

Ionic Liquid-Supported (ILS) (S)-Pyrrolidine Sulfonamide for Asymmetric Michael addition reactions of Aldehydes with Nitroolefins.

ABSTRACT

A class of ionic liquid supported (ILS) (S)-pyrrolidine sulfonamide organocatalyst (1c), which was developed earlier in our lab, has been applied to a wider range of Michael addition reaction, involving various aryl-substituted nitroolefins and a series of aldehydes. Catalyst 1c catalyzes Michael additions in which only 2 equivalents of aldehydes to each equivalent of nitroolefin are required. With 10 mol% of ILS catalyst 1c loading, moderate to excellent yields (51- 98%) with moderate enantioselectivities (28-83% ee) and high diastereoselectivities (syn/anti ratio up to 97/3) were obtained. Moreover, the catalyst 1c could be easily recycled and reused for at least 5 times with slightly reduced activities.

Keyword: Asymmetric catalysis; Ionic liquid; Michael addition; Nitroolefins; Aldehydes; Cornerstone; Enantioselective; Organocatalytic; Methyl.