

## Cooperative Catalysis in C-Glycosidation of Unprotected Di- and Trisaccharide Aldopyranoses with Ketones

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Carbohydrates have gained much interest due to its wide applications in biochemistry, medicinal chemistry and drug discovery. As a consequence synthesis of carbohydrate derivatives is of great importance over the years. C-Glycosidation of carbohydrates is one of the important reactions for the synthesis of carbohydrate-derived pharmaceuticals, glycoconjugates and other functional carbohydrate derivatives. However direct C-glycosidation reactions of unprotected carbohydrates are often difficult due to the interaction between the catalyst/reagents and the hydroxyl groups in carbohydrates. Thus, glycosidations are generally carried out by protecting the hydroxyl groups. In addition, C-glycosidation reactions have often been performed on pre-activated forms of carbohydrates or on specific precursors bearing functional groups for the bond formation at the anomeric carbons. From the point of view of green chemistry it is highly desirable to develop an efficient and direct methodology for the C-glycosidations of unprotected carbohydrates avoiding the steps for protection/deprotections and generation of activated anomeric carbon. Although there are few methodologies for C-glycosidations of unprotected monosaccharides; C-glycosidations of unprotected disaccharides/trisaccharides are scarce. We have developed a cooperative catalytic system for the direct C-glycosidation of unprotected di- and trisaccharide aldopyranoses with ketones under room temperature (Figure 1). Insights obtained from our investigation on cooperative catalysis for the C-glycosidation will be useful for the development of related reactions.

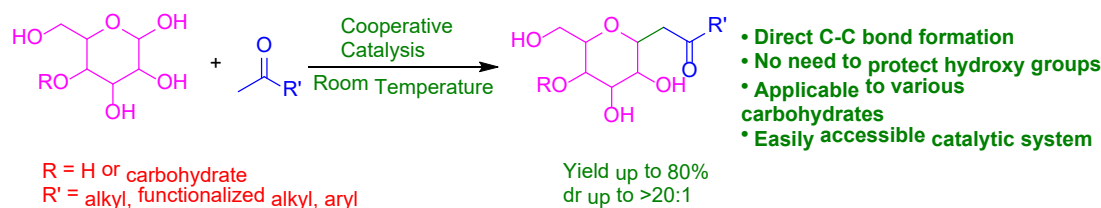


Figure 1. C-Glycosidation of Unprotected Di- and Trisaccharide

### Biography:

Avik Kumar Bagdi received his B.Sc. (2007) and M.Sc. (2009) in chemistry from Visva-Bharati (India). He received his Ph.D. degree (2014) in organic chemistry from the same university, under the supervision of Dr. Alakananda Hajra. He received "2014 Lilly Outstanding Thesis Awards". Dr. Bagdi carried out his post doctoral research with Prof. Fujie Tanaka in Okinawa Institute of Science and Technology Graduate University (OIST), Okinawa, Japan. Currently, Dr. Bagdi is an assistant professor in Trivenidevi Bhalotia College, Raniganj and he is also a visiting researcher in OIST, Okinawa, Japan. His current research interest is focused on the development of copper-catalyzed novel methodologies for the synthesis of heterocyclic compounds.