

Invited Lecture
57th Annual Convention of Chemists (ACC) - Indian Chemical Society (ICS)
Recent Trends in Chemical Sciences (RTCS 2020)

C-Glycosidation in the Synthesis of Natural Products and beyond

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Abstract: C-glycosides are the carbon counterpart of natural O-glycosides with proven in-vivo and in-vitro stability for the glycosidases/mineral acids. A disaccharide containing a carbon linkage unit (methylene group) instead of oxygen, called C-disaccharides, is inert towards chemo-enzymatic hydrolysis. There some analogous with proven therapeutic utilities in the treatment of AIDS, Cancer, diabetes etc. Eribulin is an anticancer drug marketed by Eisai Co, a macrocyclic ketone analogue of the natural product Halicondrin B that contains a C-disaccharide unit. On the other hand, several pharmacologically active natural products hold the C-glycosidic linkage. In this presentation, a brief overview of the methods employed/developed in the context of total synthesis of various natural products and bioactive molecules from our group will be presented.

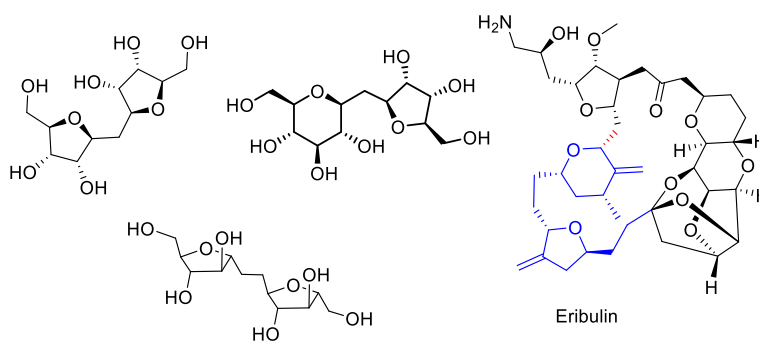


Figure: Representative C-Glycosides Synthesized

References and Notes:

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2. (a) Narute, S. B.; Raut, J. K.; Ramana, C. V. "Synthesis of C-disaccharides through a one-pot alkynol cycloisomerization-reductive deoxygenation" *Chem. Eur. J.* **2013**, *70*, 510. (b) Narute, S. B.; Ramana, C. V. "Synthesis of C(27)-C(38) fragment of aflastatin A" *Tetrahedron* **2013**, *69*, 1830.
3. Patil, R. S.; Ahire, K. M.; Ramana, C. V. "Stereospecific synthesis of C-arabinofuranosides and carba-disaccharide analogues of Motif C of cell wall AG complex of M.tb" *Tetrahedron Lett.* **2012**, *53*, 6347.

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Bio-Sketch of Speaker

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Dr. Ramana obtained his MSc. from Andhra University, Waltair (1991) and PhD from University of Hyderabad under the supervision of Professor M. Nagarajan (Synthetic Carbohydrate Chemistry). From 1998 to 2001 he was associated with Professor Andrea Vasella at ETH Zurich as a post-doctoral researcher (glycosidase inhibitors). From May 2001 onwards, he had been associated with NCL. At NCL, the focus of Ramana's group includes small molecules synthesis by employing transition metal complexes and developing new catalytic methods. He is a recipient CSIR Young Scientist award in Chemical Sciences (2003), NCL's Scientist of the Year award (2009), Professor D. K. Banerjee Memorial Lecture Award - IISc Bangalore (2011) and CRSI Bronze Medal in chemical sciences (2013) and Dr. A.V. Rama Rao Foundation Prize Lecture in Chemistry (2016) and CNR Rao National Prize in Chemical Sciences (2017). He is the fellow of Indian Academy of Sciences (2014, Bangalore). To his credit, he had 130 publications, 17 patents and 21 students have been awarded PhD. degree under his supervision.