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SCIENTIFIC CONFERENCE OF YOUNG SCIENTISTS

Dedicated to the memory
of Academician Sabir Yunusovich Yunusov

March 17, 2022

TASHKENT

ACADEMICIAN
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(1909-1995)

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2. Biotechnology and orgamic chemistry.

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STRUCTURE OF ACYLHYDRASONES OF FERROCENE

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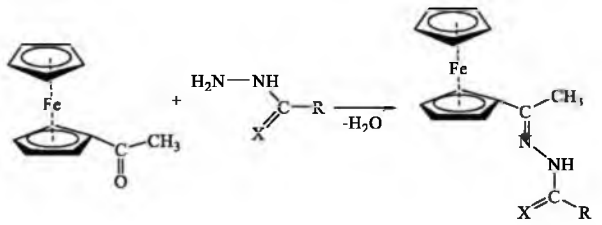
To expand the line of bidentate chelating ligand systeme containing ferrocene fragments, we synthesized hydrazonts of acetic, benzoic, phenilacetic acids and thiosemicarbazide new ligands HL1- HL4 by condensation of acetylferrocene. For hydrazones of monocarbonyl derivates of ferrocene, at the theoretical level, it is quite probable that there are 8 isomeric forms with different locations of two substituents of the ketone part relative to the C=N bond and the acylhydrazone part relative to the N–N bond, for example, the N–N bond and the amide considered partly double. This behavior of the ligand molecule is due to the π-p-π conjugation system, which includes C=N and C=O bonds and the lone pair of electrons of electrons of the N atom and the planar location of the substituents of the acylhydrazone moiety. We have studied condensation reactions and tautomeric behavior of the reaction products of monocarboxylic acid hydrazides with monoacetylferrocene (MAF):



X=O: R=CH3 (HL1), C6H5 (HL2), C6H5-CH2 (HL3). X=S, R=NH2 (HL4).

We have determined that hydrazones of monocarbonyl compounds predominantly exist in the form of a hydrazone form of a hydrazone form and, in the process of complex formation, react in the enhydrazime – □-oxyazine form. In the IR spectrum of all ligands, absorption bands were registered, assignd to □s and □as vibrations of N–N, N–H, C=N and C–N, bonds near 1025-1035, 3215-3225, 1630-1645 and 1285-1290 см–1.

The structure of the synthesized compounds in solution was established by 1H NMR. In the spectrum of HL2 in a solution of ДМСО-d6+CCl4, a singlet signal at δ 1,88 ppm, assigned to the protons of the CH3. A signal with an intensity of one proton in a field (δ 10,20 ppm) is related to the N-H proton, and the protons of the phenyl group with a total intensity of five protons resonate in the form of a multiplet centered at 7,45 and 7,74 ppm. The shape of the spectrum does not change with time, indicating that in this solvent there are no likely tautomeric transitions to the linear enhydrazine and cyclic 5-hydroxypyrazoline forms.

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