

Novel Ru(II)-Paracetamol complex : synthesis characterization and DPPH assays

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Introduction & Objectives:

The study of drug molecules complexed with various metal ions is an important subject of research from the chemical, biochemical, medicinal and pharmacological perspectives [1]. In the last decade, Ruthenium complexes have a great attention in the field of medicinal chemistry [2]. In this context, we will conduct our investigation.

Methodology (Material and methods):

In this study, a new Ruthenium complex was synthesized with Paracetamol under reflux in 1:2 molar ration. The resulting product was characterized with elemental analysis and spectral measurements (IR, NMR, UV-vis and ATG). The Ruthenium-Paracetamol (Ru-P) complex is tested with DPPH essays in order to assess its antioxidant ability.

Results and Discussion:

The new drug metal complex Ru-P is isolated as a dark powder. Geometric structure is established by spectral measurements as an octahedral geometry around Ru(II) with two Paracetamol ligands coordinated through C=O function, two NH₃ molecules and two OH⁻ ions.

The Antiradical activity of Ru-P and Paracetamol was examined by carrying out kinetic studies in DMSO with different concentrations. Paracetamol shows a weak activity toward DPPH; 1000 mg/l of Paracetamol solution reduces about 40% of DPPH. As expected from the pain killer drug [3]. However, Ru-P shows an interesting antioxidant activity.

Conclusion:

A novel Ru(II) metal complex with paracetamol is synthesized, characterized and tested as antioxidant agents. Based on the results of the analytical and spectral techniques, the monodentate ligand are coordinated to Ru(II) metal octahedral geometry.

The ligand and Its Ru(II) complexes were screened for their antioxidant activity. The results showed promising antioxidant potential. Hence, it was confirmed that the metalation increases the biological activity

Keywords: Coordination complex, Ruthenium, antioxidant activity, spectra studies, Drug-based complex.

References

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