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**Abstract**

*"Studies on the preparation of N-substituted alkyl thionocarbamates, as new donors protecting groups""*

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Synthesis of complex multifunctional chemicals is a challenge to seek new ways to obtain them, and consequently to the continuous development of research into selective and regioselective methods of introducing and removing protecting groups. These groups are particularly important in the chemistry of carbohydrates and oligosaccharides due to the large number of functional groups (hydroxyl). Analysis of literature data indicates that benzyl derivatives, ie: 4-methoxybenzyl (PMB), 2,4-dimethoxybenzyl; 3,4-dimethoxybenzyl; 2-nitrobenzyl; 4-nitrobenzyl, and 2-naphthylmethylene have a high selectivity to the order and position of hydroxyl groups in the sugar ring. In conventional carbohydrate chemistry, conventional methods have limited application due to the distribution of many sugar derivatives with strong bases. Looking for other new solutions useful in alkylation reactions, attention has been focused on the use of N-substituted benzyl thionocarbamates as new donors of protecting groups. The concept of work was based on the synthesis of N-allyl, N-phenyl and N-benzyl thionocarbamate derivatives of 4-methoxybenzyl, 2,4-dimethoxybenzyl alcohol; 3,4-dimethoxybenzyl, 4-nitrobenzyl; 2-nitrobenzyl and 2-naphthylmethyl and used in:

- simple etherification reactions,
- hydroxyl group protecting reactions of selected monosaccharides,
- obtaining glycosides by alkylation,
- selective treatment of hydroxyl groups in sugars

The conditions for the activation of the thionocarbamates obtained have been developed and the alkylation reactions are fast and efficient. Research on thiono-thiol rearrangement reactions has also been performed on the obtained N-substituted benzyl thionocarbaminates. It has been shown that the rearrangement reaction are only N-allyl thionocarbamates. Subsequently, the 4-methoxybenzyl N-allyl thiolcarbamate obtained as a thiol equivalent in the synthesis of benzyl sulfides was obtained as a result of the thiono-thiol rearrangement reaction. The last stage of the research consisted in evaluating the biological activity received

N-substituted benzyl thionocarbamates. The antifungal activity of the thionocarbamates obtained on yeast-like fungi and plant pathogens was studied. The resulting library of N-substituted thionocarbamates, which can be used both in organic synthesis as interesting donors suitable protecting groups as well as compounds having potential biological activity.