

## Synthesis, Characterization, Crystal Structure and Cytotoxicity of Antimony (III) Chloride Complex with N,N-Dicyclohexyldithiooxamide

I.I.Ozturk<sup>a,b</sup>, O.S.Urgut<sup>a</sup>, C.N.Banti<sup>b,c</sup>, K.Charalabopoulos<sup>c,e</sup>, A.M.Owczarzak<sup>d</sup>, M.Kubicki<sup>d</sup>, S.K.Hadjikakou<sup>b</sup>

<sup>a</sup> Department of Chemistry, Namik Kemal University, 59030, Tekirdag, Turkey,

<sup>b</sup> Section of Inorganic and Analytical Chemistry, Department of Chemistry, University of Ioannina, 45110 Ioannina, Greece,

<sup>c</sup> Department of Experimental Physiology, Medical School, University of Ioannina, 45110 Ioannina, Greece

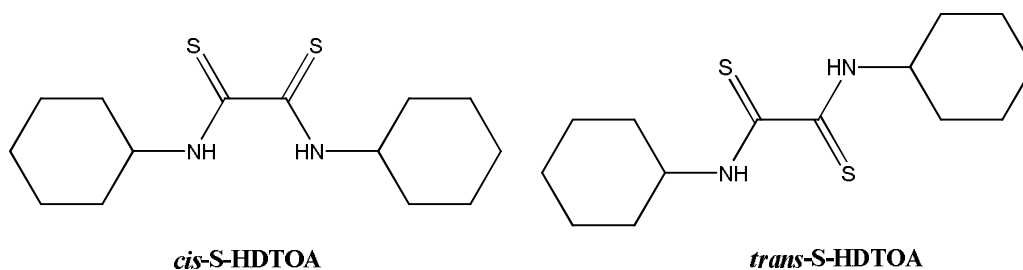
<sup>d</sup> Faculty of Chemistry, Adam Mickiewicz University, Grunwaldzka 6, 60-780 Poznan, Poland

<sup>e</sup> Department of Physiology, Democritus University Medical School, Greece.

(E-mail:shadjika@uoi.gr, iiozturk@nku.edu.tr)

The coordination chemistry of the main group elements substantially less well studied than that of the transition metals and in the case of group 15 has been most investigated for bismuth (Bi) complexes than antimony (Sb) and arsenic (As) [1]. Antimony(III) halides behave as weak Lewis acids towards neutral sulfur donor ligands and this behavior are often hindered by the lability of such complexes in solutions, moreover the activity of lone pair plays an important role in the structures [2]. Antimony-based metallotherapeutic drugs have been used in the treatment of leishmania for years as the major therapeutic compounds [3]. Moreover the antitumor activity of antimony compounds has been demonstrated, recently [4]. There are very few reports in the literature referring to the structural characterization of antimony(III) complexes with bi-dentate dithiooxamide ligands [5].

Here, we report the structure and spectroscopic characterization of new antimony(III) chloride complex with the bi-dentate dithiooxamide ligand (Scheme 1), N,N-Dicyclohexyldithiooxamide (HDTOA). of formula  $\{[\text{SbCl}_3(\text{HDTOA})_3]_n\}$ . The crystal structure of complex was also determined by X-ray diffraction. Crystal of  $\{[\text{SbCl}_3(\text{HDTOA})_3]_n\}$  adopt a distorted octahedral geometry with *facial* isomer environment at antimony derived from three mutually *cis* chlorides and three sulfur atoms from three different N,N-Dicyclohexyldithiooxamide ligands. Also  $\{[\text{SbCl}_3(\text{HDTOA})_3]_n\}$  complex was evaluated for its in vitro cytotoxic activity against tumor cell lines.



**Scheme 1.** *cis* and *trans* conformation of the N,N-Dicyclohexyldithiooxamide (HDTOA).

**Acknowledgments:** The research of I.I.O and O.S.U was supported by the Namik Kemal University Scientific Research Projects Fund (Project No. NKUBAP.00.10.AR.10.1).

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