Optimization of Condition for Determination of Bisphenol a by Alcoholic Assistant Dispersive Liquid-Liquid Microextraction

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Alcoholic assistant dispersive liquid–liquid microextraction (AA-DLLME) coupled with high-performance liquid chromatography (HPLC)-UV detection was applied for the extraction and determination of bisphenol A (BPA) in water samples. Bisphenol A (BPA) is a chemical used in polycarbonate plastics, epoxy resins and also in various industrial products. In 1993, Krishnan et al. reported that BPA exhibited estrogenic activity and is released from polycarbonate flasks during autoclaving [1]. In this procedure, an appropriate mixture of methanol (disperser solvent) and 1-octanol (extraction solvent) was injected rapidly into a water sample containing PAHs. After extraction, flouting phase was analyzed by HPLC-UV. Full factorial design(FD) was used for selection of important factors and then central composite design(CCD) was used for determination of optimum conditions, which are: extraction solvent: 123µl of 1-octanol, disperser solvent, methanol: 800/µL, 1.2gr NaCl salt and pH = 6. Low detection limit of BPA was obtained. The relative standard deviation (RSD, n=5) for the extraction and determination of BPA in the aqueous samples was 2.2%. The results showed that AA-DLLME is a very simple, rapid, sensitive and efficient analytical method for the determination of trace amount of BPA in water samples and suitable results were obtained.

REFERENCES