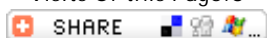




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## Research Details :

Research Title : Chemical equilibria and sequential extractive spectrophotometric determination of selenium(IV) and (VI) using the chromogenic reagent 4,4 '-dichlorodithizone  
Chemical equilibria and sequential extractive spectrophotometric determination of selenium(IV) and (VI) using the chromogenic reagent 4,4 '-dichlorodithizone

Descriptipn : The chromogenic reagent 4,4-dichloro(3-mercapto-1,5-diphenylformazan), Cl<sub>2</sub>H<sub>2</sub>DZ, forms a yellow-red-coloured complex with selenium(IV). The produced complex species was extracted quantitatively into n-hexane, and its absorbance was measured at 416 nm. The chemical composition of the extracted selenium(IV)-Cl<sub>2</sub>H<sub>2</sub>DZ chelate and the molar absorptivity at 416 nm were found to be [SeO (Cl<sub>2</sub>HDZ)(2)] and 9 x 10<sup>4</sup> L mol<sup>-1</sup> cm<sup>-1</sup>, respectively. The values of the extraction constants (K-D, K-ex, beta) enable a convenient application of the proposed system for the liquid - liquid extraction procedure and sequential spectrophotometric determination of traces of inorganic selenium ( IV) and/or selenium( VI) after reduction of the later to selenium ( IV) with HCl ( 6 M). Beers law and Ringboms plots were obeyed in the concentration range 0.01 - 20 and 0.5 - 19  $\mu$ g mL<sup>-1</sup> of selenium(IV), respectively, with a relative standard deviation of 2.2%. The proposed method has been successfully applied to the determination of selenium( IV) or ( VI) and total inorganic selenium ( IV) and ( VI) in tap and freshwater samples.

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