

Second Laureate Fundamental Research

- **Research Work Title:** New methods for the preparation of novel synthetic and natural biologically active compounds
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- **Collaborators:** Shahid Beheshti University - Razi University



Abstract:

Valuable natural and synthetic compounds can be prepared either in laboratory or extracted from nature. In this project new methods for the synthesis of organic compounds or extraction and semi-synthesis of valuable natural products are reported. Also, the biological activity of the products has been investigated.

Heterocyclic compounds are among the most valuable synthetic chemicals in the world. In the present project, new methods for the synthesis of different types of heterocyclic compounds via multi-component reactions, asymmetric synthesis and click chemistry have been reported. In some reactions, new catalysts with higher efficiency and more environmental compatibility were introduced.

Application of lead compounds and preparation of a library of their derivatives is an important method for the discovery of new potential drugs. In this project several valuable lead compounds such as β -lactam antibiotics, alkaloids and terpenoids have been used for the synthesis of new analogues.

Anti-microbial, anti-cancer, anti-oxidant, analgesic, anti-diabetic and anti-inflammatory activities of the prepared compounds have been investigated and in some cases, promising results were obtained.

