

Diastereoselective synthesis of α -hydroxybenzylphosphonates from *P-H*-spiroposphorane obtained on the base of (*dl*)-hydrobenzoin

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Abstract

Stereoselective reactions, which lead to the formation of individual stereoisomers of α -hetero-substituted phosphonic derivatives with P-C bond, recently become of particular importance, because these compounds are claimed due to many useful properties. Among them their biological activity is the most interesting. In the present communication we described the reactions of *P-H*-spiroposphorane, prepared from racemic (*dl*)-hydrobenzoin, with benzaldehyde and *p*-nitrobenzaldehyde. The intermediate products of these interactions are corresponding diastereomeric P(V) derivatives, which formed through the stereoselective addition of P-H bond to carbonyl group of aldehydes. As a result of their decomposition according Evans reaction scheme, due to its instability at the reaction conditions (heating up to 90 °C in toluene in a sealed tube), 2-(α -hydroxybenzyl)-2-oxo-1,3,2-dioxaphospholanes were isolated as diastereoisomeric mixtures with *de* equal 60% and 82%. The reaction products are crystalline substances. Their elemental composition and structure have been established using the methods of ¹H and ³¹P NMR and IR spectroscopy as well as elemental analysis. In some cases *trans*-stilbene oxide was isolated from the mother liquor. This fact confirms the assumed reaction scheme.