

Microbial Processing of Metal Sulfides

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edited by

Edgardo R. Donati

University of La Plata, Argentina

and

Wolfgang Sand

University of Duisburg-Essen, Germany

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LIST OF CONTRIBUTORS

Heloisa A. Acciari Universidade Estadual Paulista, Instituto de Química, Departamento de Bioquímica e Tecnologia Química, Araraquara-SP, Brazil.

Fernando Acevedo School of Biochemical Engineering, Pontifical Catholic University of Valparaiso, Valparaiso, Chile.

Antonio Ballester Departamento de Ciencia de Materiales e Ingeniería Metalúrgica, Facultad de Ciencias Químicas, Universidad Complutense de Madrid, Madrid, Spain.

Assis V. Benedetti Universidade Estadual Paulista, Instituto de Química, Departamento de Fisico-Química, Araraquara-SP, Brazil.

María Luisa Blázquez Departamento de Ciencia de Materiales e Ingeniería Metalúrgica, Facultad de Ciencias Químicas, Universidad Complutense de Madrid, Madrid, Spain.

Alvaro Banderas Unit of Bacterial Cell Communication, Laboratory of Molecular Microbiology and Biotechnology, Department of Biology, Faculty of Sciences, University of Chile, Santiago, Chile.

Denise Bevilaqua Universidade Estadual Paulista, Instituto de Química, Departamento de Bioquímica e Tecnologia Química, Araraquara-SP, Brazil

Domingo Cantero Universidad de Cádiz, Cádiz, Spain.

Patricia Chiacchiarini Facultad de Ingeniería, Universidad Nacional del Comahue, Neuquén, Argentina.

David G. Dixon Department of Materials Engineering, University of British Columbia, Vancouver, Canada.

Edgardo Donati Cindefi (CONICET-UNLP), Universidad Nacional de La Plata, La Plata, Argentina.

Oswaldo Garcia Jr. Universidade Estadual Paulista, Instituto de Química, Departamento de Bioquímica e Tecnologia Química, Araraquara-SP, Brazil.

Juan Carlos Gentina School of Biochemical Engineering, Pontifical Catholic University of Valparaiso, Valparaiso, Chile.

Alejandra Giaveno Facultad de Ingeniería, Universidad Nacional del Comahue, Neuquén, Argentina.

Nicolas Guiliani Unit of Bacterial Cell Communication, Laboratory of Molecular Microbiology and Biotechnology, Department of Biology, Faculty of Sciences, University of Chile, Santiago, Chile.

Jose Manuel Gómez Montes de Oca Universidad de Cádiz, Cádiz, Spain.

Felisa González Departamento de Ciencia de Materiales e Ingeniería Metalúrgica, Facultad de Ciencias Químicas, Universidad Complutense de Madrid, Madrid, Spain.

K. Hanumantha Rao Division of Mineral Processing, Luleå University of Technology, Luleå, Sweden.

David S. Holmes Center of Bioinformatics and Genome Biology, Andrés Bello University (UNAB), Life Science Foundation and Millennium Institute of Fundamental and Applied Biology, Santiago, Chile.

Eugenia Jedlicki Program of Cellular and Molecular Biology, I.C.B.M., Faculty of Medicine, University of Chile, Santiago, Chile.

Carlos A. Jerez Laboratory of Molecular Microbiology and Biotechnology, Department of Biology, Faculty of Sciences, University of Chile, Santiago, Chile.

Laura Lavalle Facultad de Ingeniería, Universidad Nacional del Comahue, Neuquén, Argentina.

Renata Matlakowska Warsaw University, Faculty of Biology, Warsaw, Poland.

Dominique Henri Roger Morin BRGM, Orléans, France.

Jesús A. Muñoz Departamento de Ciencia de Materiales e Ingeniería Metalúrgica, Facultad de Ciencias Químicas, Universidad Complutense de Madrid, Madrid, Spain.

Jochen Petersen Department of Chemical Engineering, University of Cape Town, South Africa.

Cristina Pogliani Cindefi (CONICET-UNLP), Universidad Nacional de La Plata, La Plata, Argentina.

Raquel Quatrini Center of Bioinformatics and Genome Biology, Andrés Bello University (UNAB), Life Science Foundation and Millennium Institute of Fundamental and Applied Biology, Santiago, Chile.

Thore Rohwerder University of Duisburg-Essen, Biofilm Centre, Aquatic Biotechnology, Duisburg, Germany.

Wolfgang Sand University of Duisburg-Essen, Biofilm Centre, Aquatic Biotechnology, Duisburg, Germany.

Axel Schippers Geomicrobiology, Federal Institute for Geosciences and Natural Resources, Hannover, Germany.

Aleksandra Sklodowska Warsaw University, Faculty of Biology, Warsaw, Poland.

S. Subramanian Department of Metallurgy, Indian Institute of Science, Bangalore, India.

Jorge Valdés Center of Bioinformatics and Genome Biology, Andrés Bello University (UNAB), Life Science Foundation and Millennium Institute of Fundamental and Applied Biology, Santiago, Chile.

Susana Valenzuela Unit of Bacterial Cell Communication, Laboratory of Molecular Microbiology and Biotechnology, Department of Biology, Faculty of Sciences, University of Chile, Santiago, Chile.

Marisa Viera Cindefi (CONICET-UNLP), Universidad Nacional de La Plata, La Plata, Argentina.

PREFACE

In the last years, the application of microbiological methods to the extraction of metals from minerals has definitely gained a prominent role supported by the several bioleaching and biooxidation processes operating in different sites over the world. This may be an important reason why fundamental research has received a new powerful stimulus with fascinating discoveries and in addition it surely will become the cause of future development in the field. In 1997 Springer published an excellent book entitled 'Biomining' (edited by D. E. Rawlings) which not only provided critical discussion of microbial and physicochemical aspects of bioleaching processes (written by prestigious experts in biohydrometallurgical field) but also it concentrated many contributions by people employed in industries. During the last years since the publication of 'Biomining', the advances in molecular biology methods have been applied extensively to the study of microorganisms involved in bioleaching processes. In addition recent studies about proteomic and bioinformatics are bringing a new perspective on the microbial processes. Furthermore, there is a growing agreement about the mechanisms of bioleaching and the role played by exopolymers substances in the interfacial degradation of metal sulfides. Additionally new evidence has been supplied by new techniques (electrochemical techniques, atomic force microscope). Due to the growing literature in these and other aspects, we think a new book could be opportune to organize partially this new information. However, it is clear that covering the range of subject areas in depth would require several volumes of specialist text. That is why, it has been necessary to be selective. Since the book 'Biomining' is still a large reference to the applied technology, we hope that this new book could go some way towards introducing undergraduate and postgraduate students as well as interested industrialists to the main subjects of microbial processing with special emphasis to the last contributions of the chemical and microbial aspects of bioleaching process and use of microorganisms in the treatment of complex ores and concentrates.

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Wolfgang Sand and Edgardo Donati