# CATALYSIS IN MODERN ORGANIC SYNTHESIS

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**Introduction.** Modern life is characterized by permanent development of different areas of science, industry, pharmacy, health protection, c.x. etc. These calls stimulate development of modern organic synthesis, by means of that it maybe to get natural connections, their analogues and practically any organic molecules. A catalysis fundamentally changed the state of chemical science of 21 century and is a basis of most synthetic processes.

**Aim.** Our aim was to select existing problems in realization, application of catalysis and exposure of basic methods of catalysis used in modern organic synthesis.

**Materials and methods.** We used the searching system Google, special scientific editions, reference sources on a synthesis and catalysis. The materials were systematized by the methods of classification of informative analysis, deduction.

**Results and discussion.** In a modern organic synthesis most distribution was purchased by 2 types of catalysis: 1 is a homogeneous catalysis by means of metallic complexes. A homogeneous catalysis is applied in a thin organic synthesis, synthesis of pharmaceutical substances and medical preparations; 2 - the heterogeneous catalysis carried out by nano-particles of metals is used in processing of hydrocarbons, natural raw material in a multitonnage synthesis. In addition, there are clusters of transitional metals, it is a border between a heterogeneous and homogeneous catalysis. For catalytic reactions in solution there are 2 border cases: 1 is a catalysis by the particles of one type of metal-ligand, in this case the structure of catalyst during a catalytic cycle is saved; 2 is a catalysis through the "cocktail of catalysts" (of metal-complexes, clusters, nano-particles). For this system a dynamic interconversion is characteristic. To date in an organic synthesis the reaction of cross-coupling (aimed at formation of connections of C-C and carbon-heteroatom) is most often used and as an alternative way of formation of connections a carbon-heteroatom is used reaction of joining. To the catalysts certain requirements are produced: they must be effective, selective, stable. Similarly optimization of criterion matters cost \ efficiency, creation of catalysts suitable to the repeated use without the loss of catalytic activity, creation of adaptive catalytic systems.

**Conclusions.** It is possible to say as a result of realization of work, that a catalysis will improve in parallel with development of scientific methods, technologies and economic factors, and is the major constituent of synthetic processes.