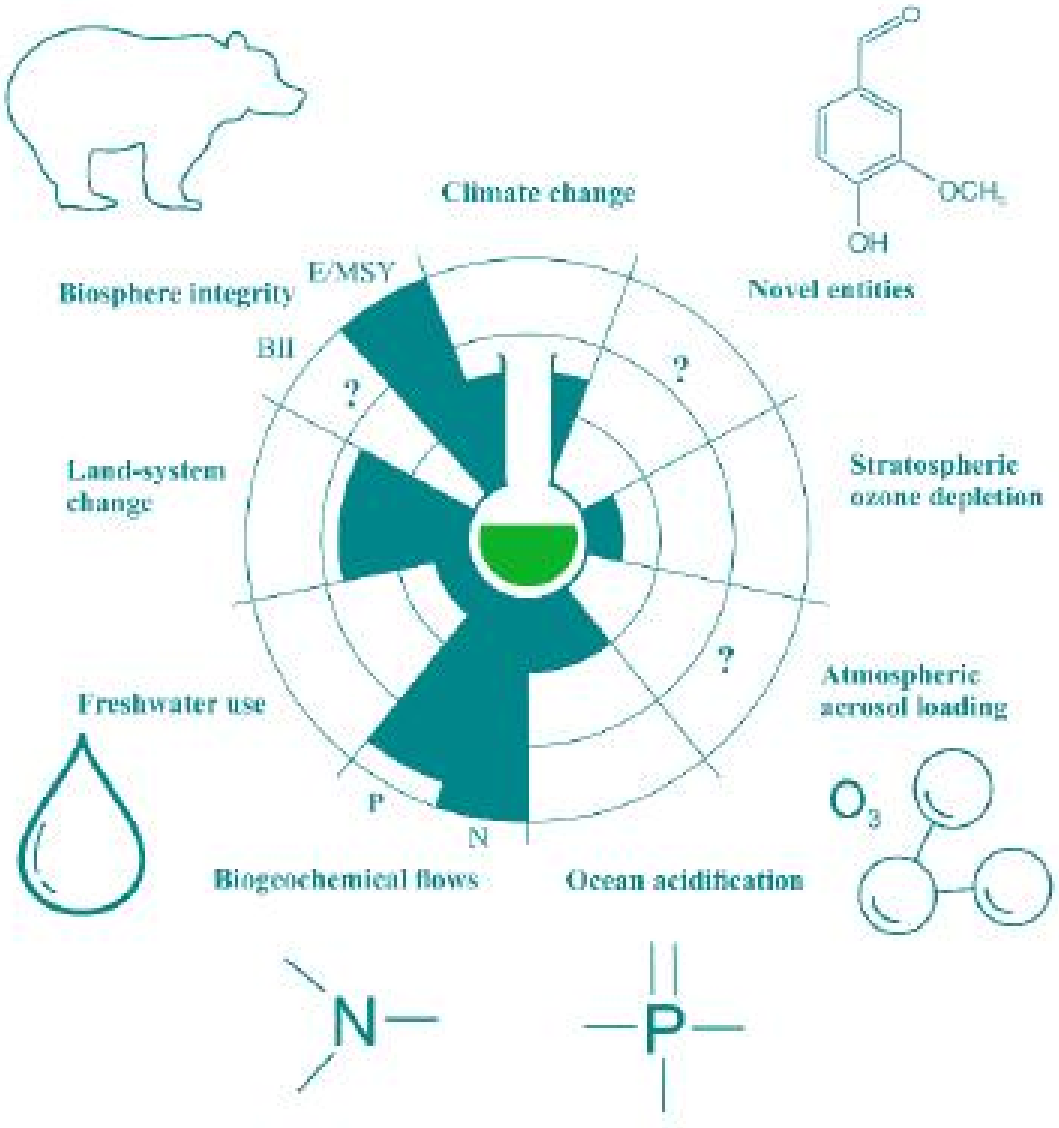
7th INTERNATIONAL IUPAC CONFERENCE ON GREEN CHEMISTRY

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ABSTRACTS



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Determination of Cadmium in Wastewater at Ultratrace Levels by Dispersive Liquid-Liquid Microextraction and Batch Type Hydride Generation Atomic Absorption Spectrometry

Nursu Aylin Kasa[1], DotseSelali Chormey[1], Çağdaş Büyükpınar[1], Fatma Turak[1], TürkanBörklü Budak[1], Sezgin Bakırdere[1]

[1]*Yildiz Technical University, Faculty of Art and Science, Chemistry Department, 34210, İstanbul, Turkey*
aylinkasa@gmail.com

Cadmium is a heavy metal referred as anunimportant element for human being [1,2].Exposure of the human body to cadmium can cause several health problems such as kidney, hypertension, liver and bone diseases [2].For this reason, it is very crucial to determine the trace amounts of cadmium in the environmental samples [1-3].

This study describes the development of a dispersive liquid-liquid microextraction method for the extraction and preconcentration of cadmium, and its determination by atomic absorption spectrometry after hydride formation. Hydride generation system was optimized to achieve high hydride formation efficiency and rapid transport of generated hydride to a quartz tube heating cell for atomization. Under the optimum conditions, limits of detection and quantification were 4.2 ng L^{-1} and 14.1 ng L^{-1}, respectively. In comparison to the conventional FAAS system, a sensitivity enhancement of about 10000 folds was obtained. The calibration showed good linearity over a wide concentration range and the low relative standard deviations indicated high repeatability for the extraction process and instrumental measurements. A

wastewater certified reference material (EU-L-2) was used to validate the developed method. Experimented results conformed to the certified value. In addition, recovery experiments were performed, and recovery tests on wastewater gave appreciable results.

Keywords: Cadmium, DLLME, AAS, Hydride Generation

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