

SYNTHESIS, STRUCTURE AND SPECTROPHOTOMETRIC PROPERTIES OF PALLADIUM(II) 8-QUINOLINALDEHYDE N(4)-(2,4,6)- TRIMETHYLPHENYLTHIOSEMICARBAZONE

P. Bulmaga¹, P. Bouroș², A. Sîrbu¹, I. Corja¹, T. Cazac³

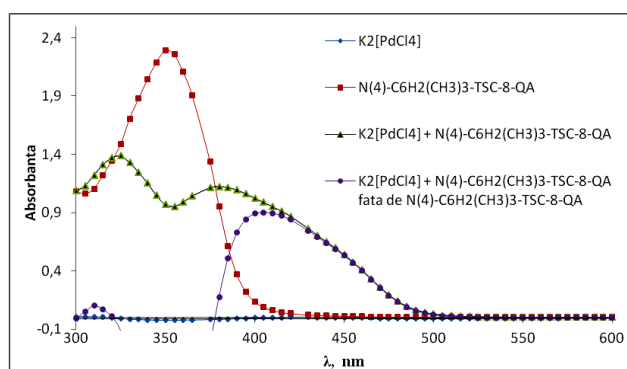
¹Moldova State University, 60 Mateevici Str., Chisinau MD 2009, Moldova

²Institute of Applied Physics of the Academy of Sciences of Moldova, MD 2028, Chisinau, Moldova

³Institute of Chemistry of the Academy of Sciences of Moldova, MD 2028, Chisinau, Moldova

pbulmaga@mail.ru

The paper reports the results of the spectrophotometric study of $K_2[PdCl_4]$ interaction with N(4)-(2,4,6)-trimethylphenylthiosemicarbazone of 8-quinolinaldehyde (L) in dimethylformamide-water solution, some properties of the resulted compound and its crystal structure. Classic methods have been used to perform the UV-VIS spectrophotometric study of $[PdCl_4]^{2-} \div L$ mixture in solution. The solution of the ligand, of the same concentration as of the



resulted complex, was used as reference. The results of the investigations clearly demonstrated a 1:1 ration of the reactants. The values of the molar absorption coefficient of the resulted complex in solution and its conditional stability constant have been calculated.

The result of the investigation of $[PtCl_4]^{2-} \div L$ system in solution demonstrated that the reagents react much slower than its

Pd(II) analogue. So the absorption electronic spectrum of the organic reagent remains nearly the same after $[PtCl_4]^{2-}$ is added. Only 40 minute later, the formation of a new absorption species was observed. This made possible the testation of N(4)-(2,4,6)-trimethylphenylthiosemicarbazone of 8-quinolinaldehyde as a spectrophotometric reagent for Pd(II) determination in the presence of Pt(II). Accordingly, concentrations of 0,5-11 ppm of Pd(II), containing a tenfold amount of Pt(II), could be determined with an average error of 2,5%.

From dimethylformamide-water solution of $[PdCl_4]^{2-} - L$ system a solid compound was separated. Upon its recrystallization from dimethylformamide- isopropyl alcohol mixture a red crystalline compound of PdLCl formula is formed.

Single crystal X-ray diffraction study demonstrated that the complex has a square-planar geometry. The ligand coordinates to the metal ions through quinolinic and azomethinic nitrogen atoms and sulfur. The fourth coordination site is taken by Cl^- ion. N(4)-(2,4,6)-trimethylphenyl fragment is positioned perpendicular to the plan formed by the metal ion and the ligand.

