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Asymmetric Synthesis of O -Alkylphenylphosphinates

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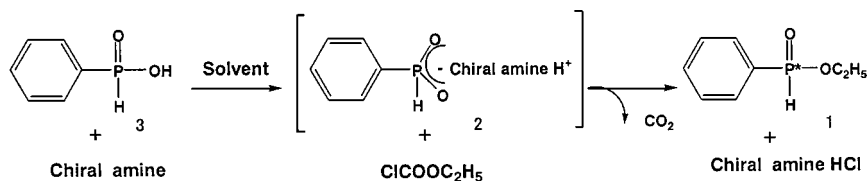
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ASYMMETRIC SYNTHESIS OF *O*-ALKYLPHENYLPHOSPHINATES

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In connection with the study on developing mass-production of chiral organophosphorus insecticides in optically active forms, we needed to devise an efficient method for preparing optically active *O*-ethyl phenylphosphinate **1** without optical resolution step of the intermediates.¹ Attempted asymmetric induction at the phosphorus center in the esterification of chiral ammonium salts of phenylphosphinic acid **3** with ethyl chloroformate led to the optically active **1** (up to 21.5% ee). Among optically active tertiary amines tested as candidates for forming the chiral salts **2**, *N,N*-dimethyl α -naphthyl ethylamine was so far selected, although it was necessary to continue designing chiral amines or screening reaction conditions to improve the ees of **1**.



SCHEME 1

REFERENCE

- [1] M. Sasaki, *Importance of Chirality in Organophosphorus Agrochemicals in Chirality in Agrochemicals*, edited by N. Kurihara and J. Miyamoto (John Wiley & Sons, 1998), pp. 85–139.

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