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Title: Studies on the Stereoselective Synthesis of 2-Deoxy-glycosides

Abstract 2-Deoxy and 2,6-dideoxy-glycosides are integral part of many biologically active natural products such as angucyclines, anthracyclines, aureolicids, cardiac glycosides, avermectins, and pluramycins. As a result, many methods have been developed for the synthesis of 2-deoxy-glycosides but the main problems encountered are the formation of glycal under acidic conditions and the uncertain stereochemical outcome in the absence of C-2 hydroxyl group. Although the structures of deoxy-sugars are diverse, they all share one commonality. Specifically, the lack of oxygenation at C-2 precludes the use of well-established strategies for controlling the selectivity in the glycosylation reactions used for their assembly into larger oligosaccharides. Accordingly, there has been sustained interest in methods for their synthesis over the past few decades. The approaches that have been developed can be broadly categorized into five basic classes of reactivity: direct synthesis, indirect synthesis, addition to glycals, de novo synthesis, and anomeric alkylation-based approaches.

The main focus of our work is developing new glycosylation reactions that permit the mild, selective, and direct construction of deoxyglycosides using 2-deoxy-sugar donors. Our preliminary results on the utilization of 2-deoxyglycosyl 3-benzylopropionates as novel glycosyl donors for a-selective glycosylation will be presented in this lecture. These donors can be successfully utilized with a variety of acceptors (primary, secondary and tertiary alcohols) for the synthesis of 2-deoxy-glycosides. Additionally, these newly developed glycosyl donors are also efficient for the synthesis of trisaccharides.

About the Colloquium and Professor Rajendra Rathore

"Dr. Rajendra Rathore Colloquium of Chemistry" seminar series has been established at the Department of Chemistry, IIT Kanpur, through an endowment fund created through generous contributions from Mrs. Rajni Nigam, wife of late Dr. Rajendra Rathore, and their family members and well-wishers.

Dr. Rajendra Rathore, Pfletschinger-Habermann Professor of Organic Chemistry at Marquette University, Milwaukee, Wisconsin USA, departed this world on February 16, 2018, after a short but strenuous battle with pulmonary disease. Dr. Rathore was an alumnus of Indian Institute of Technology Kanpur who received his M.Sc. degree in Chemistry in 1986. Dr. Rathore was a scientist of the highest calibre. A pioneer in the field of organic and synthetic chemistry, he made key contributions to the areas of organic supramolecular and materials chemistry.

Date: March 04, 2020 (Wednesday)
Time: 5:30 PM
Venue: Outreach Auditorium