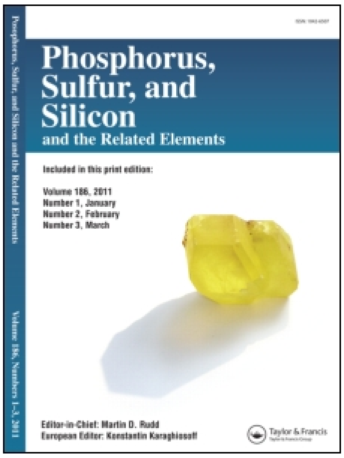

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Chiral Symmetric Alkylamides of Phosphoric and Phosphonic Acids

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CHIRAL SYMMETRIC ALKYLAMIDES OF PHOSPHORIC AND PHOSPHONIC ACIDS

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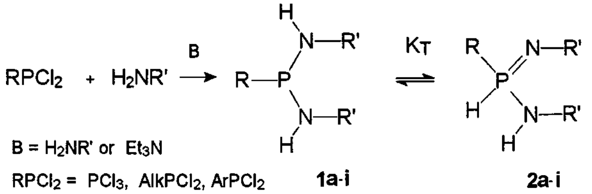
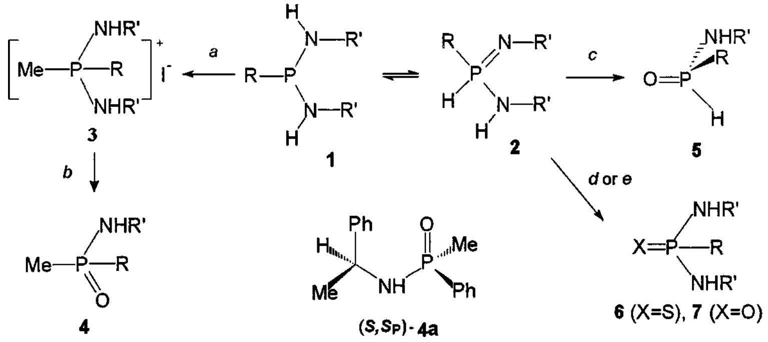
Chiral symmetric alkylamides of trivalent phosphorus acids **1** exist in prototropic equilibrium with PH-iminophosphoranes **2**. Phosphorus–nitrogen diad tautomeric equilibrium **1** ⇌ **2** depends on the nature of solvents and the substituents at the phosphorus and nitrogen atoms shifting toward the tautomeric form possessing the least mobile proton.



SCHEME 1



SCHEME 2

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The chemical properties of compounds **1** are similar to those of other trivalent phosphorus compounds, confirming their structure. Compounds **1** are alkylated by methyl iodide to furnish phosphonium salts, the alkaline hydrolysis of which results in the formation of chiral amidophosphinates **3** (de ~100%). The reaction of aminophosphines **1** with formic acid resulted in amides of phosphinic acid **4**. The compounds **1** are also easily oxidized and add sulfur with the formation of P=S or P=O derivatives.