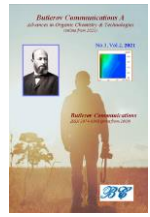
Butlerov Communications A
Advances in Organic Chemistry & Technologies
ISSN 2074-0948 (print)

2021. Vol.2, No.3, Id.7.
Journal Homepage: https://a-journal.butlerov.com/

BUTLEROV HERITAGE



Thematic section: Preparative Research.
Subsection: Organic Chemistry.

Full Paper

The Reference Object Identifier – ROI-jbc-A/21-2-3-7
The Digital Object Identifier – DOI: 10.37952/ROI-jbc-A/21-2-3-7
Received 9 June 2021; Accepted 12 June 2021

Influence of inorganic additives on the acylation reaction of aniline

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Keywords: aniline, acetanilide, synthesis.

Abstract

The acylation reaction is a reaction that results in the replacement of a hydrogen atom in an organic compound by an acyl group, and it is a reaction of the interaction of a substrate with an acylating reagent. It is possible to carry out acylation at different atoms, therefore, C, N, O and some other types of acylation are usually distinguished.

Acylation reactions are carried out to obtain new compounds, whose properties will change depending on the acyl residues introduced into them. Examples of such products are azotols, anilides and many drugs based on a wide variety of compounds. Also, acylation can be used to protect certain functional groups as intermediate steps in the synthesis.

For example, the replacement of a hydrogen atom in NH_2 or OH groups with an acyl residue allows them to be protected from undesirable reactions, which makes it possible to carry out such syntheses of products that would be impossible in the presence of free amino or hydroxo groups.

A variety of reagents and systems for carrying out acylation reactions have been described in the literature. At the same time, a relationship is traced between the structure of the reagents and their reactivity. As a rule, the presence of a large positive charge on the acyl carbon atom strongly accelerates the reaction and often leads to a significant increase in the yield. But the reagents are hardly accessible.

The aim of this work is to obtain acetanilide using the most accessible reagents and to study the effect of inorganic additives on its yield in the acylation of aniline. With confirmation of the purity of the obtained products using IR spectroscopy, elemental analysis, chromatography and melting point measurement. During the experiments, a well-known reaction was used, the progress of which was monitored by TLC, the purity and individuality of the obtained products were confirmed using reliable methods such as: IR spectroscopy, elemental analysis, chromatography and melting point measurements. With the help of these methods, it was shown that it was possible to obtain a fairly pure

acetanilide as a result of all experiments. In this case, the yield of the pure reaction product strongly depended on the additive used and turned out to be the highest with the addition of: $NiSO_4$ and $BaCl_2$.

For citation: Alexander V. Syromolotov, Alexander A. Kimyashov. Influence of inorganic additives on the acylation reaction of aniline. *Butlerov Communications A.* **2021**. Vol.2. No.3. Id.7. DOI: 10.37952/ROI-jbc-A/21-2-3-7

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