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## Widely unknown chemistry of ammonium salt - 2

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**Statement of the Problem:** We have note that this described process had been had more profound history. It was discovered after extensive research into the study of the bis-ammonium salt cleavage proposed by Hoffmann.

**Methodology & Theoretical Orientation:** Investigating the process Hofmann cleavage of QUAT with dimethyl groups, along with unsaturated 1, 2 potential group the 2,3unsaturated type group. It had been isolated unsaturated aldehyde and a secondary amine instead of the expected unsaturated hydrocarbon compounds.

**Findings:** The behavior of dialkil group at nitrogen group in QUAT has been studied. The nature of that group don't have any influence in reaction yield. The regioselectivity of the reaction depends markedly on the nature of substituents at QUAT nitrogen atom. It has been established, that the potential ammonium salts containing allyl group also undergoes the rearrangement-cleavage reaction by six-member cyclic mechanism with the participation of unsaturated groups in QUAT. It should be proved that for the acceleration of reaction and yield increase of rearrangement-cleavage products heating up to 90 is required. As base can be used also any basic agents from alkaline to soda, to primary and secondary amines. It has been shown that the action of this founded reaction depends on the solvent in reaction medium at the following sequence: water > alcohol > acetonitrile.

**Conclusion & Significance:** According to calculations by CNDO/2 and MINDO/3 methods, the nucleoid attack of the ammonium compound in the baseline is directed to the 1-position of the 1, 2-unsaturated groups. The driving force of the reaction is the attack by nucleophile to the 1-position. The reaction of rearrangement-cleavage in QUAT allowed to obtain the organic molecules with the unique properties - unsaturated aldehydes, ketones, organic acids aldimines.



## Recent Publication

1. N.R. Hovhannisyan, G.H. Torosyan, Selective alkylation of acetoacetic ester, Annual Proceedings of NPUA, 2016, v.2, p. 810-814.
2. G.H. Torosyan, N.R. Hovhannisyan, Alkylation of 1,3-diketons in phase transfer catalysis by microwave radiation, Annual Proceedings of NPUA, 2016, v.2.
3. G.H. Torosyan, N. R. Hovhannisyan, Condensation of butylacrilate with 1,3-diketones by the Michael reaction in PTC conditions, Proceedings of NPUA, Chemical & environmental technologies, 2016, n.1, p. 38-43.
4. G.H. Torosyan, N.R. Hovhannisyan, Alkylation of acetoacetic ester in phase transfer catalysis by microwave radiation, Bashkir Chemical journal, 2016, v. 23, n 4, p.24-26.
5. G H Torosyan, A S Prazyan and A H Cherkhezyan (2017) Synthesis of 4-(diethylamino)-3-methylbutan-2-ol under conditions of phase-transfer catalysis. Russian Journal of Organic Chemistry 52(11):1704-1707

## Biography

Nelli R Hovhannisyan has her own experience in Organic Chemistry, in the chemistry of amines and ammonium compounds, in phase transfer catalysis. Her proposals have been introduced into the practice of organic reagents synthesis. The number of her new studies has been used during the lectures at universities. She is the author of about 70 scientific publications and three books. She is working as an Assistant Professor in Biochem & Environmental Technologies Department of National Polytechnic University of Armenia.

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