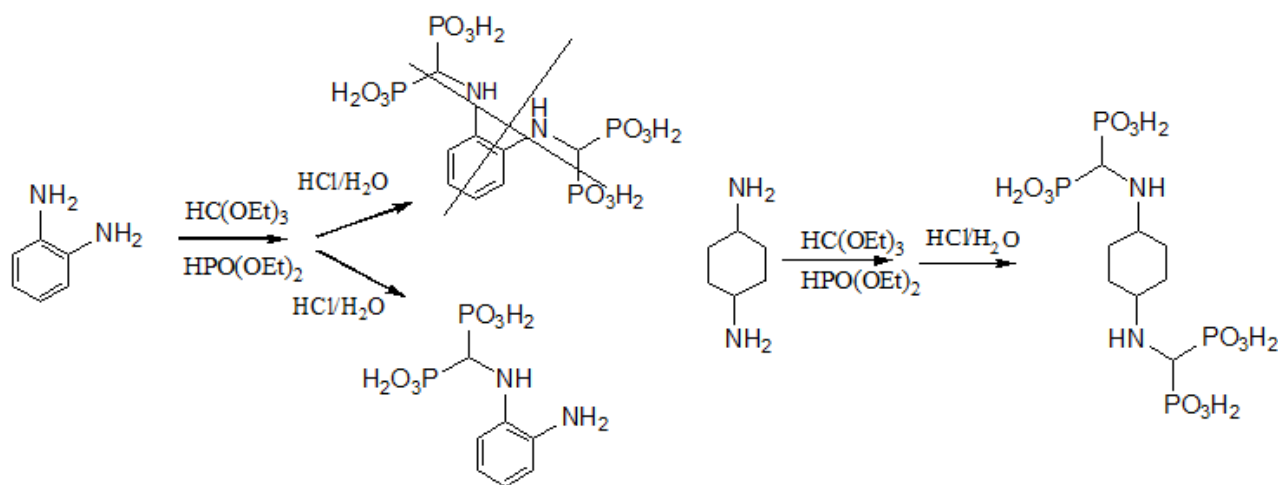


Three-component reaction of amines with phosphites and orthoformates is considered the best method of synthesis of N-substituted aminomethylenobisphosphonates. By this method, is obtained a group of compounds which are characterized with a variety of structures. Many of them have useful physiological activity, and the greatest success is their use as medicaments in the treatment of osteoporosis. Bisphosphonates are also useful as complexions metal ions (e.g., in the removal of metal ions from mine drainage).

Three-component condensation reaction, seems to be simple, but it is very capricious and usually produces a number of products. Therefore, it not usually isolated in these products, the crude mixture was subjected to hydrolysis with concentrated hydrochloric acid. This allows you to get aminomethylenebisphosphonate acids with satisfactory yields. The preliminary research shows that sometimes this reaction occurs in an unusual manner along with other parallel extending reactions. It complicates the planning syntheses, limiting the availability of certain structures, but also impedes the separation and purification of the desired products. The aim of this project is to study such reactions we are selected on the basis of our unpublished research and also better understanding of the mechanisms which determine the course of atypical version of this reaction. This should allow both to better design the synthesis of new structures aimed at specific applications.

The first test carried out on aromatic diamines and alicyclic is shown, that the course of the reaction is certainly related to the strong influence of the other of the amino groups (the impact effect is observed adjoining groups).



It is noted that in the case of a three-component condensation with o-diaminobenzene, is the formation of a bisphosphonate as a single reaction centre is blocked, while the reactions involving 1,4-diaminocyclohexane leads to the formation of tetrakisphosphonate (reacting two amino groups).