

## CHEMICAL SCIENCES

---

Azizova A.N., Tagiyev D.B., Gasimov Sh.G., Gasanov Kh.I.

### INVESTIGATION OF Pt(II) AND Pd(II) COMPLEXES OF SOME ACIDIC HETEROCYCLIC HYDROZOANS

A.N.Azizova, Azerbaijan National Academy of Sciences, Institute of Catalysis and Inorganic Chemistry named after acad. M.Nagiyev, Baku, Azerbaijan

D.B.Tagiyev, Azerbaijan National Academy of Sciences, Institute of Catalysis and Inorganic Chemistry named after acad. M.Nagiyev, Baku, Azerbaijan

Sh.G.Gasimov, The Center for Scientific Research, Azerbaijan Medical University, Baku, Azerbaijan

Kh.I.Gasanov, The Center for Scientific Research, Azerbaijan Medical University, Baku, Azerbaijan

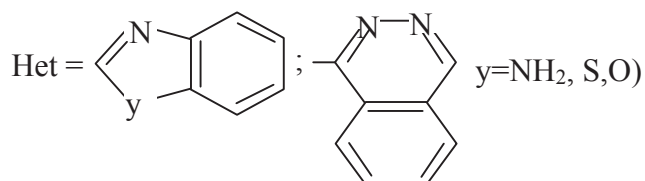
#### Abstract

To study the complexation and biological activity for the first time with use of a number glyoxalic acid derivatives some complexes of platinum(II) and palladium(II) were obtained. Bacteriostatic activity of the platinum and palladium complexes obtained on the basis of hetaryl hydrazones of glyoxalic acid against microbes *Staphylococcus aureus* and *Escherichia coli* is studied. Analysis of the obtained results showed that the high biological activity shown platinum and palladium complexes of quinoline hydrazone derivative of glyoxalic acid.

**Keywords:** *platinum (II)*, *palladium (II)*, glyoxalic acid, complexation and biological activity.

To study the complexation and biological activity for the first time with use of a number glyoxalic acid derivatives some complexes of platinum(II) and palladium(II) were obtained.

As a ligand it was used  $\text{Het}-\text{N}-\text{N}=\text{CH}_2-\text{COOH}$  ( $\text{R}-\text{H}$ ;  $-\text{C}_2\text{H}_5$ ,  
 $\text{R}$ )

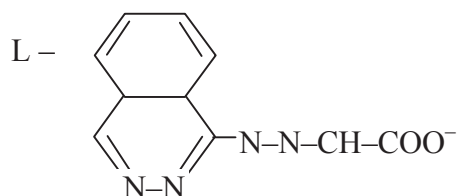


The composition and structure of synthesized complexes was investigated by elemental analysis, IR, NMR and electron spectroscopy methods.

At interaction of noted hydrazones with acetates and chlorides of palladium and platinum, complex compounds with the general formula  $[\text{Me}(\text{HL})_2]$  ( $\text{Me}=\text{Pt}, \text{Pd}$ ) were obtained. HL- is mono protonated form of hydrozone. Namely, the composition and structure of these complexes were determined by IR spectroscopy and DTA. The observed absorption bands at  $470$  and  $476 \text{ cm}^{-1}$  on the IR spectra of both complexes, respectively, were correlated to the valence bonds  $\nu_{\text{Pt-N}}$  и  $\nu_{\text{Pd-N}}$ . And other observed absorption bands at  $356$  and  $362 \text{ cm}^{-1}$  were correlated to the valence bonds  $\nu_{\text{Pt-N}}$  and  $\nu_{\text{Pd-N}}$  [1-3].

On the basis of palladium and platinum acetates with quinolinol and benzoxazolyl hydrazone were obtained mononuclear metal-chelate complexes with the composition  $[\text{MeL}]\text{CH}_3\text{OH}$ .

Binuclear complexes of platinum and palladium by influence of glyoxylic acid and ftalazinoil hydrazone were obtained. In these complexes dimerization occur both at the expense of the donor atoms of the carboxyl group, and diazine chain of phthalazine fragment and as a result formed complexes of the type  $[\text{Me}_2\text{L}]$ .



The structure of these complexes obtained on the basis of platinum and palladium acetate was confirmed by PMR- and IR-spectroscopy.

**References:**

- [1] Tagiyev D.B., Azizova A.N., Imamverdiyeva S.R. Asadov M.M. A novel bioactive compound of palladium(II) with mercaptoethanol // 3rd International Conference on Nanotechnologies and Biomedical Engineering. ICNBME-2015. P. 289–291.
- [2] Asadov M.M., Azizova A.N., Imamverdiyeva S.R., Tagiyev D.B. Calculation of the Constant of Solutions Containing Platinum(II) complex // Technical Program. The Hall of Conf. Room. CDSM 2015. Shenyang China August 17–19. P-8.
- [3] Azizova A.N., Gasimov Sh.G., Tagiyev D.B., Gasanov Kh.İ. Hexanuclear complex of platinum(II) with cleavage product of cystamine dihydrochloride by  $\beta$ -mercaptoethylamine // J. Advances in Chem. Eng. and Sci. January 2016. V. 6. No 1. P. 29–34.