

A Comparison between Reagents Extracted from Tree Leaves for Spectrophotometric Determination of Hafnium(IV)

Authors : A. Boveiri Monji, H. Yousefnia, S. Zolghadri, B. Salimi

Abstract : The main goal of this paper was to make use of green reagents as a substitute of perilous synthetic reagents and organic solvents for spectrophotometric determination of hafnium(IV). The extracts taken from six different kinds of tree leaves including *Acer negundo*, *Ficus carica*, *Cerasus avium*, *Chimonanthus*, *Salix babylonica* and *Pinus brutia*, were applied as green reagents for the experiments. In 6-M hydrochloric acid, hafnium reacted with the reagent to form a yellow product and showed maximum absorbance at 421 nm. Among tree leaves, *Chimonanthus* showed satisfactory results with a molar absorptivity value of $0.61 \times 10^4 \text{ l mol}^{-1} \text{ cm}^{-1}$ and the method was linear in the $0.3\text{-}9 \text{ }\mu\text{g mL}^{-1}$ concentration range. The detection limit value was $0.064 \text{ }\mu\text{g mL}^{-1}$. The proposed method was simple, low cost, clean, and selective.

Keywords : hafnium, spectrophotometric determination, synthetic reagents, tree leaves

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020