INVESTIGATION OF CONJUGATED AND UNCONJUGATED ALIPHATIC ENYNES IN THE CYCLOADDITION REACTIONS [4+2] AND [2+1]

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In this paper the results of investigations of regularities of cycloaddition of conjugated and unconjugated enynes in the Diels-Alder reaction [4+2] and with dihaloidcarbenes ([2+1]) under conditions of interphase catalysis have been stated:

\[
\begin{align*}
  &\text{R}^\prime_n \equiv \text{R}' \\
  &\text{R} \equiv \text{H, CH}_3, \text{Cl}; \quad \text{R}' = \text{C(CH}_3}_2\text{OH, C(CH}_3}_2\text{OCH}_3, \text{C(CH}_3}_2\text{COOCH}_3, \\
  &\quad \text{C(CH}_3}_2\text{OCH}_2\text{CH}_2\text{CN, C(CH}_3}_2\text{OCH}_2\text{CH}_2\text{OH}
\end{align*}
\]

As a result of systematic investigations (kinetic, quantum chemical and compared pair reactions) the following results have been established:

- Cycloaddition reactions proceed regioselectively on double bond of enynes and comparison of activity of double bonds points to more high activity of vinyl group in allylacetylene compounds [1-3];
- Activity of enynes in the cycloaddition reactions depends on nature of functional groups being in triple bonds which are arranged in the following sequence:

\[\text{C(CH}_3}_2\text{OCH}_2\text{CH}_2\text{CN} > \text{C(CH}_3}_2\text{OOCOCH}_3 > \text{C(CH}_3}_2\text{OCH}_3 > \text{C(CH}_3}_2\text{OH}\]

- Study of chemical conversions of the synthesized cyclic compounds, containing triple bond and functional group in side chain showed that they may be widely used as synthones for preparation of other classes of compounds with practically useful properties.

References
2. M.G.Veliyev et al. ZhOrKh, T. 36, N 2, P. 993, 2000