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ACAD. S.Yu. YUNUSOV INSTITUTE OF THE CHEMISTRY  
OF PLANT SUBSTANCES

INTERNATIONAL SCIENTIFIC  
CONFERENCE

**Actual Problems of the  
Chemistry of Natural Compounds**

**ABSTRACTS**

March 15–16, 2023  
Tashkent

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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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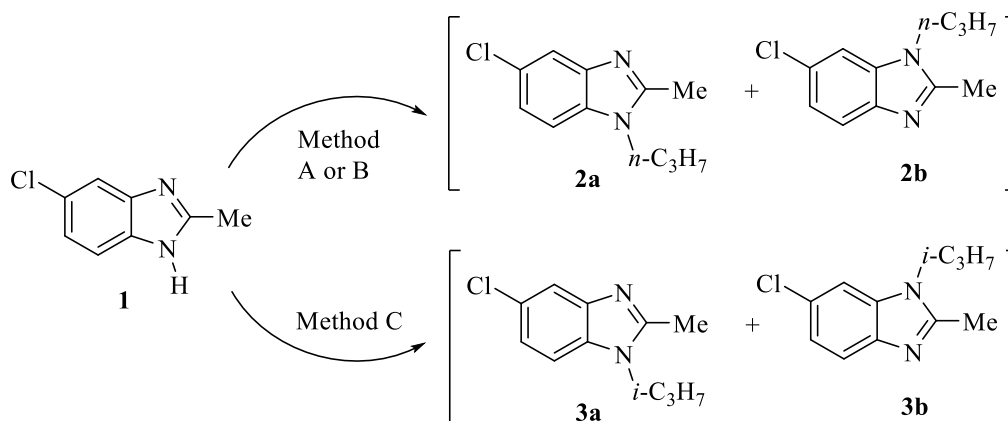
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## SYNTHESIS OF POTENTIALLY ACTIVE ISOMERIC ALKYL-BENZIMIDAZOLES

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It is known that, among heterocyclic compounds, benzimidazole and their derivatives occupy an important place in terms of theoretical and practical importance [1]. As a result of the research, the analysis of the literature shows that various derivatives of benzimidazoles have high activity against cancer, anthelmintic drug, anti-malarial, anti-tuberculosis, and against viruses [2]. Some of the synthesized compounds, for example *Omeprazole*, *Bendamustine*, *Maribavir* are used as effective anti-cancer and anti-viral agents [3].



Method A:  $1:C_3H_7Cl:K_2CO_3$  - 1:1,5:1, acetone,  $56^{\circ}C$ , 10 h (Yield: **2a+2b**, 58%);

Method B:  $1:C_3H_7Cl:NaOH$  - 1:2:1, ethanol,  $78^{\circ}C$ , 6 h (Yield: **2a+2b**, 67%);

Method C:  $1:i-C_3H_7Br:NaOH$  - 1:3:1, ethanol,  $78^{\circ}C$ , 8 h (Yield: **3a+3b**, 72%)

We also carried out alkylation reactions of 2-methyl-5-chlorobenzimidazole in order to protect the active proton on the nitrogen atom. Propyl chloride and *iso*-propyl bromide were used as alkylating agents and reactions were carried out in different ways. In the first method (**A**), the reaction carried out in the presence of acetone/potash; in the second method (**B**), in the presence of ethanol/NaOH; in the third method (**C**), in the presence of ethanol/NaOH, but experiments were carried out for different time durations, with different ratios of reagents. The structure of obtained isomeric dialkyl products (**2a**, **2b**; **3a**, **3b**) analyzed by methods of  $^1H$  and  $^{13}C$ -NMR spectroscopy and fully proved.

### References

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