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**S.Yu. Yunusov Institute of the
Chemistry of Plant Substances**



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**"ACTUAL PROBLEMS OF THE CHEMISTRY OF
NATURAL COMPOUNDS»**

SCIENTIFIC CONFERENCE OF YOUNG SCIENTISTS

Dedicated to the memory
of Academician Sabir Yunusovich Yunusov

March 17, 2022

TASHKENT



**ACADEMICIAN
SABIR YUNUSOVICH YUNUSOV
(1909-1995)**

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2. Biotechnology and organic chemistry.

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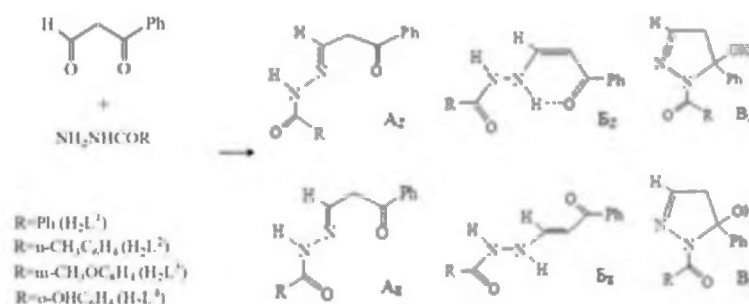
INTERACTION OF AROYLACETIC ALDEHYDE WITH AROMATIC ACID HYDRASIDES

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The products of the interaction of aroylacetic aldehyde with aromatic acid hydrazides ($H_2NNHCOR$) are compounds potentially capable of existing in linear (hydrazone A and enhydrazine B) and in five-membered cyclic 5-hydroxy-2-pyrazoline (B) tautomeric forms. The composition of the resulting condensation products, potentially representing ligands for the synthesis of complex compounds of transition metals, the structure of which was established using modern research methods, such as IR and PMR spectroscopy, was identified and determined by elemental analysis.

It turned out that when the reaction is carried out in methanol in an equimolar ratio, it proceeds with 100% regioselectivity at the C=O formyl bond, and the forming compounds are isolated in enhydrazine form B:



The compounds are poorly soluble in CDCl₃; therefore, DMSO-d₆ was used as a solvent. When compounds (H_2L^1 - H_2L^4) having electron-withdrawing substituents in the aromatic nucleus are kept in solutions in DMSO-d₆, a complex ring-chain equilibrium is established, in which hydrazone (A), enhydrazine (B) and cyclic 5-hydroxy-2-pyrazoline (B) shapes.

The condensation products of benzoylacetic aldehyde with substituted aroylhydrazides (H_2L^1 - H_2L^4) in solutions are dominated by linear: E-hydrazone (A_E) and E-enhydrazine (B_E and B_Z) forms. This is evidenced by the parameters of the PMR spectra. To unambiguously prove the conclusions of IR and NMR spectroscopy on the linear structure of the obtained organic ligands, we grew single crystals of C₁₇H₁₆N₂O₄ by recrystallization of the H_2L^8 ligand and deciphered the crystal structure by XRD.