# Laboratory of Synthesis of Heterocyclic Compounds, TECHNICAL UNIVERSITY OF GEORGIA

(Organization's) Technical Area Keywords:

## Chemistry, Biotechnologies, Medicine



### **General Information**

The Laboratory of Synthesis Heterocyclic Compounds (head Prof. T.Khoshtaria) has more than 30 years expertise and experience in the synthesis and study of condensed tetracyclic systems. A wide family of new indole-containing condensed tetracyclic systems indolo-indols). pyrrolocarbazols (i.e. benzo[b]furoindoles, benzo[b]thiopheneindoles, pyrroloacridines, pyrrolodioxides. phenothiazines and their pyrrolcumarines, pyrrolophenoxantines and their dioxides originally etc. were synthesized. Pharmacological studies of these systems, which were started in the All-Union Scientific-Research Chemical-Pharmaceutical Institute (Head Institute for pharmacological studies in the Former Soviet Union, located in Moscow). showed that tetracyclic indolecontaining condensed systems have a wide range of physiological activity including anti-tubercular. bactericidal. fungicidal, neurotropic, psychotropic, anti-tumor, spasmolytic, vasodilator, etc. activities.

#### **Institute's Focus**

- The synthesis of original tetracyclic systems - isomeric benzo[b]-thiopheneand furo-indoles (precursors) in high yields;
- The synthesis of a wide variety of new organic compounds by chemical

- transformations of the precursors;
- Screening of the new compounds obtained and selection of the samples having high antitubercular and antiviral activities and low toxicity.

## Valuable Technology Offerings

The application of the new technology for the synthesis of precursors for reducing their cost prices and, consequently, cost prices of their derivatives.

The novel indol-containing condensed tetracyclic systems developed having high anti-tubercular and anti-viral *in-vitro* activities in case of their further investigation and confirmation of *in-vivo* activity can be applied widely in medicine

## Scientific Cooperation and Technology Transfer

Several years ago we began collaborating with the US NIH's NIAID-sponsored compound screening programs, the **Tuberculosis** Antimicrobial Acquisition and Coordinating Facility (TAACF) and more recently, the Antimicrobial Acquisition and Coordinating Facility (AACF), which provides us with compound screening services against tuberculosis and 30 viruses (including influenza A and B strains), respectively. More than 150 compounds were sent for screening. Many of them showed high anti-tubercular in vitro (See www.taacf.org) and several - high antiviral (IVA (H1N1), IVA (H3N2) and IVB) activities. (See www.niaid-aacf.org)

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