Steric Hindrances to the Cycloaddition of (*Z*)-1-Arylmethylidene-5,5-dimethyl-3-oxopyrazolidin-1-ium-2-ides to *N*-Arylmaleimides

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Received February 25, 2015

Abstract—Sterically hindered cycloaddition of (*Z*)-1-arylmethylidene-5,5-dimethyl-3-oxopyrazolidin-1-ium-2-ides to 4-mono- and 2,6-disubstituted *N*-arylmaleimides requires prolonged heating (40–60 h) at ~150–155°C and yields mixtures of diastereoisomeric cycloadducts. The observed diastereoselectivity is determined by both electronic and steric interactions, depending on the nature and position of substituents in the azomethine imine and maleimide. The reactions of (*Z*)-1-(2,6-dichlorobenzylidene)-5,5-dimethyl-3-oxopyrazolidin-1-ium-2-ide with 4-substituted *N*-arylmaleimides give mainly the corresponding *cis* adducts as a result of preferential *exo* attack by the dipolarophile, whereas *trans* adducts predominate in the cycloaddition of (*Z*)-1-(4-X-benzylidene)-5,5-dimethyl-3-oxopyrazolidin-1-ium-2-ide and (*Z*)-1-(2,6-dichlorobenzylidene)-5,5-dimethyl-3-oxopyrazolidin-1-ium-2-ide to 2,6-disubstituted *N*-arylmaleimides.

DOI: 10.1134/S1070428015070143