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Preparation, Spectroscopy, Antimicrobial Assay, and X-Ray Structure of Dimethyl bis-(4-methylpiperidine dithiocarbamato-S,S')-tin(IV)

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**Abstract:** Dimethyl bis(4-methylpiperidine dithiocarbamato-S,S')-tin(IV) was synthesized and characterized by elemental analysis, IR and mass spectrometry, multinuclear NMR (<sup>1</sup>H- and <sup>13</sup>C-NMR), and X-ray single crystal analysis. IR data showed that the ligand acts as a bidentate in the solid state. X-ray data showed the unsymmetrical nature of the ligand towards coordination to tin. It crystallized in the monoclinic P2<sub>1</sub>/n space group. Its geometry is distorted octahedral. Antimicrobial activity data shows that the complex exhibits significantly more activity than the free ligand.

**Key Words:** Dithiocarbamate, NMR, mass, antimicrobial study, X-ray structure

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