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Green synthesis of new ionic liquid and its electrochemical determination at some detergents and cosmetics samples using differential pulse polarography

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Abstract

The 1-propargylpyridazinium bromide (PDB) was synthesized by using ultrasound irradiation as an eco-friendly and efficient process. The structure of PDB was characterized by different analysis such FT-IR, ^1H NMR, ^{13}C NMR, LCMS and elemental analysis. One of the principal goals of the present study was the determination of the synthesized (PDB) in some detergent and cosmetic samples by using the differential pulse polarography (DPP) as an efficient method. Different supporting electrolytes, pH, pulse amplitude, pulse time and sweep rate were evaluated in order to record a high cathodic current and good peak. It turned out that Britton-Robinson (B-R) supporting electrolyte, pH 4, pulse amplitude 90 mV, pulse time 30 ms and sweep rate 20 mVs^{-1} , have given the best cathodic current and they were chosen to complete the electrochemical studies for PDB determination. Furthermore, the DPP technique have been performed by monitoring the reproducibility, stability, recovery, calibration curve and detection limit. Reproducibility and stability of the studied PDB.

Keywords. Ionic liquids, ultrasound irradiation, dropping mercury electrode, differential pulse polarography, detergents, cosmetics.

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