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3-Hydroxy-2-(2'-thienyl)-4H-chromen-4-one Reagent for Extractive Spectrophotometric Determination of Molybdenum(V)

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A simple, selective and fast extractive spectrophotometric method for microdetermination of molybdenum(V) has been developed. In the proposed approach molybdenum(VI) was reduced with the use of 5% ascorbic acid in 1 mol L^{-1} H_2SO_4 at the room temperature and, after addition of 3-hydroxy-2-(2'-thienyl)-4H-chromen-4-one (HTC) extracted to chloroform. Absorbance of the yellow Mo(V)-HTC (1:2) complex was measured at 424 nm against the reagent blank. The Beer's law was obeyed over the Mo concentration range of 0–3.1 μg mL^{-1}. Molar absorptivity equalled 3.6×10^4 L mol^{-1} cm^{-1} and Sandell's sensitivity was 0.0026 μg cm^{-2}. Determination was free from the interferences of Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, Bi, Th, V, W, platinum metals and other analytically important elements. Relative standard deviation for ten replicate determinations of 1 μg mL^{-1} Mo was 0.18%.