

Synthesis and structure of palladium complexes: $[\text{Ph}_4\text{Sb}]^+{}_2[\text{Pd}_2\text{I}_6]^{2-}$, $[\text{Ph}_4\text{Sb}(\text{DMSO})]^+{}_2[\text{Pd}_2\text{I}_6]^{2-}$, $[\text{Ph}_3\text{AmP}]^+{}_2[\text{Pd}_2\text{I}_6]^{2-}$ and $[\text{Ph}_3\text{EtP}]^+{}_2[\text{Pd}_2\text{I}_6]^{2-}$

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Keywords: synthesis, structure, complex, palladium.

Abstract

By the reaction of palladium diiodide with tetraphenylantimony iodide in aqueous solution of HBr obtained complex $[\text{Ph}_4\text{Sb}]^+{}_2[\text{Pd}_2\text{I}_6]^{2-}$ (**I**), whose recrystallization from dimethylsulfoxide led to the complex $[\text{Ph}_4\text{Sb}(\text{DMSO})]^+{}_2[\text{Pd}_2\text{I}_6]^{2-}$ (**II**). Similarly synthesized complexes $[\text{Ph}_3\text{AmP}]^+{}_2[\text{Pd}_2\text{I}_6]^{2-}$ (**III**) and $[\text{Ph}_3\text{EtP}]^+{}_2[\text{Pd}_2\text{I}_6]^{2-}$ (**IV**), whose composition is not changed by recrystallization. According to the X-Ray data, the complex **II** consists of trigonal-bipyramidal cation $[\text{Ph}_4\text{Sb}(\text{DMSO})]^+$ with the oxygen atom of the ligand dimethylsulfoxide in the axial position ($\text{Sb}\cdots\text{O}$ 2.481(4) Å) and planar centrosymmetric binuclear anions $[\text{Pd}_2\text{I}_6]^{2-}$ ($\text{Pd}-\text{I}_b$ 2.5875(5), 2.5965(7) Å, $\text{Pd}-\text{I}_t$ 2.5836(8), 2.6053(8) Å; *цис*-IPdI 85.35(2)°-93.35(3)°; *транс*-IPdI 175.75(3)°, 175.82(3)°). The crystals **III**, **IV** contain tetrahedral cations tetraorganylphosphonium (**III** P-C 1.785(4)-1.803(4) Å, CPC 108.6(2)°-110.6(2)°; **IV** P-C 1.792(3)-1.802(3) Å, CPC 106.55(13)°-112.10(14)°) and planar centrosymmetric binuclear anions (**III** $\text{Pd}-\text{I}_b$ 2.6061(4), 2.6093(4) Å, $\text{Pd}-\text{I}_t$ 2.6002(4), 2.6093(4) Å; *цис*-IPdI 84.224(14)°-95.775(15)°, *транс*-IPdI 175.778(16)°, 175.958(17)°; **IV** $\text{Pd}-\text{I}_b$ 2.6079(3), 2.6129(3) Å, $\text{Pd}-\text{I}_t$ 2.5913(3), 2.6065(3) Å; *цис*-IPdI 85.874(9)°-94.126(9)°, *транс*-IPdI 172.808(12)°, 173.125(12)°).