

STUDY OF CONDENSATION OF VINYL-*GEM*-DICHLOROCYCLOPROPANES WITH FORMALDEHYDE IN WATER AND ORGANIC MEDIUMS

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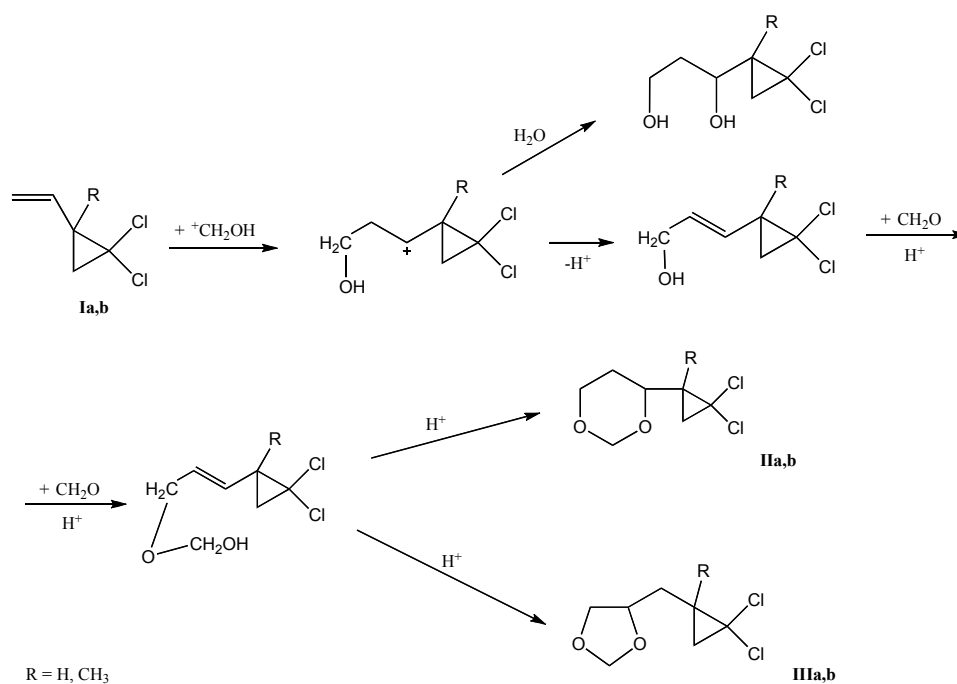
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Condensation of unsaturated compounds with formaldehyde in presence of acid catalysts (Prince reaction) successfully proceeds in both water and water-organic and organic mediums. But composition and structure of the products appreciably depend on solvent nature¹.

We discovered that hydrophobic vinyl-*gem*-dichlorocyclopropanes **Ia,b** react with formaldehyde in water in presence of solid acid catalysts (cation exchanger, zeolites and others) with formation of glycols and unsaturated alcohols. 1,3-Dioxocycloalkanes containing *gem*-dichlorocyclopropane fragments are not formed under these conditions. On the other hand the reaction proceeds towards a formation of the corresponding 4-substituted 1,3-dioxocycloalkanes in organic solvents (1,2-dichloroethane, 1,4-dioxane, isopropyl ether and others) under action of homo- or heterogeneous catalysts.





Evidently the transformations of the 1,3-diol and unsaturated alcohol do not take place in water medium. Whereas in organic medium those intermediates quickly react with formaldehyde and the reaction finishes by formation of the corresponding 5- and 6-membered heterocycles.

[1] Talipov R.F. et al. // Zhurnal Organicheskoy Khimii. – 1996. – Vol. 66, No. 8. – P. 1382