

# NEW COPPER-CONTAINING CATALYSTS BASED ON FUNCTIONALIZED SILICAGEL FOR FLOW MODE CUACC CATALYSIS.

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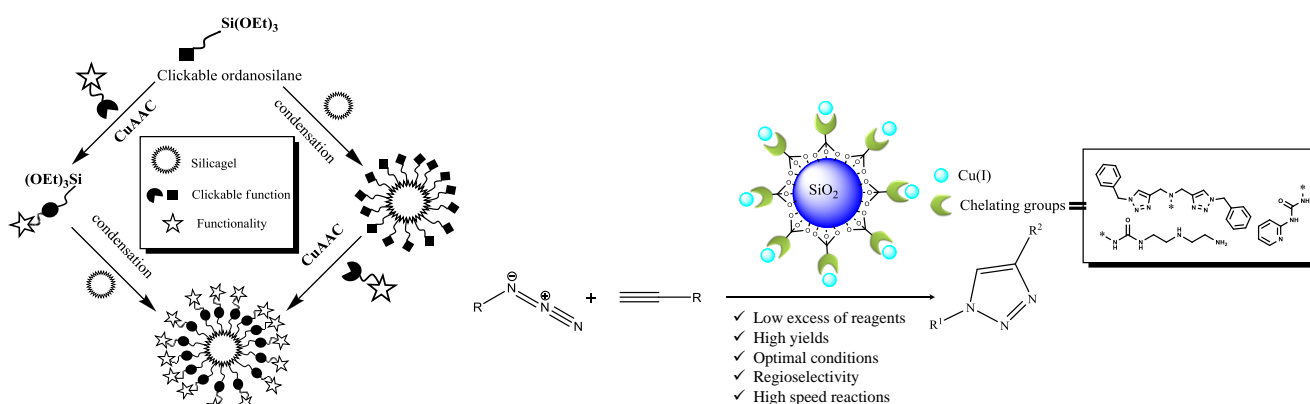
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The basic fundamental scientific problem which this work is devoted to the creation of heterogeneous catalysts by sequential covalent functionalization of the silicagel for subsequent use in flow reactors for atom-economical waste-free processes. At present moment flow chemistry is a rapidly growing area of organic chemistry. In comparison with batch reactions flow synthesis reaches high selectivity, safety and good yields. Although flow reactors are used in organic chemistry for a long time, their use for the reactions catalyzed by copper became relevant only in the past few years. There are a large numbers of chemically important organic reactions catalyzed by copper. Besides azide-alkyne cycloaddition (CuAAC) reaction, macrocyclisation conducted through 1,3-dipolar cycloaddition, and some cross-coupling reactions are of great interest. There are many examples of copper complexes used as homogeneous catalysts. Their weakness side is low substrate conversion and pollution of products by copper and the catalyst regeneration. Furthermore it is known that the copper (I) salts are toxic. Thus, one of the promising directions in catalysis is surface-supported copper.

Silica gel is one of the convenient, cheap and commonly used carrier for heterogeneous catalyst. Immobilization on the silicate surface may be done either by simple adsorption of catalyst's molecules or by covalent crosslinking of the molecules with the catalyst carrier surface. The latter has a distinct advantage, especially for further catalyst use in a flow reactors.

Herein we have obtained new "heterogenated" copper-containing catalysts based on triazole-functionalised silicagel which have shown a great catalytic activities in a CuACC reactions.



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