



Determination of silver by dispersive liquid-liquid microextraction preconcentration and UV-visible spectrophotometric detection

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In this research, a dispersive liquid-liquid microextraction method was developed for the extraction and preconcentration of silver in water samples. Silver was complexed with 8-quinolinol and then extracted in dichloromethane prior to UV-visible detection. The extraction efficiency was found to be effected by the experimental parameters such as the pH of sample solution, the amount of 8-quinolinol, type and volume of extraction and dispersive solvent, extraction time and salt concentration. Under the optimum conditions, calibration curves were linear in the range 30 $\mu\text{g/L}$ to 140 $\mu\text{g/L}$ ($R^2 = 0.9939$). The limit of detection and limit of quantification were 10.44 $\mu\text{g/L}$ and 34.81 $\mu\text{g/L}$, respectively. The relative standard deviation of repeatability and reproducibility studies were less than 5.0 % and 6.6 %, respectively. Percent recovery of 85.69 % was obtained. The proposed method was applied to the determination of silver in water samples contaminated with silver coming out from food storage boxes.

Keywords Dispersive liquid-liquid microextraction; 8-quinolinol; silver