Inna Pavlovna Babjeva
Инна Павловна Бабьева
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Prepared and communicated by
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Inna Pavlovna was born in a family of agronomists and entertained a passion for soil through her scientific career.
Beginning of soil biology

Her scientific career started in 1953 when she joined the newly founded department of soil biology at Lomonosov Moscow State University headed by prominent Soviet microbiologist Nikolai Krasilnikov.

New campus of the Lomonosov Moscow State University was opened in 1953.
Soil biology and soil microorganisms

Nikolai Krasilnikov studied soil microorganisms in the 1930’s while searching for novel actinomycetes, suggested to investigate of soils as a source of yeasts even though the ability of yeasts to propagate in soils was repeatedly questioned at the time.
In 1950’s rapid growth of research and technology in the Soviet Union boosted agriculture and intensified agricultural research, including microbiology. Inna Babjeva was invited to lead the field microbiological research as the university launched a large-scale field study of soils across the Russian plain.
Few studies of soil yeasts were available at that time, and so Babjeva and her long-term assistant Irina Sergeevna Reshetova began to develop and optimise methods for the isolation and characterisation of yeasts from soils.
Yeasts in soils

In 1950-60s, soil yeasts were also studied by Margaret E. di Menna in New Zealand. Research of both laboratories often went in parallel whereby isolation techniques were developed, new soil-borne species were discovered, yeast adaptation to soils was studied, and the distribution of yeasts in different soil types was explored.
Species of the genus *Lipomyces* were among first yeasts isolated from soils by Babjeva. Her students and collaborators cultured members of the genus from the entire range of studied soils.
The biology and distribution of *Lipomyces* was investigated over 30 years. A review of this knowledge was published in 1987 by Gorin and Babjeva.
Diversification of research

Starting from the 1970s, the scientific scope of the laboratory diversified.

Complex investigation of biotopes, including aboveground habitats

- phyllosphere
- flowers
- fruits
- decomposing plant material
- invertebrates
- mushrooms
Yeasts associated with plants

Yeasts on surfaces of leaves and roots have been studied using conventional cultivation techniques and (modern at that time) SEM.
Species discovery and taxonomy

Isolation of yeasts from soils and above ground substrates gave rise to numerous studies on the biology and systematics yeasts.
Interactions of yeasts and other organisms

Observations of yeasts growing on soil particles lead to a better understanding of microbial communities
- yeasts predation by soil organisms
- ascospore survival in gut
- co-growth of yeasts and bacteria
Yeasts and (not only soil) invertebrates

Yeasts and different groups of invertebrates
- ants
- bark beetles
- bees
- earthworms
- millipedes
- springtails

Interactions with invertebrates
- symbiotic association
- food source
- vectoring
Distribution and ecology

Although soils remained the primary topic for a long time, substrates adjacent to soils were routinely investigated by Babjeva and co-workers to distinguish true soil-borne yeasts from transient species.

In 1990-2000s a former student of Inna Pavlovna, **Ivan Chernov**, summarised results collected by the laboratory and performed multivariate statistical analyses to elucidate distributions patterns of yeast species.
The legacy

Inna Pavlovna Babjeva published over 220 publications and 8 books, including practical guides and handbooks.
A total of 60 graduate students, of which 21 PhD students, passed through the soil yeast laboratory.
The legacy

Representative cultures isolated during these surveys were preserved in the culture collection for future studies (currently KBP MSU, WDCM 1173).
The Yeast Commission (first, 1973)

Inna Pavlovna Babjeva was a commissioner representing Soviet Union and later Russia in the International Commission on Yeasts. For many years, she remained one of very few woman commissioners.
The Yeast Commission

with Phaff, Naumov, Golubev, Pignal
The Yeast Commission (last, 1997)
50 years of field studies

Inna Pavlovna Babjeva was an active field microbiologist
The Yeasts

Inna Pavlovna Babjeva described
• nearly 20 yeast species and
• 1 yeast genus and
• several taxonomic combinations
The Yeasts

Her contribution to yeast science was recognised by colleagues who described two yeast genera and two yeast species in her honour, namely, *Babjevia, Babjeviella, Rhodotorula babjevae* and *Saccharomycopsis babjevae*.

*Babjevia gen. nov. – a new genus of the Lipomycetaceae*

M.Th. Smith¹, J.P. van der Walt² & W.H. Batenburg-van der Vegte¹

Phylogenetic analysis of ascomycete yeasts that form coenzyme Q-9 and the proposal of the new genera *Babjeviella, Meyerozyma, Millerozyma, Priceomyces, and Scheffersomyces*

Cletus P. Kurtzman · Motofumi Suzuki
Inna Pavlovna Babjeva will be missed by her two children, four grandchildren, ten great-grandchildren, her students, former colleagues, and many others.

Family, colleagues and students