



## **Vortex and surfactant assisted low density solvent liquid-liquid microextraction for liquid chromatographic determination of polycyclic aromatic hydrocarbons**

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In this study, dispersive liquid-liquid microextraction (DLLME) using low density solvent as the extraction solvent with the assistance of vortex and surfactant was developed for determination of polycyclic aromatic hydrocarbons (PAHs) by high performance liquid chromatography (HPLC). The studied PAHs were naphthalene, acenaphthene, anthracene, fluoranthene and phenanthrene. Parameters affecting the extraction efficiency were studied and optimized. The separation of PAHs was carried out using an Atlantis C<sub>18</sub> column, a mixture of acetonitrile and water (60:40 v/v) as the mobile phase at a flow rate of 1 mL/min and the UV detection at 254 nm. The conditions for DLLME were 1-octanol as the extraction solvent and Triton X-100 as the emulsifier under vortexing. The enrichment factors for the five PAHs were ranged from 55 to 159 folds. The limits of detection (LODs) for naphthalene, acenaphthene, anthracene, phenanthrene and fluoranthene were 20, 50, 2.0, 1.5 and 10 µg/L, respectively. The proposed method was successfully applied for the analysis of PAHs in water samples.

**Keywords:** Polycyclic aromatic hydrocarbons; Dispersive liquid-liquid microextraction; High performance liquid chromatography; Water sample