



Electrochemical and UV-vis SEC investigations of a mononuclear Ru (III) complex coordinated by 2,3,5,6-tetrakis-(2-pyridyl)pyrazine

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Ruthenium polypyridyl complexes have been extensively studied during the last few decades, due to their unique combination of chemical stability, redox properties, reactivity, and luminescence emission [1-3]. They are playing a key role in the development of multicomponent systems capable of performing photo- and/or redox-triggered functions such as charge separation devices for photochemical solar energy conversion or information storage devices [4-5]. Here in, we report the facile synthesis of the mononuclear Ru(III) complex, [Ru(bpy)(tppz)Cl][PF<sub>6</sub>]<sub>2</sub>.acetylacetone, where tppz is 2,3,5,6-tetrakis(2-pyridyl)pyrazine and bpy is 2,2'-bipyridine, and its characterization by single crystal X-ray structure analysis, elemental analysis, IR and UV-vis spectroscopies, and cyclic voltammetry. SEC studies of this complex were also performed. The coordination around the Ru(III) center is distorted octahedral, with bite angles of 80.70–161.83° for the chelating bpy and tppz ligands. UV-vis spectroelectrochemical studies of this complex in acetonitrile showed a reversible redox behavior evaluated by the maintenance of isosbestic points in the UV-vis spectrum for both forward reduction and reverse oxidation processes. Magnetic susceptibility data derived from paramagnetic NMR data revealed an effective magnetic moment of 1.79 BM at room temperature.

**Keywords:** Ruthenium complexes, Polypyridyl ligands, Magnetic susceptibility, Cyclic voltammetry, Spectroelectrochemical properties.

**References:**

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