbent. Different solvents such as hexane (H), dichloromethane (DCM), with different compositions were used to elute the PCBs target compounds from the spiked fish samples.

Overall the mean percentage recoveries for all PCBs congeners using PLE were ranging from 78.6% to 98.7%; from 79.4% to 91.8%; from 65.8% to 104.5% and from 82.4% to 100.9% for cases A, B, C, D and E, respectively. However, the overall mean percentage recoveries for the 13C-PCBs surrogate including: 101, 138, 153, 180 and 209 were ranging from 88.2% to 97.6%; from 79.4% to 90.2%, from 88.3% to 96.4%, from 79.8% to 90.4% and from 83.9% to 95.9%, for cases A, B, C, D and E, respectively. The limits of detection of the proposed method were varied from 0.01 to 0.28 ng/g (w/w) for different PCBs congeners. The proposed method has linear dynamic range from 21.5ng/g to 109 ng/g. This method was applied to fish samples for the determination of the target PCBs components.

Biography

Amel Al-Rashdan has completed her PhD at the age of 31 years from University of Cincinnati, Ohio, USA. She is working in Kuwait Institute for scientific Research, she was a Department Manager for Central Analytical Laboratories for 5 years and now she is top management representative for ISO 9001:2008 and ISO 17025:2005. She has publications in reputed journals in the field of analytical chemistry in the hyphenated techniques such as HPLC-ICP-OES, HPLC-ICP-MS and GC-MS. She is also representing her country Kuwait and the institute as a member in Rotterdam Chemical Review Committee for Rotterdam Convention.

dramel_alrashdan@yahoo.com