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A Sulfone-Containing Brønsted Acid Ionic Liquid Catalyst Enables Replacing Dipolar Aprotic Solvents with Butyl Acetate for Transformations of Indoles and Anilines.

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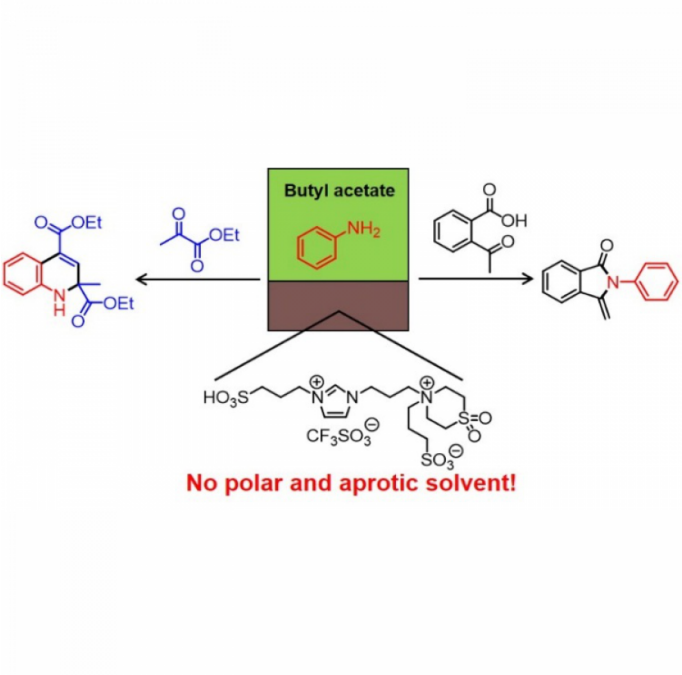
PURPOSE OF THE ABSTRACT

Replacing dipolar and aprotic solvents with environmentally benign media has emerged as a new facet of green chemistry. Many acid-catalyzed reactions are associated with the use of dipolar and aprotic solvents, which are not recommended in all the solvent selection guides due to their toxicity or explosivity. To alleviate the detrimental effect of these solvents, a sulfone-containing imidazolium-based Brønsted acid ionic liquid was synthesized. The ionic liquid catalyst enables the use of an industrially acceptable and environmentally benign solvent, butyl acetate, as the reaction medium. The use of this trailer-made ionic liquid allowed some transformation reactions of anilines and indoles to be performed with high yield and selectivity in green and an industrially acceptable solvent, butyl acetate. The ionic liquid catalyst and butyl acetate solvent are also recyclable.

FIGURES



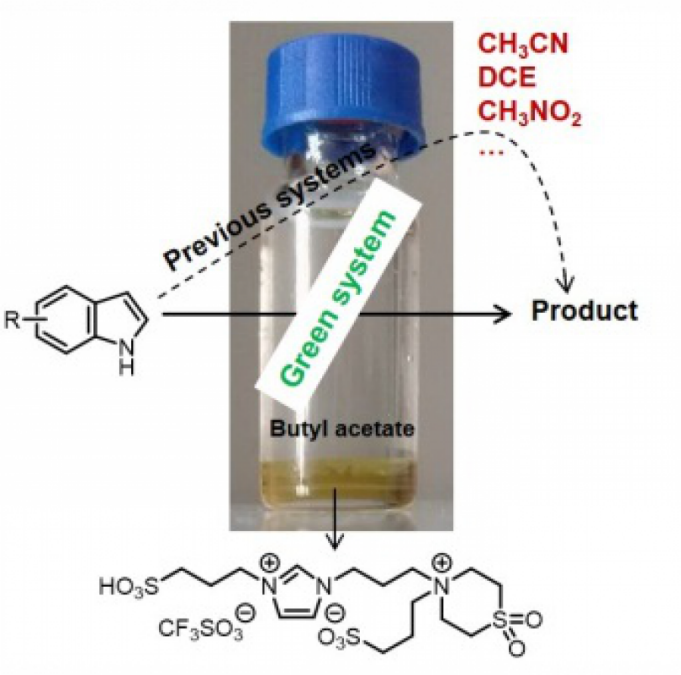


FIGURE 1

Transformations of Anilines

Transformations of anilines by Brønsted acid ionic liquid as a catalyst and butyl acetate as a solvent

FIGURE 2

Transformations of Indoles

Transformations of indoles by Brønsted acid ionic liquid as a catalyst and butyl acetate as a solvent

KEYWORDS

Brønsted acid | Ionic liquid | Biphasic reaction | Green solvent

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