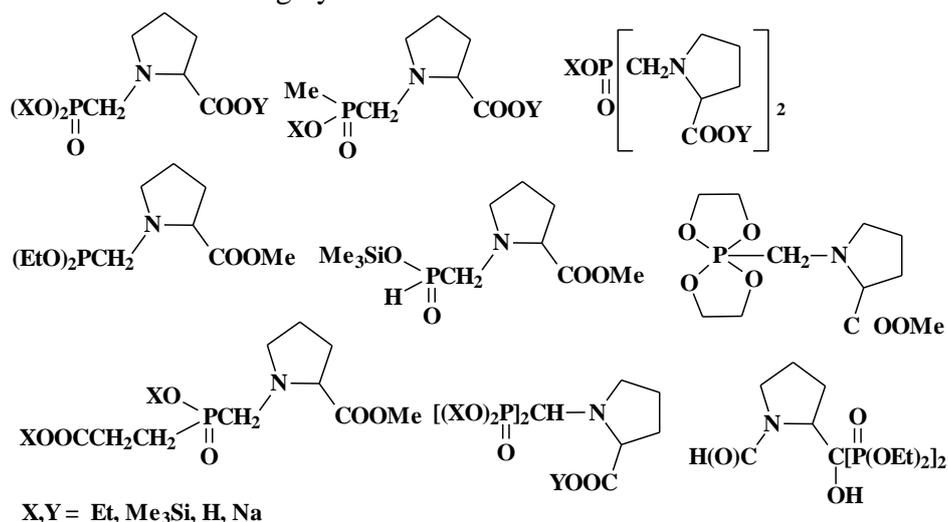


## Mono- and bisorganophosphorus proline derivatives with P-C-N moieties

A A Prishchenko, M V Livantsov, O P Novikova, L I Livantsova and V S Petrosyan  
M V Lomonosov Moscow University, Russia

### Abstract

The functionalized organophosphorus derivatives of aminocarboxylic acids and their corresponding peptides are the perspective organophosphorus biomimetics of natural phosphates and hydroxy or amino acids. These compounds with nonhydrolysable P-C bonds interfere with various enzymatic processes and possess the antibacterial, antiviral, antibiotic, pesticidal, antitumor and enzyme inhibitory properties. Several organophosphorus containing peptides with proline moieties have attracted attention in the capacity of the competitive inhibitors of human immunodeficiency virus protease. Recently the organophosphorus derivatives of glycine,  $\beta$ -alanine and  $\gamma$ -aminobutyric acid with PCH<sub>2</sub>N moieties have been synthesized by us. We have developed a convenient two- or three-component aminomethylation of various PH-acids as the perspective method for synthesis of mono- and bisorganophosphorus proline derivatives with P-C-N moieties using proline or its highly reactive functionalized precursors. Trimethylsilyl-containing organophosphorus compounds easily react with methanol excess or with sodium methylate in methanol giving water soluble acids or their sodium salts in high yields.



**Scheme 1.** New Mono- and Bisorganophosphorus Proline Derivatives

So the unique synthesis of proline-containing organophosphorus acids and their derivatives with 3-, 4- и 5-coordinated phosphorus starting from available reagents were developed by us. The resulting compounds are the promising synthons for preparation of various organophosphorus peptides with different arrangement of proline moieties as well as the perspective polydentate ligands and biologically active substances with versatile properties.

### Biography

A A Prishchenko has completed his PhD from M V Lomonosov Moscow State University at the Department of Chemistry and now he is a Leading Researcher in the same university. He has published more than 200 papers in reputed journals on Organophosphorus Chemistry.

aaprishchenko@yandex.ru