Title:	Chapter 10 - Recent developments on the synthesis of functionalized carbohydrate/sugar derivatives involving the transition metal–catalyzed C–H activation/C–H functionalization
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Keywords:	Recent developments synthesis carbohydrate/sugar C–H activation
Issue Date:	2021
Publisher:	Elsevier
Citation:	Studies in Natural Products Chemistry, 71,311–399.
Abstract:	Carbohydrate derivatives are fundamental and important class of bioactive compounds of life. For several decades, synthetic chemists have been directing their efforts to modify the carbohydrate/sugar molecules which have resulted in the development of innumerable methods to functionalize carbohydrate derivatives. In the last few years, the sp2 and sp3 C–H activation/functionalization of small organic molecules, using transition metal catalysts, such as those involving Pd-, Rh-, Cu-, Ni-, Ru-based catalysts, has emerged as important synthetic transformations in organic synthesis. The modification/functionalization of sp2 and sp3 C–H bonds of small organic molecules has been carried with or without the help of a directing group. The sp2 and sp3 C–H bond activation/functionalization methods have been well utilized to functionalize several types of small molecules comprising aliphatic, alicyclic aromatic, oxygen- and nitrogen-based heterocyclic compounds, and bioactive scaffolds such as amino acids, carbohydrates, and various natural products. In this chapter, we present the recent developments in the area pertaining to the synthesis of functionalized carbohydrate derivatives using transition metal–catalyzed C–H activation/functionalization strategy. Apart from the C–H activation/functionalization reactions, we have also presented some of the earlier approaches pertaining to the synthesis of functionalized carbohydrate derivatives involving the cross-coupling reaction and allylic/anomeric C–H functionalization of glycals. Furthermore, we have presented the developments in the synthesis of carbohydrate-based natural products, natural product derivatives, and pharmaceutical compounds involving the C–H activation/functionalization method.
Description:	Only IISERM authors are available in the record.
URI:	https://doi.org/10.1016/b978-0-323-91095-8.00001-5 (https://doi.org/10.1016/b978-0-323-91095-8.00001-5) http://hdl.handle.net/123456789/4937 (http://hdl.handle.net/123456789/4937)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

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