Products of Interaction of Azomethines of α-Chloro-α-isonitrosoketones with Tris(oxymethylene)aminomethane and their Hydrolysis

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Investigations in the field of chemistry of alpha-chloro-alpha-isonitrozoketones direct on investigations of systems with high reactivity which capable to tautomeric, isomeric or to other dynamic regroupings; besides interest to this class of compounds is conditioned by data about breath of biological action of derivatives of acylformamidoximes.

Among products of interaction of azomethines of alpha-chloro-alpha-isonitrozoacetone(acetophenone) with tris(oxymethylene)aminomethane products of heterocyclization: azomethynes (oxime, semicabazone, phenylhydrazone and hydrochloride of phenylhydrazone in the case of acetone and oxime and phenylhydrazone in the case of acetophenone) of 3-acyl-5,5-dioxymethylene-5,6-dihydro-4H-1,2,4-oxadiazines (I-VI) were found. Also in the interaction of oxime and phenylhydrazone of alpha-chloro-alpha-isonitrozoacetophenone with tris(oxymethylene)aminomethane besides basic products minor products were obtained: oxime of benzoylformamidoxime (VII) with yield 10% and 2,5-diphenyl-1,2,-triazolyl-3-on (VIII) with yield 14%.

It is found that hydrolysis of oxadiazines (I-VII) differently proceeds: in the case of acetyloxadiazines (I-IV) hydrolysis happens in water sufficiently easily (90^{o}C, 1-2h) with the opening of ring and leads to E-isomers of oxime and hydrazones of N-[tris(oxymethylene)methyl]-acetylformamidoxime (IX-XI). Hydrolysis of derivatives of 3-benzoyldihydrooxadiazines (V, VI) occurs at long boiling in water during 20 and 60h and leads to oxime and phenylhydrazone of N-[tris(oxymethylene)methyl]amide of benzoylformic acid (XII, XIII). Multihour heating in absolute ethanol of oxime (V) with equivalent amount of water don’t lead to formation of amide (X). At correlation oxime:water equal to 1:2 through 100h of heating amide (X) was isolated with yield 75%. Obviously mechanism of hydrolysis of this both groups of compound has different direction and connects with character of 3-acyl group.

Products of interaction of alpha - chloro-alpha-isonitrozoketones with tris[(oxymethylene)-methyl]aminomethane and products of hydrolysis of azomethines of oxadiazines were described with the help of elemental analysis, IR and NMR (^{1}H and ^{13}C) spectroscopy. At mass-spectrometric description of azomethynes of 3-acyl-5,5-dioxymethylene-5,6-dihydro-H-1,2,-oxadiazines (I-VI) absence of peak of molecular ion was found. Highest possible on molecular mass fragment ions were received by alienation of fragments $CH_3^{\bullet}$ and $CH_2OH^{\bullet}$ + $CH_3^{\bullet}$ from brief living, nonfixed molecular ions.

Compounds with high antibacterial activity in relation to bacteria *Staphylococcus aureus, st. 209* and *Escherichia coli, st.1257* were found among nitrogen derivatives of 1,2,4-oxadiazines.