

Dimethyl Sulfoxide Containing Platinum(II) and Palladium(II) Chelate Complexes of Glyoxylic and Pyruvic Acid Thiosemicarbazones. A New Class of Cytotoxic Metal Complexes

Nicolay I. Dodoff^a, Dimitra Kovala-Demertzi^b, Maria Kubiak^c, Janina Kuduk-Jaworska^c, Andrzej Kochel^c, and Galina A. Gorneva^a

^a Institute of Molecular Biology, Bulgarian Academy of Sciences, Acad. G. Bonchev Street, Block 21, 1113 Sofia, Bulgaria

^b Section of Inorganic and Analytical Chemistry, Department of Chemistry, University of Ioannina, 451 10 Ioannina, Greece

^c Faculty of Chemistry, Wrocław University, 14 F. Joliot Curie Street, 50-383 Wrocław, Poland

Reprint requests to Dr. N. I. Dodoff. E-mail: dodoff@obzor.bio21.bas.bg

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The complexes [Pt(DMSO)(GT)]·DMSO (**1**), [Pt(DMSO)(PT)]·1/2DMSO (**2**) and [Pd(DMSO)(PT)] (**3**), where DMSO = dimethyl sulfoxide, H₂GT = glyoxylic acid thiosemicarbazone and H₂PT = pyruvic acid thiosemicarbazone, have been synthesized and characterized by elemental analysis, molar electric conductivity, IR, electronic and NMR (¹H and ¹³C) spectra. The single crystal X-ray diffraction analysis has revealed for **1** (orthorhombic, *Pnma*, *a* = 12.941(3), *b* = 7.108(2), *c* = 15.148(3) Å, *Z* = 4) that the doubly deprotonated thiosemicarbazone molecule is coordinated to Pt(II) *via* the carboxylato O, azomethine N and thiolato S atoms forming two condensed five-membered chelate rings. The fourth coordination site of Pt(II) is occupied by the S atom of DMSO. All the atoms of the complex molecule are coplanar except the methyl groups. The O atom of DMSO is in *cis*-position towards the thiolato-S atom (point group *C_s*). A system of hydrogen bonds of the type N–H···O links the complex molecules between them and with the lattice DMSO molecules. Similar structures have been deduced for the remaining two complexes on the basis of spectroscopic data. The three complexes and the ligand H₂GT exhibit cytotoxic activity against F4N leukemia cells, whereas the ligand H₂PT is inactive.

Key words: Palladium(II) and Platinum(II) Thiosemicarbazonato Complexes, Crystal Structure, Cytotoxic Activity