

# BRAZILIAN JOURNAL OF MICROBIOLOGY

The **Brazilian Journal of Microbiology** - ISSN 1517-8382 - is the journal published quarterly by the **Sociedade Brasileira de Microbiologia - SBM** (Brazilian Society for Microbiology), replacing the *Revista de Microbiologia* - ISSN 0001-3714. The new journal begins with vol. 31, issue 1, of January/March 2000, following the sequence of numbering of its predecessor, which was published from 1970 to 1999, vol. 1 to vol. 30. The **Brazilian Journal of Microbiology** is intended to publish original research papers and reviews, covering all aspects of Microbiology. The journal has a strict policy of manuscript evaluation, and each manuscript is evaluated carefully by at least two selected referees. The abbreviated title of the journal is **Braz. J. Microbiol.**, which should be used in bibliographies, footnotes, bibliographical references and strips.

Partially financed with funds from:



Indexed in:  
Ministério da  
Ciência e Tecnologia

Ministério da  
Educação

NCBI (PubMed - USA), Current Contents (ISI - USA), Web of Science (ISI - USA), Chemical Abstracts (CAS - USA), Biological Abstracts (BIOSIS - USA), Food Science and Technology Abstracts (FSTA - USA), Commonwealth Agricultural Bureaux (CAB - UK), Ulrich's International Periodicals (USA), LILACS (La Literatura Latinoamericana y del Caribe de Información en Ciencias de la Salud BIREME/PAHO/WHO), SCOPUS (Amsterdam, The Netherlands), Directory of Open Access Journal (DOAJ) (Lund, Sweden), OpenJ-Gate (India), Genamics Journal Seek (Hamilton, New Zealand), Scientific Electronic Library Online - SciELO.

## Editor-in-Chief

**Marina Baquerizo Martinez**  
*Universidade de São Paulo, São Paulo, SP, Brazil*

## Associate Editors

**Biotechnology and Industrial Microbiology**  
*Biosynthesis and bioconversion of natural products, including antibiotics, xenobiotics, and macromolecules produced by bacteria. Biosynthesis and bioconversion of natural products, including antibiotics, xenobiotics, and macromolecules produced by fungi. Molecular aspects of fungal biotechnology. Molecular aspects of bacterial biotechnology.*

**Adalberto Pessoa Junior**  
*Universidade de São Paulo, SP, Brazil*

**Eleni Gomes**  
*Universidade do Estado de São Paulo, SP, Brazil*

**Gisele Monteiro de Souza**  
*Universidade de São Paulo, SP, Brazil*

**Rosane Freitas Schwan**  
*Universidade Federal de Lavras, MG, Brazil*

**Solange I. Mussato**  
*Technical University of Denmark, Kongens Lyngby, Denmark*

**Food Microbiology**  
*Applications of microorganisms (bacteria and fungi) for food production. Food borne diseases, food spoilage, and microbial ecology in foods.*

