STEREO- AND REGIO-SELECTIVE FORMATION OF TELOMERS OF 2-OXAZOLONE WITH POLYHALOMETHANES (STRUCTURE AND REACTIVITY)

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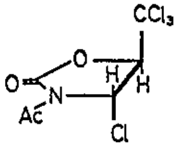
In the course of study on vinylene carbonate (1,3-dioxol-2-one) telomers utilized as versatile intermediates for aldose synthesis, we have found that five-membered heterocycle, 3-acetyl-2-oxazolone (1) readily undergoes free radical homopolymerization to give a polymer with carbon-carbon backbone structure resulting from double bond addition, in strong contrast to the concept that 1,2-disubstituted olefies cannot be homopolymerized under conventional conditions due to the steric hindrance.

Radical telomerization of such a heterocycle also proceeds smoothly in the medium of chain transfer agents such as polyhalomethanes to give novel telomers not easily otherwise accessible in high stereo- and regio-selectivity. Thus, reaction of (1) with CCl_4 resulted in stereo-selective formation of one isomer (2) as 1:1 telomer and two isomers (3) and (4) as 2:1 telomers which are structually assigned as trans-addition products, based on H-NMR and ^{13}C-NMR spectral data. Reactivities of the telomers thus isolated are discussed in comparison with those of vinylene carbonate telomers.



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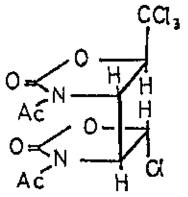

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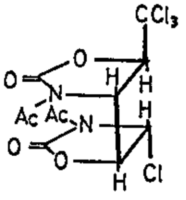

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