

Academy of Sciences of the Republic of Uzbekistan



*S. Yu. Yunusov Institute of the Chemistry of
Plant Substances AS RUz*

**INTERNATIONAL SCIENTIFIC AND
TECHNICAL CONFERENCE**

*Actual Problems of the
Chemistry of Natural Compounds*

ABSTRACTS

**September 19–20, 2024
Tashkent**

CONFERENCE TOPICS

1. Chemistry, biology, pharmacology, and technology of natural compounds and their derivatives.
2. Successes and problems of creation of new drugs.

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ALKYNYLATION REACTION OF KETONES WITH ACETYLENE IN THE 3,3'-Ph₂BINOL-2Li/Ti(OⁱPr)₄/Et₂Zn CATALYTIC SYSTEM

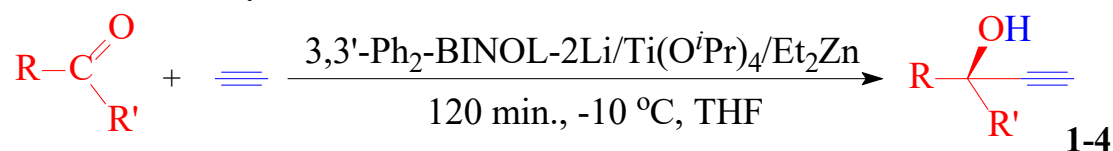
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Today, world scientists are conducting a number of strategic studies aimed at paying special attention to green chemistry, energy-saving, cost-effective and waste-free technologies for the synthesis of new organic substances [1-5].

In this work, the synthesis of acetylene alcohols, which can be used in various fields as ion exchangers, inhibitors, demulsifiers, biocides, solvents and pharmacological drugs, was carried out using the 3,3'-Ph₂BINOL-2Li/Ti(OⁱPr)₄/Et₂Zn catalytic system. The synthesis of acetylene alcohols was studied based on the reaction of nucleophilic addition of ketones containing alkyl, aryl, cyclic and heterocyclic radicals with an acetylene molecule in a tetrahydrofuran solution.



RR' = *c*Hx (1); R = Me, R' = Et (2); R = Me, R' = Ph (3), R = Me, R' = Tp (4).

The influence of the spatial structure, optical activity and the nature of substituents of selected ketone molecules on the yield of acetylene alcohols was studied. The influence of temperature, reaction duration, nature and amount of starting materials, solvent and catalyst on the course of chemical processes and product yields is analyzed. According to the results obtained, at a temperature of -10 °C, the reaction duration is 120 minutes, while when the starting substances were chosen in a 1.5:1 ratio, acetylene alcohols were synthesized with the highest yield.

Synthesized terminal acetylene alcohols are proposed as inhibitors of the complex separation of sulfur compounds in natural gas, as ion exchangers against components (salt layer) formed in metal structures of industrial enterprises.

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