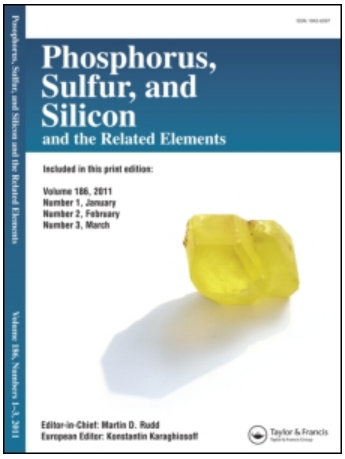

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Synthesis of Phosphonopeptides Using Pivaloyl Chloride

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SYNTHESIS OF PHOSPHONOPEPTIDES USING PIVALOYL CHLORIDE

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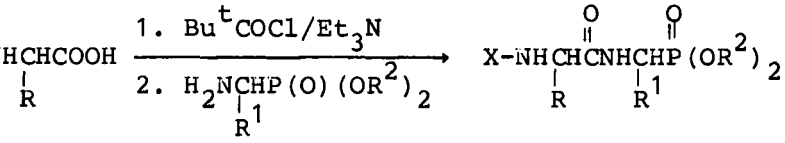
Aminophosphonic acids can be used as components in the synthesis of peptides resulting in the phosphonopeptides, which are interesting not only from the chemical point of view but also for their promising biological properties. An aminophosphonic acid unit can be attached to the C-terminus of amino acids or peptides by the usual methods of peptide chemistry. However, the specific properties of aminophosphonates can sometimes lead to complications, for example formation of by products (1). We have tested the method of phosphonopeptide synthesis using pivaloyl chloride. It was found that dialkyl esters of 1-aminoalkylphosphonic acids readily react with mixed anhydrides of N-protected amino acid and pivalic acid to give the fully protected phosphonopeptides with good yields.



The method was applied to obtain a number of phosphonopeptides, both totally protected and fully unblocked, with phosphonic analog of aliphatic and aromatic amino acids at P-terminus. The advantages and scope of the method are discussed.

(1) A.Arendt, M.Hoffmann, A.Kolodziejczyk, A.Sobczak, T.Sokolowska, C.Wasielewski. Pol. J. Chem., 53, 447 (1979).