the mixture had become colorless, the solvent was removed, and the residue was washed with ether and recrystallized from ethanol to give 1.8 g (63%) of X with mp 110-111°. An identical sample of X (according to the IR spectra) was also obtained in 60% yield by heating IX in excess hydrobromic acid.

The results of elementary analysis of IV-IX for C, H, and N were in agreement with the calculated values.

SYNTHESIS OF 4(5H)-OXAZOLONIUM SALTS

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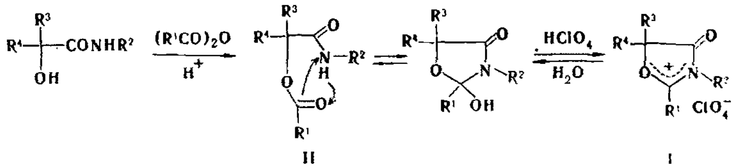
UDC 547.787.07

We have established that representatives of a new class of compounds – 2-alkyl-4(5H)-oxazolonium salts (I) – are formed in the reaction of α-hydroxy carboxylic acid amides with aliphatic acid anhydrides in the presence of 70% perchloric acid.



The IR spectra of salts I contain a highly intense characteristic band of carbonyl absorption at 1830 cm^{-1}. This sort of anomalously high frequency indicates an increase in the multiplicity of the C=O bond because of a shift in the electron density from the carbonyl oxygen atom to the positively charged fragment of the molecule. The 70-cm^{-1} increase in this frequency in the spectra of I as compared, for example, with the spectra of 4H-1,3-benzoxazin-4-onium salts (1755-1766 cm^{-1}) is due to additional strengthening of the bond because of the strained character of the five-membered ring. The absorption bands at 1590 and 1515-1548 cm^{-1} are probably due to the skeletal vibrations of the oxazolonium cation (primarily those of the $O{=}\overset{+}{C}{=}N$ fragment). The signals of the 2-methyl groups, which appear in the PMR spectra of Ia-c,e at 2.4-2.5 ppm (CF_3COOH, 20°C, hexamethyldisiloxane), constitute evidence for localization of the positive charge on this fragment, viz., concentration of the partial charge of the cation on the meso carbon atom.

When salts I are treated with water, alcohol, or ammonia, the oxazolonium ring is opened to give α-acyloxy carboxylic acid amides (II) in quantitative yields. This method was used to obtain α-acetoxypyruvic acid anilide, with mp 121-122° (from aqueous alcohol) (the melting

TABLE 1

Compound	R¹	R²	R³	R⁴	mp, °C	Yield, %
Ia	CH_3	H	CH_3	H	85	98
Ib	CH_3	C_6H_5	CH_3	H	135–137	90
Ic	CH_3	C_6H_5	CH_3	CH_3	174–176	66
Id	C_3H_7	C_6H_5	CH_3	CH_3	126–127,5	59
Ie	CH_3	C_6H_5	—$(CH_2)_5$—		225	75

Rostov State University. Scientific-Research Institute of Physical and Organic Chemistry, Rostov-on-Don 344006. Translated from Khimiya Geterotsiklicheskikh Soedinenii, No. 5, p. 702, May, 1977. Original article submitted August 24, 1976.

point is in agreement with the reported value), and 1-acetoxycyclohexanecarboxylic acid anilide with mp 130-132° (purified by chromatography on Al_2O_3 in $CHCl_3$). IR spectrum of the latter: 3400, 3280, 1720, 1667, 1609, 1540, and 1510 cm^{-1}.

The compositions of the synthesized compounds were confirmed by the results of elementary analysis.

SYNTHESIS OF 3,4,4-TRINITRO-Δ^1-PYRAZOLINES

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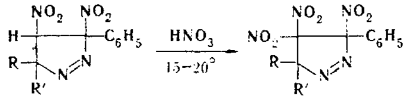
UDC 547.772.2'773'778.2.07

We have found that 3,4-dinitro-Δ^1-pyrazolines with a labile hydrogen atom in the 4 position of the pyrazoline ring are converted to 3,4,4-trinitro-Δ^1-pyrazolines (I-IV) when they are treated with nitric acid (sp. gr. 1.51) at 15-20° for 5-10 h. The products slowly decompose at 20-25° with the evolution of nitrogen oxides to give resinous products. The PMR spectra of I-IV do not contain the signal of a CH group.



I-IV

I $R = R' = C_6H_5$; II R and R' = diphenylene; III $R = C_6H_5$, $R' = p\text{-}BrC_6H_4$;

IV $R = CH_3$, $R' = p\text{-}NO_2C_6H_4$

The following compounds were obtained: I, mp 72°, 97% yield; II, mp 116°, 91% yield; III, mp 79°, 93% yield; IV, mp 63°, 94% yield. The compounds melt with decomposition. They were purified by reprecipitation from acetone solution by the addition of water.

The results of elementary analysis of I-IV were in agreement with the calculated values.

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SYNTHESIS OF SUBSTITUTED 6H-DIBENZO[b,d]PYRAN-6-ONE

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and L. V. Efimova

UDC 547.814.07:543.422.4'544

We have shown that intramolecular substitution of the o-nitro group to give 6H-dibenzo[b,d]pyran-6-one derivatives (IIa-d) occurs when o-nitrodiphenylcarboxylic acids (Ia-d) are refluxed in quinoline.

A solution of 0.005 mole of the appropriate acid I was refluxed in 20 ml of quinoline, after which the mixture was cooled and treated with 10% sodium carbonate solution. The sodium carbonate extract was acidified to pH 5 with hydrochloric acid, and the precipitate was removed by filtration, washed with water, and dried to give 6H-dibenzo[b,d]pyran-6-ones II. The following compounds were obtained: (reaction time, yield, and melting point given): IIa,

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