

Neutralized Alkaline Amino Acid Salts-catalyzed Knoevenagel Condensation of Substituted Aromatic Aldehydes and Active Methylene Compounds

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Natural alkaline α -amino acid of L-lysine, L-arginine and L-histidine neutralized with hydrochloric acid were screened for their ability to catalyze the Knoevenagel condensation between benzaldehyde and ethyl cyanoacetate. Compared with porcine pancreas lipase and their amino acid part, the three salts also performed the ability to catalyze the Knoevenagel condensation with a variety of functional groups on the aromatic ring and active methylene compounds in the presence of ethanol solvent. With the kinetic and thermodynamic study, we gained the better understanding of the mechanistic aspects of the amino acid –based catalytic Knoevenagel condensation and the difference with porcine pancreas lipase.