**THERMODYNAMICS OF COMPLEXFORMATION REACTIONS FOR HETEROCYCLIC LIGANDS** **WITH IONS *D*-METALS .**

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The influence of mixed solvents water - ethanol and water – dimethilsulfoxide solvents on coordination equilibrium thermodynamic characteristics with the participation of nicotinamide and a nicotinic acid is considered.

For the first time a silver (I) with nicotinamide (NicNH2), a copper (II) with nicotinamide, an iron (III) with nicotinamide and a nicotinic acid stability constants by a pothentiomtic titration method have been obtained.

Heat effects of the acid-base interactions with the participation of these ligands and complex formation reactions in a wide interval of concentrations of the mixed solvents at temperature 298.15 and ionic strength 0.25 (NaClO4) are measured for the first time.

By the methods of interphase distribution, solubility, UV-spectroscopy, refractometry the nicotinic acid and nicotinamide Gibbs energy transfer from water to its mixture with ethanol and DMSO have been determined .

The interpretation of the results is done within the framework of the solvation-thermodynamic approach based on the thermodynamic characteristics of complex formation and the acid-base interaction reactions and also on the solvation of each participant of chemical equilibrium.

In water-ethanol and water-dimethilsulfoxide mixtures an unusual ratio of reagents contributions into the displacement of complex formation equilibrium and into the reactions energy, which was not observed earlier investigated systems is given.

It is shown that the opportunity of the direct regulation of biologically active compounds transport properties at the stage of their penetration through biological membranes by means of water-organic solvents.

For the first time the thermodynamic data of complex formanion reactions and reagents solvation are used for the interpretation of medium effects for pharmacology active substances through biological barriers in transport processes.

The existence of zwitter-ionic form of nicotinic acid in water solutions and of a molecular form – in ethanol medium is shown. Thermochemical evidence of changing nicotinic acid protonation mechanism in the of ethanol solution as compared with water has been presented.