

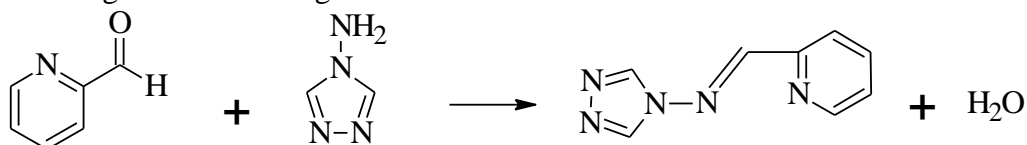
**STUDY OF THE THERMODYNAMICS OF FORMATION OF COPPER (II)
COMPLEX COMPOUNDS WITH N-[(E)-PYRIDINE-2-ILMETHYLIDENE]-4H-1,2,4 -
TRIAZOL- 4 –AMINE**

T. Isac-Gutul¹, A. Paholinitcaia¹, E. Tutovan¹, C. Dorogoncean¹

¹ *Laboratory of Advanced materials in biopharmaceutical, Department of Chemistry, Moldova State University, 60, Mateevici str. Chisinau, MD 2009, Moldova,
e-mail: t_isac@mail.ru*

At present for the elimination of cations of some metals from various systems with special properties and in order to maintain these important properties, more often there are used different ligands. These ligands used in biological and industrial systems should have the following properties: selectivity, excretion, metabolic integration, etc. For example, copper metabolism disorders lead to some diseases such as Menkes and Wilson diseases.

Synthesis of N-[(E)-pyridine-2-ylmethylidene]-4H-1,2,4-triazol-4-amine ligand was realized according to the following scheme:



The complex compound was obtained by mixing of ligand and $\text{Cu}(\text{NO}_3)_2$ aqueous solutions of concentration 0,03 M. Spectrophotometric method was used for the determination of the composition and stability constants of forming complex compounds. There was used the solution of copper nitrate and the exact concentration of copper was determined by iodometric method.

It was established that the maximum of absorption of the complex compound is at $\lambda = 700$ nm and the value of pH at which the absorption is maximal at all wave lengths is equal to 5,1.

By Ostromislensky-Job method it was determined that the composition of complex compounds of copper with the obtained ligand corresponds to the following ratio of components: $\text{Cu(II):L} = 1:1$ (table I). The value of stability constant of complex compound was determined by graphical method Bennesi-Hildebrand and by classic method Komari.

Table I. Determination of composition of complex compound CuL

N	V($\text{Cu}(\text{NO}_3)_2$), ml	V ligand, ml	$V_M/(V_M+V_L)$	ΔA
	0,5	4,5	0,1	0,108
2	1	4	0,2	0,157
3	1,4	3,6	0,28	0,208
4	1,7	3,3	0,34	0,218
5	2	3	0,4	0,231
6	2,5	2,5	0,5	0,219
7	3	2	0,6	0,159
8	4	1	0,8	0,08
9	4,5	0,5	0,9	0,007
10	5	0	1	0

Stability constant of complex compound of copper (II) with N-[(E)-pyridine-2-ylmethylidene]-4H-1,2,4-triazol-4-amine in aqueous solution at pH = 5,1 is equal to $\beta = 562.34 \text{ l} \cdot \text{mol}^{-1}$.