resolution

**International Conference «Lichens: from molecules to ecosystems »**

International Conference **«**Lichens: from molecules to ecosystems**»** was held in the Syktyvkar (Komi Republic), September 9-13, 2019. The Conference was organized by Institute of Biology FRC Komi SC UrB RAS with the help of Komarov Botanical Institute and Komi branch of Russian Society of Plant Physiologists.

The Conference dedicated to the discussion of various aspects of lichen research continues traditions of the International Workshop «Lichens of boreal forests» (Syktyvkar, 2007) and II International Conference «Lichenology in Russia: recent problems and future prospects » (Saint-Petersburg, 2014).

The Conference brought together scientists who conduct research in various fields of modern biology and ecology of lichens, as well as teachers and students of higher educational institutions from three continents (Eurasia, Africa and South America) and eight countries (Russia, Belarus, Estonia, Poland, Sweden, India, South Africa and Chile). The total number of participants was more than 100. At the Conference, 48 presentations have been made, including 12 plenary, 33 oral and 3 poster reports. The Institute of Biology published the Proceedings of the Conference (DOI: 10.31140/book-2019-04).

The Conference objectives were to summarize the data on different regional lichen biota, consider the biological properties and ecology of lichens, and their role in ecosystems, expand scientific contacts of specialists, and outline a program for further joint research.

The Conference topics included wide range of issues related to biodiversity and distribution of lichens, functional activity, accumulation of products of primary and secondary metabolism, the interaction of photo and mycobiont, the influence of climatic and anthropogenic factors on lichens. Special attention has been paid to studies of Polar and Subpolar lichen biota and possible climate impact on lichens. The issues of the biological activity of lichen substances were touched and the possibilities of their practical application in agriculture, medicine, the perfume industry, and other spheres of economic activity were discussed. The Conference agenda included round table on the problems of training scientific personnel for lichenological research, the dissemination and popularization of knowledge about lichens with an emphasis on the conservation of habitats of rare and vulnerable species.

During the Conference two scientific lichenological excursions were organized to the Yugyd va national park, the Pechoro-Ilychsky state biosphere reserve, and botanical reserve «Syktyvkarsky».

Conference participants noted that, despite the growing interest in studying the diversity, biology and environmental features of lichens, there are significant gaps in knowledge about the vital processes and sustainability of these symbiotic organisms. Researches tend to reduce in the remote regions of the Far North, the Arctic and Antarctic as well as in the central part of Russia. The use of modern physicochemical and molecular genetic methods is not enough. There is a shortage of qualified lichenologists. The results of studies of regional lichen flora, information and rare and protected species are not fully published, which complicates the involvement of these data in scientific and educational processes, their application for monitoring and solving applied problems of sustainable ecosystem management. The reasons for this are both insufficient funding and the lack of proper attention from the Ministry of Science and Higher Education of the Russian Federation and the Russian Academy of Sciences.

The Conference recommends:

1. To continue inventory and study of the diversity of lichen biota using molecular genetic analysis;
2. To develop research of lichen biota from the standpoint of modern biology, ecology, biotechnology and biomedicine and to involve specialists from related scientific fields – phytophysiologists, biochemists, biophysicists, biotechnologists, molecular biologists;
3. To expand cooperation and coordination, the exchange of scientific information and collection samples between Russian and foreign experts;
4. To expand the training of young lichenologists through magistracy, postgraduate and doctoral studies, internships in the leading Russian and foreign scientific centers;
5. To initiate the preparation of comprehensive lichen research programs, the submission of applications for financing joint scientific work, participation in international projects;
6. To prepare information about the Conference and submit it to international and Russian journals of the corresponding profile (Lichenologist, Botanical Journal, Theoretical and Experimental Biology, Vestnik instituta biologii, and others);
7. To approve the initiative of Tver State University of organizing the next International Conference « Lichens: from molecules to ecosystems» in 2022. To organize the Conference every three years.