THE INVESTIGATION OF THERMAL DECOMPOSITION KINETICS OF Cr, Mo AND W HEXACARBONYL COMPLEXES WITH THE SCHIFF BASE 5-(P-DIMETHYLAMINOBENZYLIDENE) RHODANINE (DMABR) USING THERMOGRAVIMETRIC METHODS

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Thermogravimetry (TG) and differential thermal analysis (DTA) are valuable techniques for studying the thermal properties of various compounds. Materazzi et al.¹ reported the thermoanalytical studies of unusual adrenaline complexes with Co(II), Ni(II) and Cu(II). In addition, Liu et al, Singh et al,² Kandil et al,³ Guinesi et al, Ahmed and El-Mossalamy Wang reported studies related to the thermal analysis, thermal decomposition kinetic, synthesis and characterization of complexes.

In this study, the thermal decomposition kinetics of Cr, Mo and W hexacarbonyl complexes with 5(p-dimethylaminobenzylidene) rhodanine (DMABR) Schiff base were investigated. No thermal decomposition data have been reported in the literature for these complexes.

New complexes have been synthesized by the photochemical reaction of VIB metal carbonyls [M(CO)₆] (M=Cr,Mo,W) with 5(p-dimethyl-aminobenzylidene)rhodanine (DMABR) Schiff base and characterized by elemental analyses, FT-IR, ¹H-NMR and by mass spectrometry. The thermal decomposition kinetics of the complexes prepared was investigated by means of non-isothermal (dynamic) thermogravimetric methods and kinetic parameters (Activation Energy , E, reaction order, n, and pre-exponential factor, A) were determined.

Reference