

NOVEL CARBOHYDRATE-BASED ORGANOCATALYSTS

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Design of new chiral organocatalysts for efficient asymmetric transformations has become a focal point of attention in asymmetric catalysis [1]. In this context, (thio)urea-derived catalysts are useful for many enantioselective transformations [2]. Carbohydrates are ideal scaffolds due the presence of defined configuration. However, sugar motif in bifunctional catalysts are quite unexplored field.

This fact attracted our attention to synthesize novel urea- and thiourea organocatalysts (Fig. 1) using *allo*- and *gluco*-furanose derivatives.

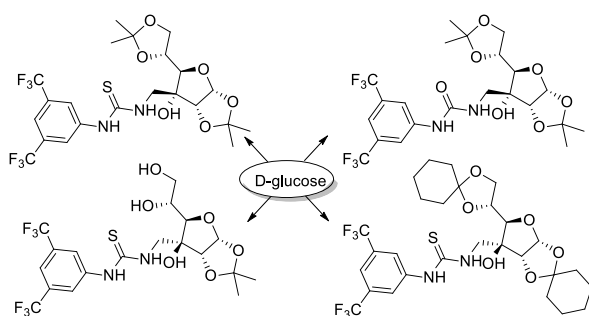


Fig. 1. Structures of sugar-based potential organocatalysts

Novel catalysts were tested in different reactions, e.g., asymmetric Michael addition of ketones and malonates to nitroalkenes and Friedel-Crafts alkylation of indoles with *trans*- β -nitrostyrene. The results will be discussed.

References

1. Bertelsen, S.; Jørgensen, K. A. *Chem. Soc. Rev.* 2009, 38, 2178.
2. Kotke, M.; Schreiner, P. R. (Thio)urea Organocatalysts. In *Hydrogen Bonding in Organic Synthesis*; Pihko, P. M., Eds.; Wiley: Weinheim, 2009; Vol. 6, p 141-211.