Synthesis and Structural Study of a New Complex Based Dithiole-Thione and Mercury

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A mercury (II) complex with 4.5-benzo-1.2-dithiol-3-thione (C₇H₄S₃) (1), [Hg₂Cl₄(C₇H₄S₃)₂] (2) was synthesized. The structure of the obtained complex (2) was characterized by crystallography, Infrared Spectroscopy (IR) analysis and theoretical study. The complex (2) has a dimeric structure, where each mercury atom takes a tetrahedral geometry and is coordinated by two bridging chloride, one terminal chloride and one thiocarbonyl sulfur atom (C=S) of the ligand.

Fig. 1 Proposed routes of the product (1) and (2).

Fig. 2 An Ortep view of the dimeric structure of [Hg₂(C₇H₄S₃)₂Cl₄].

Fig. 3 Intermolecular hydrogen bonding.

Fig. 4 Van Der Walls interactions.