ZINC/ACYLTHIOUREA COMPLEXES: SYNTHESIS, CHARACTERIZATION AND INTERACTION WITH ALBUMIN

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The search for more efficient, selective and low-toxicity metal-based chemotherapeutics has significantly increased since the discovery and approval of cisplatin for treating various types of cancer. In this pursuit, both platinum and non-platinum complexes have been developed. Zinc complexes, in particular, stand out because zinc is an essential element for the body, which may lead to the formation of complexes with reduced toxicity[1]. One strategy to design more effective complexes is the coordination of biologically active organic molecules to the metal, potentially combining the anticancer properties of the initial species or generating complexes with different behaviors in biological systems. Considering this, a new zinc complex with an acylthiourea derivative as the ligand was synthesized and characterized in this work. Acylthioureas are a class of organic molecules that have been investigated for their potential in developing new complexes as candidates for metallodrugs[2]. The complex obtained, with the general formula [ZnCl(DBBTh)(bipy)], where DBBTh corresponds to the acylthiourea *N,N*-(dibenzoyl)-*N'*-benzoylthiourea and bipy refers to 2,2'-bipyridine, was characterized by molar conductivity, elemental analysis, infrared and UV-vis absorption spectroscopy, NMR 1D and 2D, mass spectroscopy, and X-ray diffraction. All the characterization techniques employed confirmed the structure and purity of the new Zn(II)/acylthiourea complex. Additionally, the interaction between the complex and Human Serum Albumin (HSA) was investigated by fluorescence suppression measurements. The binding constant (K_b) values of the complex are in the range of 10^4 mol^{-1} L, and the Stern-Volmer constant (Ksv) indicates the involvement of static mechanism between the complex and HSA.

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