**Elaine Cristina Pereira de Martinis**  
*Universidade de São Paulo, SP, Brazil*

**Luís Augusto Nero**  
*Universidade Federal de Viçosa, MG, Brazil*

**Mariza Landgraf**  
*Universidade de São Paulo, SP, Brazil*

**Susana Marta Isay Saad**  
*Universidade de São Paulo, SP, Brazil*

**Bacterial and Fungal Pathogenesis**  
*The genetic, biochemical, and structural basis of bacterial pathogenesis.*

**Agnes M.S. Figueiredo**  
*Universidade Federal do Rio de Janeiro, RJ, Brazil*

**Beatriz Ernestina Cabilio Guth**  
*Universidade Federal de São Paulo, SP, Brazil*

**Carlos P. Taborá**  
*Universidade de São Paulo, SP, Brazil*

**Celia Maria de Almeida Soares**  
*Universidade Federal de Goiás, GO, Brazil*

**Cristiano Gallina Moreira**  
*Universidade do Estado de São Paulo, SP, Brazil*

**Nilton Lincopan**  
*Universidade de São Paulo, SP, Brazil*

**Rosana Puccia**  
*Universidade Federal de São Paulo, SP, Brazil*

**Sandro Rogerio de Almeida**  
*Universidade de São Paulo, SP, Brazil*

**Waldir P. Elias Junior**  
*Instituto Butantan, SP, Brazil*

**Clinical Microbiology**  
*Studies of medically-important bacteria, fungi and virus.*

**Afonso Luís Barth**  
*Universidade Federal do Rio Grande do Sul, RS, Brazil*

**Ana Lúcia da Costa Darini**  
*Universidade de São Paulo, SP, Brazil*

**Carlos Pelleschi Taborá**  
*Universidade de São Paulo, SP, Brazil*

**Elizabeth Andrade Marques**  
*Universidade do Estado do Rio de Janeiro, RJ, Brazil*

**John Anthony McCulloch**  
*Universidade de São Paulo, SP, Brazil*

**Jorge Luiz Mello Sampaio**  
*Universidade de São Paulo, SP, Brazil*

**Maurício Lacerda Nogueira**  
*Faculdade de Medicina de São José do Rio Preto, SP, Brazil*

**Nilton Lincopan**  
*Universidade de São Paulo, SP, Brazil*

**Sandro Rogerio de Almeida**  
*Universidade de São Paulo, SP, Brazil*

**Environmental Microbiology**  
*Ecology of natural microbial assemblages, microbial diversity of natural environments such as water, soil, sediments and higher organisms. Microbial interactions. Biodegradation, Bioremediation, and Environmental considerations for genetically engineered microorganisms.*

**Cyntia Canedo Silva**  
*Universidade Federal de Viçosa, MG, Brazil*

**Derlene Attili de Agellis**  
*CPQBA, Universidade de Campinas, SP, Brazil*

**Fernando Dini Andreotti**  
*Universidade de São Paulo, SP, Brazil*

**Iêda Carvalho Mendes**  
*Empresa Brasileira de Pesquisa Agropecuária, DF, Brazil*

**Jerri Edson Zilli**  
*Empresa Brasileira de Pesquisa Agropecuária, RJ, Brazil*

**Luc F. M. Rouws**  
*Embrapa Agrobiologia, RJ, Brazil*

**Luiz Roesch**  
*Universidade Federal do Pampa, RS, Brazil*

**Valéria Maia de Oliveira**  
*Universidade Estadual de Campinas, SP, Brazil*

**Vânia M. M. Melo**  
*Universidade Federal do Ceará, CE, Brazil*

**Wellington Araujo**  
*Universidade de São Paulo, SP, Brazil*

**Veterinary Microbiology**  
*Diseases of animals, Control and/or treatment of animals, Animal pathogen diagnostics, and Veterinary or zoonotic pathogens.*

**Fernando R. Spilke**  
*Universidade Feevale, RS, Brazil*

**Miliane Moreira Soares de Souza**  
*Universidade Federal Rural do Rio de Janeiro, RJ, Brazil*

**Fungal and Bacterial Physiology**  
*Biochemistry, biophysics, metabolism, cell structure, stress response, growth, differentiation and other related process.*

**Luís Henrique Souza Guimarães**  
*Universidade de São Paulo, SP, Brazil*

**Bacterial, Fungal and Virus Molecular Biology**  
*Fungal and Bacterial genetics, molecular biology, gene regulation, DNA replication and repair, genomics, proteomics, transcriptomics.*

**Celia Maria de Almeida Soares**  
*Universidade Federal de Goiás, Goiânia, GO, Brazil*

**Fernando R. Spilki**  
*Universidade Feevale, Novo Hamburgo, RS, Brazil*

**Flávio Guimarães da Fonseca**  
*Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil*

**Giliane de Souza Trindade**  
*Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil*

**John Anthony McCulloch**  
*National Institute of Health, Washington DC, USA*

**Maurício Lacerda Nogueira**  
*Faculdade de Medicina de São José do Rio Preto, São José do Rio Preto, SP, Brazil*

**Rodrigo Galhardo**  
*Universidade de São Paulo, São Paulo, SP, Brazil*

**Rosana Puccia**  
*Universidade Federal de São Paulo, São Paulo, SP, Brazil*

**Education in Microbiology**  
*Original research papers and reviews covering education and learning technologies in Microbiology.*

Reporting experiences of learning methods with undergraduate or graduate students; effectiveness of pedagogical approaches; development and assessment of trends in education in micro-biology.

**Marina Baquerizo Martinez**  
*Universidade de São Paulo, São Paulo, SP, Brazil*