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## Cloud point extraction of some precious metals using triton X-114 and a thioamide derivative with a salting-out effect

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A cloud point extraction procedure is proposed for preconcentration of trace amounts of palladium (II), silver (I) and gold (III) in aqueous medium. The metal ions in the initial aqueous solution were extracted using the non-ionic surfactant, Triton X-114 after complex formation with 4-(p-chlorophenyl)-1-(pyridin-2-yl)thiosemicarbazide at pH 6.0 in the presence of 0.3 mol L<sup>-1</sup> sodium sulfate as a salting-out agent at 25°C. Dilution of the surfactant-rich phase with acidified methanol was performed after phase separation, and the metal ions were determined by electrothermal atomic absorption spectrometry. The main factors affecting extraction procedure, such as pH, concentration of the ligand, and amount of Triton X-114 were studied in detail. Under the optimum experimental conditions, the calibration graphs were linear upto 125, 50 and 100 µg L<sup>-1</sup> and the enrichment factors were 52, 46 and 56 for palladium, silver and gold, respectively. The limits of detection, based on three times of standard deviation of blank signal by 10 replicate measurements divided by the slope of calibration curves were 0.12, 0.08 and 0.30 µg L<sup>-1</sup> for palladium, silver and gold, respectively. The accuracy of the results was verified by analyzing spiked water samples. The proposed method has been applied for the determination of the metal ions in soil and rock samples with satisfactory results.

### Biography

Wael I Mortada has completed his PhD from El-Azhar University, Cairo, Egypt. He is the medical laboratory specialist at the Urology and Nephrology Center, Mansoura University, Egypt. He has published more than 25 papers in reputed journals and one book.

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