SYNTHESIS OF N-ACYL- AND N-AROYL-2-OXAZOLIDONES

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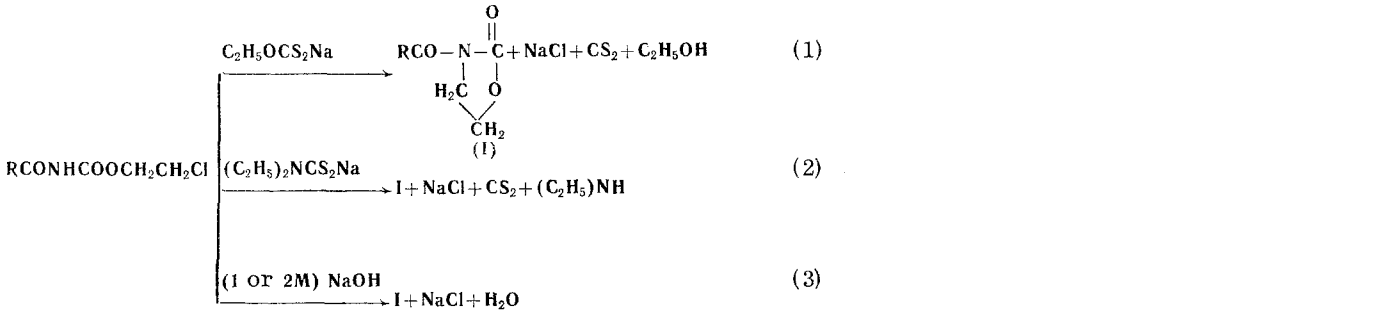
The action on β-chloroethyl N-alkylcarbamates of salts of xanthic and dithiocarbamic acids or caustic soda has given good yields of the otherwise difficult to obtain N-acyl-2-oxazolidones.

2-Oxazolidones have been studied fairly well, but there has not previously been a convenient method for obtaining N-acyl-2-oxazolidones (I) and their chemistry is still little known [1].

In an attempt to obtain β-substituted ethyl N-alkyl-carbamates by the action on β-chloroethyl N-alkylcarbamates of salts of xanthic or dithiocarbamic acid or caustic soda, we obtained the corresponding compounds I. An investigation of the above-mentioned reaction using gas chromatography showed that the following reactions take place:



All three reactions take place smoothly in anhydrous ethanolic solution when equimolecular amounts of the reactants are heated for 1 hr 30 min–2 hr in the water bath and permit compounds I, which were previously difficult of access, to be obtained in good yield. Thus, by reaction 1 were obtained: **N-(p-chlorobenzoyl)-2-oxazolidone (Ia)**, 99%, 170°–171° C (benzene). Found, %: C 53.29; H 3.63; Cl 15.85; N 6.35%; mol. wt. 228.1. Calculated for $C_{10}H_8ClNO_3$, %: C 53.21; H 3.55; Cl 15.74; N 6.20; mol. wt. 225.5. **N-Benzoyl-2-oxazolidone (Ib)**, 96%, mp 173°–174° C (ethanol). Found, %: N 7.45. Calculated for $C_{10}H_9NO_3$, %: N 7.32. **N-(Phenoxyacetyl)-2-oxazolidone**, 90%, mp 95.5°–96.5° C (ethanol—heptane). Found, %: N 6.47. Calculated for $C_{11}H_{11}NO_4$, %: N 6.33. **N-(2-Cresoxyacetyl)-2-oxazolidone**, 95%, mp 167°–168° C (benzene—isooctane). Found, %: N 6.14. Calculated for $C_{12}H_{18}NO_4$, %: N 5.96. **N-(2,4-Dichlorophenoxyacetyl)-2-oxazolidone**, 65%, mp 171°–173° C (benzene—isooctane). Found, %: Cl 24.48. Found for $C_{11}H_{11}Cl_2NO_4$, %: Cl 24.43.

The structure of the compounds obtained was also confirmed by their IR and UV spectra. The reaction according to Eq. 3 can also be carried out in 70% aqueous ethanolic alkali, but in this case at a ratio of the reactants of 1 : 1 we obtained, for example, **Ia** with a yield of 97% while the synthesis of **Ib** under similar conditions could be carried out (with a yield of 80%) only with a twofold excess of NaOH.

REFERENCE

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