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Synthesis, Spectral and Thermal Characteristics of Some Ten Coordinated Complexes of Dioxouranium(VI) Derived from Semicarbazones as Primary Ligand and Diphenyl Sulfoxide as Secondary Ligand

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Abstract: The reactions of dioxouranium(VI) acetate with several semicarbazones derived from 4-aminoantipyrine in the presence of diphenyl sulfoxide (DPSO) led to the formation of complexes corresponding to the formulae $[UO_2(CH_3COO)_2$ (L).DPSO], where L = 4[N-(benzalidene)amino] antipyrinesemicarbazone (BAAPS), 4[N-(2'-hydroxybenzalidene)- amino]antipyrinesemicarbazone (HBAAPS) 4[N-(4'-methoxybenzalidene)amino] antipyrine semicarbazone (MBAAPS) 4[N-(4'-dimethylaminobenzalidene)amino]- antipyrinesemicarbazone (DABAAPS) 4[N-(2'-nitrobenzalidene) amino]antipyrine- semicarbazone (2'-NO_2 BAAPS) 4[N-(3'-nitrobenzalidene)amino]antipyrine-semicarbazone (3'-NO_2BAAPS) 4[N-(4'-nitrobenzalidene)amino]antipyrine- semicarbazone (4'-NO_2BAAPS), 4[N-(4'-hydroxy-3'-methoxybenzalidene)amino]- antipyrinesemicarbazone (HMBAAPS) 4 [N-(2'-hydroxy-1'-naphthalidene)amino]- antipyrinesemicarbazone (HNAAPS) 4[N-(cinnamalidene)amino] antipyrine- semicarbazone (CAAPS)4[N-(3',4',5'-trimethoxybenzalidene)amino]antipyrine- semicarbazone (TMBAAPS) and 4[N-(furfural)amino]antipyrinesemicarbazone (FFAAPS). The complexes were characterised by means of elemental analyses, conductivity measurements, molecular weight, magnetic moments and infrared studies. The coordination number 10 is proposed for these complexes. Thermal properties of the representative complexes are also reported.

Key Words: Dioxouranium(VI), mixed ligand complexes, semicarbazones, diphenyl sulfoxide, characterisation, coordination number

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