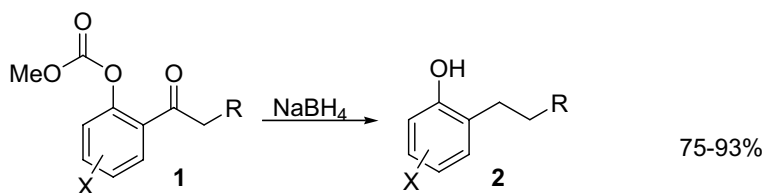


PROBLEMS

December 11, 2008

1.- Mitchell and coworkers at Lilly reported a general study, based on work by McLoughlin, of the reduction of various carbonates of 2-hydroxyacetophenone derivatives (**1**) with NaBH_4 . Interestingly, the reactions afford the deoxygenated compounds (**2**) in good yield. Provide a plausible mechanism for this reaction.



2.- A synthesis of lycoramine was published in **2004**. A sequence from the report is provided below. Provide a mechanism for the overall transformation (**A** to **B**) that explains the high diastereoselectivity of this process. Your answer should highlight intermediate **X**.

