December 20 - 21, 2021

Microbiology: yesterday, today, tomorrow

International conference devoted to the 100th anniversary of Microbiology Department at Kazan University

Kazan Federal UNIVERSITY

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MICROBIOLOGY

YESTERDAY, TODAY, TOMORROW

ABSTRACT BOOK
of International conference devoted to the 100th anniversary
of Microbiology Department at Kazan University

Kazan, December 20–21, 2021

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The conference will consider the fundamental and applied aspects of modern microbiology. The main attention will be paid to the medical, molecular, and agricultural areas of microbiology, modern methods of researching microorganisms, new biotechnologies using microorganisms and microbial enzymes, problems of biocorrosion and counteracting it, as well as promising microbial drugs. The plenary reports will touch upon the history of microbiology in Kazan, problems of modern virology, highlight the role of microbial biofilms in medicine and biology, molecular mechanisms of antitumor and antiviral action of bacterial enzymes, prospects of microbial biotechnology and the role of microorganisms in environment. The purpose of the event is to acquaint the audience with a wide range of studies in the field of microbiology and significant results obtained by KFU scientists and their Russian and foreign colleagues to date. An important outcome of the conference will be the joint development of promising strategies for the development of microbiology. One of the main tasks of the conference will be to attract young people to science.

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CHEMICAL STRUCTURE AND ISOLATION TECHNIQUES FOR FORMYLATED PHLOROGLUCINOL COMPOUNDS OF *EUCALYPTHUS VIMINALIS* LABILL

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Treatment of infectious inflammatory processes of various etiology remains one of the main problems of antimicrobial therapy due to a rapidly increasing number of antibiotic-resistant microorganism strains. In this race against the nature an effort has been making to produce / synthesize new compounds with antimicrobial activity. Extraction of a group or individual biologically active compounds from the plant material is an approach to this challenge.

Formylated phloroglucinol compounds (FPCs) constitute an important class of specialized metabolites widely distributed in plants of genus *Eucalyptus* Labill. These compounds demonstrate a wide range of antimicrobial, antioxidant, anti-inflammatory, antiparasitic and other biological activities as shown in vitro. The majority of FPCs of *Eucalyptus viminalis* belong to macrocarpals, mono- and sesquiterpene euglobals and sideroxilonals. Single individual compound isolated from leaves of Eucalyptus viminalis – «eucalypton» (macrocarpal am-1) – belongs to macrocarpals with two specialized groups in the chemical structure: one group is phloroglucinol dialdehyde moiety and another is a terpenoid domain.

Extraction of FPCs using lipophilic solvents (hexan, petroleum ether, benzol and etc.) is one of the most widely used approach to isolation of compounds of interest. However, there no commercially available drugs and other pharmaceutical sbstances based on FPCs.

HPLC with UV-detection at 275 ± 3 nm was described for quantitative determination of FPCs with using commercial samples of FPCs obtained in research laboratories. However, there are no commercially available standard samples of FPCs that meet the pharmaceutical standards.

In this context, further study is needed on chemical profiling and pharmacognosic analysis of *Eucalyptus viminalis*. Also antimicrobial effects of extract from this plant material should be studied on representative microorganism strains, including antibiotic-resistance samples.

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ВЧЕРА, СЕГОДНЯ, ЗАВТРА

ТЕЗИСЫ ДОКЛАДОВ
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