

### THE 85<sup>th</sup> ANNIVERSARY OF ACADEMICIAN OF THE NATIONAL ACADEMY OF SCIENCES OF UKRAINE V.S. PIDHORSKYI



Valentyn Stepanovych Pidhorskyi, a well-known Ukrainian scientist in the field of microbiology and biotechnology, Academician of the National Academy of Sciences of Ukraine, Laureate of the State Prize of Ukraine in the field of science and technology and the Prizes of the National Academy of Sciences of Ukraine named after D.K.

Zabolotny and I.I. Mechnikov, Honored Worker of Science and Technology of Ukraine, and Director of the Institute of Microbiology and Virology of NAS of Ukraine, was born on February 5, 1937. Since 1961, his professional life has been connected with the Institute.

V.S. Pidhorskyi's scientific interests are focused on the fundamental issues of growth regulation and biosynthetic activity of yeast, lactic acid bacteria, nocardio- and root-like bacteria, their systematic position and patterns of distribution in nature. Considerable attention in his works is paid to complex studies in the field of bacterial lectinology and microbiological methods for the destruction of substances that pollute the biosphere.

V.S. Pidhorskyi is one of the pioneers of methylotrophic yeast and one of the classics of yeast methylotrophy. He first established the ability of yeast to grow on methyl alcohol as a carbon substrate and proposed a method for obtaining yeast biomass using methanol.

His early investigations were devoted to the properties of lactic acid bacteria and patterns of their distribution in nature and the animal body.

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Citation: The 85th anniversary of Academician of the National Academy of Sciences of Ukraine V.S. Pidhorskyi. *Microbiological journal*. 2022 (1). P. 80—81.

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Under V.S. Pidhorsky's leadership, for the first time, the high antiviral activity of *Bacillus subtilis* lectins against influenza, herpes, and hepatitis C viruses was revealed, and the mechanisms of this action were established. Also, *B. subtilis* B-7014 lectin was shown to possess the greatest affinity for sialic glucoconjugates, in which terminal O-acetylated sialic acid is combined with subterminal D-galactose by  $\alpha$ -2,3;  $\alpha$ -2,6 or  $\alpha$ -2,8 bonds and completely blocks the surface sial-containing receptors of viruses, which prevents their adsorption, reproduction, as well as the occurrence and development of viral infection.

A significant place in V.S. Pidhorskyi's scientific activity is engaged by investigations aimed at solving the problems of bioremediation of technologically polluted ecosystems, in particular the creation of modern microbial biotechnologies for purification of soil and water from oil. The result of the successful implementation of this work was the selection of actinobacteria strains capable of active utilization of hydrocarbons, including cyclic and aromatic compounds, and the identification of their resistance to adverse environmental factors. He showed prospects for using actinobacteria of the genus *Rhodococcus* for the biodestruction and biotransformation of phenolic compounds, in particular the biological disposal of unusable toxic pharmaceuticals containing phenolic hydroxyl in their structure. The carried-out research served as the basis for the creation of biological preparations "Rodoil", «Ekolain», and «Ekolain-M» using strains of actinobacteria, intended for the bioremediation of ecosystems disturbed by oil and oil products. In the complex of research in the field of environmental protection, his work on the neutralization of xenobiotics is of great importance. Bacteria capable of reducing oxygen-containing anions have been established to be widespread in nature. Active strains of chromate-, chlorate-, and perchlorate-reducers were selected, and the physiological and thermodynamic characteristics of the reduction of these anions have been

obtained. Antagonism and synergism of the action of various electron acceptors on enzyme systems of active cultures have been revealed.

Along with fundamental and applied research in the fields of microbiology and biotechnology, an important place in the work of V.S. Pidhorsky has been occupied by the creation and development of the Ukrainian Collection of Microorganisms and the National Center of Strains of Microorganisms.

Valentin Stepanovych conducts active scientific-organizational work. He is chairman of the scientific board at the National Academy of Sciences of Ukraine for the problem «Microbiology», president of the Society of Microbiologists of Ukraine named after S.M. Vynohradskyi, editor-in-chief of the «Microbiological Journal», head of the specialized scientific board for the defense of doctoral dissertations in the specialties «microbiology», «virology», and «biotechnology». In addition, he actively cooperates with scientists of many countries.

The scientific acquisition of V.S. Pidhorskyi includes above 550 publications, among which 5 monographs and above 60 inventions. Over many years, he gave the course of industrial microbiology at the Taras Shevchenko National University of Kyiv. Under his supervision, 5 doctors and 20 candidates of sciences have been trained.

On the occasion of the 85-th anniversary, we sincerely wish Valentyn Stepanovych Pidhorskyi good health, strength to resist difficulties, high inspiration, original ideas, and further creative achievements in all his dealings!

*The staff of the Institute of Microbiology  
and Virology named after D.K. Zabolotny,  
Department of physiology of industrial microorganisms  
Society of Microbiologists of Ukraine  
named after S.M. Vinohradskyi  
Editorial board and editors  
of the «Microbiological Journal»*