Enantiospecific 1,3-Dipolar Cycloadditions Between Azadienophiles and 2-Phenyl-4,4a-dihydropyrano[3,2-*d*][1,3]dioxin-6(8a*H*)-one

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Aza-sugars are one of most attractive classes of compounds to organic synthetic chemists due to their large spectrum of activity against preeminent diseases like cancer, viruses, bacteria diseases, diabetes and metabolic disorders.[1] We have been looking at the usefulness of D-erythrose derivatives,[2] readily obtained from D-glucose[3] in the synthesis of aza-sugars. One of such erythrose derivatives **1** have been tested in our group as chiral synthons in 1,3-dipolar cycloaddition in view of developing a route to the synthesis of iminosugars. Benzylazide, diazo compounds and nitrile oxides were reacted as dienophiles in combination with compound **1**. Products were formed with total *stereo*-selectivity in all cases and with total *regio*-selectivity with benzylazide and diazo compounds. The homochiral nature of cycloadducts and the yields obtained strongly encourages its manipulation towards aza-sugar compounds.