

S09-1 **Development of an Effective Condensation Method for the Synthesis of Carboxylic Esters and Carboxamides.**

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Since the synthesis of carboxylic esters and carboxamides from carboxylic acid and nucleophile, such as alcohol or amine, is considered to be one of the most important reactions in the field of synthetic organic chemistry, medicinal chemistry, and so forth, various condensation methods have been reported and are widely employed in the syntheses of natural and unnatural molecules that have carboxylic ester or carboxamide moieties. Benzoic acid derivatives are used as effective condensing reagents in order to synthesize carboxylic esters and carboxamides under mild conditions, whereas these methods require purification by using silica gel column chromatography to remove by-products produced from dehydrating agent. Thus, it is still desired to develop more efficient reagent from the viewpoints of purification. Then, pyridine-3-carboxylic anhydride (3-PCA) was discovered as a novel condensation reagent. The reaction of various carboxylic acids and nucleophiles, such as alcohols or amines, with 3-PCA and DMAP gave the corresponding products in good to high yields by using the simple experimental procedure. In addition, it was found that the by-products produced *in situ* were easily removed by using a simple aqueous workup. Then, we improved this method by using novel condensation reagents such as benzene sulfonic anhydride (BSA) and pyridine-3-sulfonylchloride (3-PSC) in the points of reactivity and purification.