

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

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**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

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