SYNTHESIS OF NITRILE CONTAINING THIIRANES

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Until recently thiiranes were considered only theoretically interesting types of compounds the chemistry of which investigated for elucidation of nature of three-membered heterocyclic compounds. Recently the relation to these substances radically changed. The accumulated informations about properties and reactivities of thiiranes made the essential contribution to theoretical organic chemistry and showed a wide perspective of their use in syntheses of polymer substances, physiologically active compounds, modifiers to epoxide compounds and so on [1].

Now the numerous works have been devoted to the study of properties and methods of synthesis of thiiranes. In spite of this any data of synthesis and study of properties of nitrile containing epithio compounds are absent in the literature.

With the aim of nitrile containing thiiranes we have used the reaction between $\beta$ (alkyl, alkenyl, cycloalkyl) aminopropionitriles and thioepichlorohydrins on scheme:

$$\xrightarrow{\text{KOH}}$$

where $R$ - alk(C1-C4), alkenyl- (3), cycloalkyl (C5-C6)

Under action of thioepichlorohydrin the used aminonitriles are converted to the corresponding chlorohydrins the following treatment with potassium hydroxide of which allows to synthesize new epoxynitrile. The optimal conditions of formation from corresponding $\beta$-substituted aminonitriles and thioepichlorohydrins of epoxynitriles have been found. An influence of nature of $R$-radical on yield of purposeful products has been established.

It has been established that the synthesized thiiranes may be used as a modifier of epoxide resin of type ED-20.

Reference