Poster Presentation

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"(1,3)- and Double (1,3)-Dipolar Cycloaddition Reactions:an Approach to Access Functionalized Enantioenriched Pyrrolidines and Pyrrolizidines"

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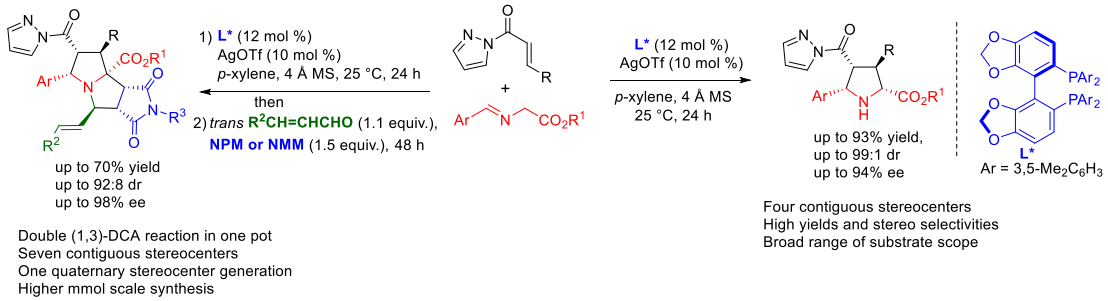
Abstract: Enantioenriched densely functionalized pyrrolidine and pyrrolizidine derivatives have been found as key structural motifs in numerous nitrogen-containing heterocycles and have evoked immense research interest due to their broad spectrum of biological activities. Their intriguing therapeutic potential is evident from observed analgesic, antibacterial,antitumor,anti-inflammatory,receptor antagonistsand glycosidase inhibitor properties. Unified strategy to access both of these two important classes of compounds employing a common catalytic system in one-pot is rare in literature.

Herein we have developed an efficient diastereo- and enantioselective route to access a wide range of highly substituted pyrrolidine and pyrrolizidine derivatives *via* (1,3)- and double (1,3)-dipolar cycloaddition (DCA) reactions catalyzed byAg(I)/(*R*)-DM-SEGPHOS. The reaction proceeds smoothly at ambient temperature affording the desired pyrrolidine and pyrrolizidine derivatives in high yields (up to 93%) with up to 99:1 dr and excellent enantioselectivities (up to 98% ee). Interestingly, the newly synthesized pyrrolidine and pyrrolizidine derivatives comprise of four and seven contiguous stereogeniccenters respectively. Moreover, the synthetic utility of this chemistry has been demonstrated by exploiting the reactivity of the *N*-acylpyrazole moiety into various synthetically useful advanced intermediates

Figure/Scheme:



References and Notes:

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