Menthol and Fatty Acid-Based Hydrophobic Deep Eutectic Solvents as Media for Enzyme Activation

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Abstract:

This research aims to provide insights into the biological efficacy of a newly formed hydrophobic deep eutectic solvent (DES). A DES based on menthol was successfully synthesized with fatty acids. The DESs' properties as enzyme activators were examined against a neat counterpart. The menthol:decanoic acid (1:1) combination showed improved thermal stability, strong catalytic activity, and reusability for up to four subsequent cycles under ideal conditions (pH 7.0, 40 degrees C for 2 h). The hydrophobic DES replaced hexane in ester synthesis, where RNL@DES5 showed better

fatty acid conversion compared to neat RNL. This study demonstrated promising applications of hydrophobic DESs in non-aqueous organic reactions.

Keywords

Author Keywords: fatty acid; natural deep eutectic solvents; hydrophobic agent; enzyme kinetics; hydrogen-bonding

Keywords Plus: PHASE-CHANGE MATERIALS; IMMOBILIZED LIPASE; IONIC LIQUIDS; EXTRACTION; STABILITY; WATER; ESTERIFICATION; MIXTURES

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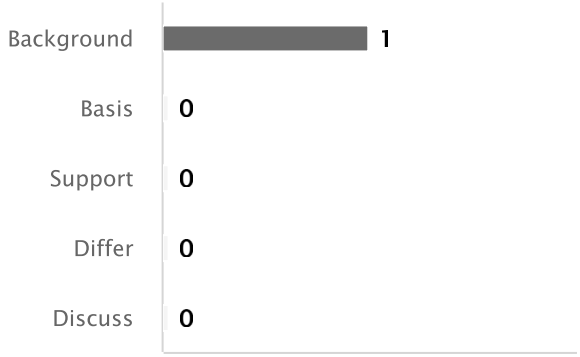

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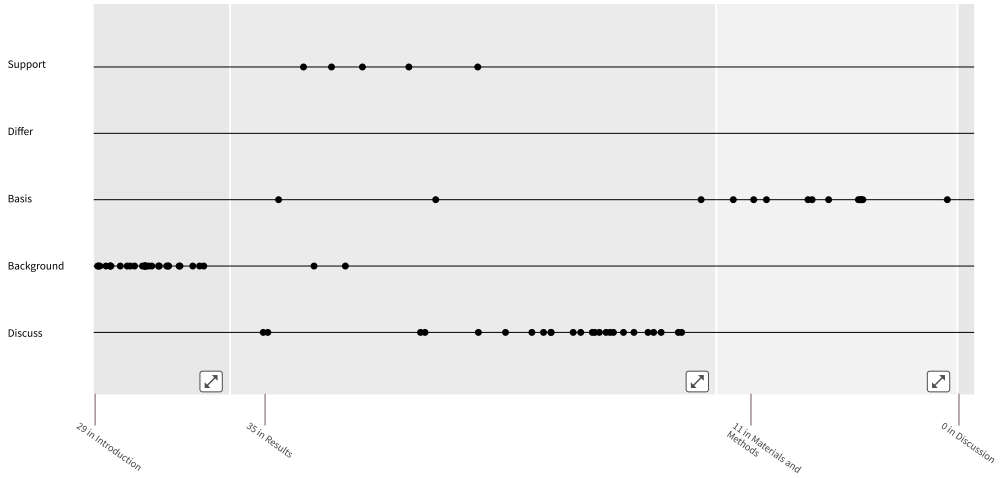

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