

Professor Irina Leonidovna Rabotnova (1913–2003)



Irina Leonidovna Rabotnova, who died at the age of 90 after a serious illness, was a distinguished Russian microbiologist.

Rabotnova graduated from the Department of Microbiology at Moscow State University in 1935. At the time, the department was headed by Professor E.E. Uspenskii and, later, by Academician V.N. Shaposhnikov. After receiving a postgraduate education at the department, Rabotnova defended her candidate and then doctoral dissertation (1957). Working as an associate professor and then as a professor at the Department of Microbiology, she trained and advised many students, who later became skilled researchers in the field of microbiology. For many years, Rabotnova headed the Department of the Physiology of Microbial Growth and Development, which was

established by N.D. Ierusalimskii (a pupil of Uspenskii and Shaposhnikov) at the Institute of Microbiology of the Academy of Sciences of USSR. At this post, Rabotnova greatly contributed to the formation of a Russian school of microbiologists studying microbial physiology.

Rabotnova initiated the study of the effect of physicochemical environmental conditions on microorganisms. The main results of this study were reported in her monograph *The Role of Physicochemical Environmental Factors (pH and rH_2) on the Metabolism of Microorganisms* (1957), which played an important part in the study of the physiological and biochemical aspects of microbial growth. This line of research was further developed during a study of the chemostat cultivation of microorganisms. The results of this research were presented in the book *Chemostat Cultivation and Inhibition of the Growth of Microorganisms*, which was written in 1979 together with I.N. Pozmogova.

The comprehensive investigation of the effect of unfavorable (in modern terminology, stressful) conditions on the growth of microorganisms allowed Rabotnova to advance an idea of a new type of metabolism (adaptive metabolism), when a microorganism modifies its metabolism in order to neutralize unfavorable environmental factors, for example, by producing acids in response to alkaline conditions or reductants in response to the action of oxidative stress.

As president of the All-Union Microbiological Society, a position that she occupied for some years, Rabotnova greatly contributed to the development of microbiology in different regions of Russia. Rabotnova successfully combined her research activity with teaching. She advised and inspired many postgraduate students, who are now candidates and doctors working in different fields of science and technology. Rabotnova was a good lecturer and wrote a textbook and some manuals on microbiology.

Rabotnova's death is a grave loss for Russian microbiology.

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