



Sekce chemie PřF UK v Praze
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Quo Vadis Chemie

Asymmetric α -Functionalizations of Aldehydes Catalyzed by Biaryl-based Secondary Amines



kterou přednese

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Abstrakt: In enamine catalysis, most efficient chiral secondary amine catalysts were derived from proline, and a pyrrolidine core structure with at least one α -substituent seemed indispensable for the rational design of catalyst. In this context, we have developed several secondary amine catalysts having a biaryl scaffold and various functional groups at the 3-position. Our biaryl-based secondary amine catalysts are characterized by the following features: (1) larger space between the secondary-amino nitrogen and the functional group at the 3-position than that of proline derivatives, (2) chemical stability originating from such a distance between functional groups, (3) the absence of α -substituent, which decreases the steric repulsion in the enamine intermediate, (4) ease of introduction of various functional groups at the 3,3'-positions and C_2 -symmetry ($R = R'$), and (5) their mild basicity and

nucleophilicity. By utilizing these characteristic features of our catalysts, unique reactivity and selectivity were realized in some organocatalytic asymmetric reactions in the course of our study.

