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SYNTHESIS OF PROPARGYL ESTERS DERIVATIVES REACTION CAPABILITIES

Abstract: Systemic problems remain that hinder the further development and diversification of the chemical industry, the attraction of investments for the modernization of existing chemical production capacities and the construction of new ones, and the expansion of export volumes.
In the field of chemical production, there is no fundamental scientific base and modern design and engineering developments that take into account the trends in the development of the world chemical industry and the significant raw material potential of the republic.

Keywords:propargyl spirit, electrophilic substitution reactions, propargyl ethers, electrophilic reagent.

Currently, very little scientific research has been conducted on the methods for the production of derivatives of propargyl alcohols and propargyl esters (unsaturated carboxylic acids, aminomethylation, etc.). The products of these reactions are not only of theoretical interest, but also of great practical interest, in particular, some of them can serve as monomers for the production of high molecular weight compounds.
In some examples of electrophilic substitution reactions, it has been shown that the basicity of the reacting arene is important if the electrophilic reagent has a small electron deficit or is low in acidity. In other words, if the electrophilic reagent has a low reactivity, it can only react with a highly acidic, active aromatic compound. If the reagent has a strong, localized electron deficit, it does not require the aromatic compound to be highly basic or to transfer electrons to the electrophile, because the electrophile will attack it anyway.
Recently, in our country and abroad, interest in the properties and use of propargyl alcohol and derivatives synthesized on its basis has been increasing from year to year. This is explained, first of all, by the high reactivity of propargyl alcohols, which is associated with the presence of a highly unsaturated acetylene bond in the propargyl ether molecule, three reaction centers, and the presence of a hydrogen and oxy group of a mobile terminal acetylene. In this regard, as cheap and accessible materials, derivatives of propargyl alcohol, simple and complex ethers, propargyl carbamates, etc., are of great interest for the synthesis of various classes of compounds that can be used in various industries, the national economy, and, in particular, in medicine.
Which groups can increase the biological activity of propargyl esters and their derivatives as a result of their action?
In our opinion, first of all, this is due to the presence of a mobile methine hydrogen atom (≡CH) in the propalgyl ester molecule and their derivatives, which can serve as a building block for more complex, difficult-to-achieve syntheses. Organic and organoelement molecules containing the system -C≡C- ; -C≡C-C ≡C- ; -O-CH2-; -COO-CH2-, -NH-COO-;-O-CHR-O-, substituted

residues of phenoxy and carboxylic acids of the aliphatic and aromatic series, various functional groups.

Secondly, carrying out various chemical reactions through the tertiary bond allows you to obtain a variety of derivatives that can be interesting from a practical point of view.

Thirdly, the groups that are part of the propagyl ether and their derivatives (-O-CH2-, -COOCH2-, -NHCOO-) give them stability, which is important.

Fourthly, the combination of various functional groups (-C≡C-I, -C≡C-Br; -C≡C-N=C=S; -C≡C-C≡C-; -CH=CH-CH=CH-C≡C- ; -C≡C-CH2-N⁄-) that can be introduced into the molecules of propargyl esters and derivatives, such as halogens and nitro groups, multiple bonds, as is known, gives the substances pharmacological and biological activity.

Fifth, the presence of the bonds –O-CH2-C≡C-; -C≡C-C≡C-C≡C-; -C≡C-I; -C≡C-N=C=S in the molecule reduces toxicity several times, making them less toxic than the initial groups with the above bonds.

It is planned to attract direct investments to further diversify the chemical industry, create new production capacities and expand the range of products in high demand in the domestic and foreign markets, create a modern scientific and design base with the involvement of leading foreign institutions, as well as expand the range of high-value-added chemical products in high demand in the sectors of the economy and the world market based on deep processing of hydrocarbon raw materials and mineral resources.

In this regard, the targeted synthesis of practically valuable, mainly biologically active substances based on propargyl esters and their derivatives is undoubtedly an urgent and promising task that meets the requirements of medicine, industry, and agriculture for the search for substances with certain effects.

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