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Authors: Yuwen Huo, Panpan Shen, Wenzeng Duan, Zhen Chen, Chun Song, Yudao Ma



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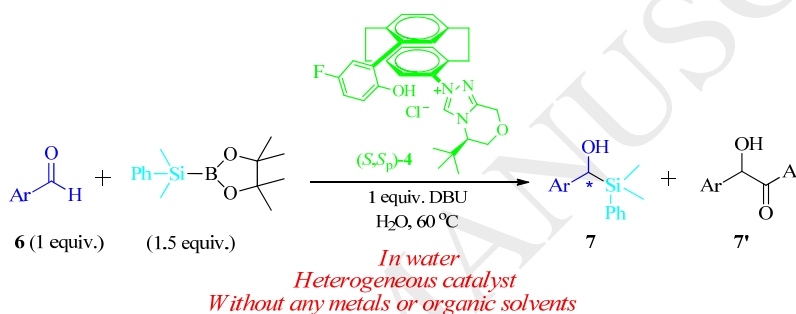
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Communication

Metal-free catalytic enantioselective silylation of aromatic aldehydes in water

Yuwen Huo^{a,†}, Panpan Shen^{a,†}, Wenzeng Duan^b, Zhen Chen^c, Chun Song^{a,*}, Yudao Ma^{a,*}^a Department of Chemistry, Shandong University, Jinan 250100, China^b School of Chemistry and Chemical Engineering, Liaocheng University, Liaocheng 252000, China^c School of Chemistry and Chemical Engineering, Hebei Normal University For Nationalities, Higher Education Park, Chengde 0670000, China

Graphical Abstract



One-step access to chiral α -hydroxysilanes by metal-free catalytic enantioselective silylation of aromatic aldehydes in water was achieved for the first time.

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ABSTRACT

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An environmentally friendly and transition metal-free method for the preparation of chiral α -hydroxysilanes was developed. Enantioselective addition of a silicon nucleophile to aromatic aldehydes in water was achieved by using a new hydroxyl-functionalized chiral carbene as catalyst, affording the corresponding products in good yields and moderate enantioselectivities.

Catalytic enantioselective formation of C–Si bonds has attracted much attention over the past decade due to the versatility of the resultant optically active silylated compounds [1]. Therefore, several methods have been developed by using chiral transition metal complexes as catalysts and (dimethyl-phenylsilyl)boronic acid pinacol ester (PhMe₂Si-Bpin) was usually employed as silylating reagent for these silyl transfer reactions [2]. Moreover, optically active α -hydroxysilanes, a class of important chiral organosilicone

* Corresponding authors.

E-mail addresses: ydma@sdu.edu.cn (Y. Ma); chunsong@sdu.edu.cn (C. Song).

†These authors contributed equally to this work.

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