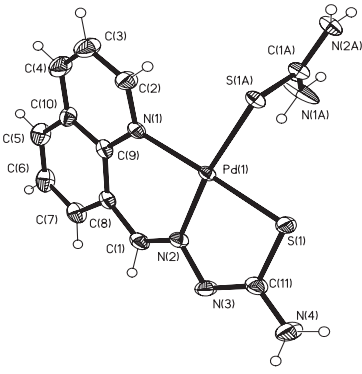
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STRUCTURE OF PALLADIUM COMPLEXES WITH 8-QUINOLINEALDEHYDE THIOSEMICARBAZONE

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The coordination compounds of palladium(II) with 8-quinolinaldehyde thiosemicarbazone (HQATSC) have not been described yet. When a solution of $K_2[PdCl_4]$ is treated with an equimolar amount of HQATSC in warm ethanol or dimethylformamide a yellow crystalline precipitate of Pd(QATSC)Cl is formed. The solubility of the resulted compound in DMF is increased when thiourea (Thio) is added. During 3 days yellow well defined crystals were formed and selected for X-ray investigation. The composition of the separated crystals can be described with a conventional formula $Pd(QATSC)Cl \cdot 1{,}5Thio \cdot H_2O$. A detailed X-ray investigation showed that the product is a new type of palladium complexes with HQATSC, formed by the cation $[Pd(QATSC)(Thio)]^+$, Cl^- anion, water and thiourea uncoordinated molecules. This result suggests that increasing of the ion solubility in the presence of Thio is due to the substitution of the chloride-ion from the inner sphere by thiourea molecule, resulting in formation of a cation-anion type of the complex. The structure of the complex cation is presented in the figure. The square-planar coordination of Pd(II) is provided by two nitrogen atoms and sulfur atom of the monodeprotonated residue of 8-quinolinealdehyde thiosemicarbazone. The bond distances in the palladium coordination polyhedron are: Pd(1)-N(1) 2.116(4), Pd(1)-N(2) 2.013(4), Pd(1)-S(1) 2.44(1), Pd-S(1A) 2.336(1) Å. The real composition of the complex is $[Pd(QATSC)(Thio)]Cl \cdot 0{,}5Thio \cdot 0.5H_2O$. The non-coordinated Thio and H_2O molecules are randomly disordered over two positions with occupancy factors equal to 0.5. The components are involved into system of hydrogen bonds, and the composition should be formally described by the dimeric formula $[Pd(QATSC)(Thio)]_2Cl_2 \cdot Thio \cdot H_2O$.



Structure of the cation $[Pd(QATSC)(Thio)]^+$