Preface

メタデータ	言語: English 出版者: 公開日: 2017-10-05 キーワード (Ja): キーワード (En): 作成者: Tazaki, Kazue, 田崎, 和江 メールアドレス: 所属:
URL	https://doi.org/10.24517/00035475

This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 International License.

Preface

Water and Soil Environments; Microorganisms play an important role

In water and soil environmental systems, microorganisms are the most abundant and widespread, doing it in many ways. The microorganisms closely contribute to interaction with inorganic materials in the Earth, carry all kinds of elements, even though heavy metals and radioactive elements. They produce many other compounds on their cell surface during accumulation, precipitation, and alteration processes. The cell wall provides sites for mineral nucleation. The running water on the surface of microbial mats consisting of microorganisms encourages to produce biominerals.

Microorganisms in water and soils are microscopic size. Electron microscopy is frequently portrayed real natural systems. Energy dispersive spectroscopy comes immediately to know the chemistry of the selected micro area. In this book we have many electron microscopic photographs of biological specimens mostly, virus, bacteria, algae, fungi, diatom and clays which are totally elucidated in the ecosystem. "Seeing is believing without 1000 words".

In this book we have such a diverse field of the subject, bio-mineralization, dam sediments, rocks, microbial mats, crystallization, bioremediation of oil and polluted water etc. Microorganisms play an important role showing significant evidence of their existence and activities in water and soils. This is the central theme of this book. There also a good number of laboratory procedure are available, in the book which is offered to help other specialists see how things work in transmission and scanning electron microscopy, thus opening up diverse application fields.

Fortunately, in 2002, Field Emission Energy Filter Transmission Electron Microscope equipped with energy dispersive X-ray analyzer (JEM-2010FEF) has brought our Kanazawa University by COE project. With specific energy loss electrons, the JEM-2010FEF makes it possible to image the two-dimensional distribution of elements in the specimen and select optimum image contrast. Utilized electron microscopy techniques actively produce high resolution of structural observation, micro area chemical analysis, and mineralogy, associated with microbial behavior. Looking at

the future of micro ecology, the power of the techniques to utilize molecular approaches to probe the location of various cellular products. The activities have rekindled interest in the truly dynamic aspects of ecosystems.

This book includes contributions from 38 scientists from 6 countries representing 15 different institutions or laboratories. Some of the authors were invited speakers at the symposium < Water and Soil Environments; Microorganisms play an important role> held in December 2002 in Kanazawa, others had submitted papers on that occasion. This book therefore reflects the actual state of research and highlights the role and the importance of microorganisms in the environment. Nevertheless, the editor has been careful to include the most important and significant recent trends and has focused on the interactions with biominerals, dam sediments, heavy oil, rocks and minerals.

We are deeply indebted to authors and editors who generously gave time to the task of writing and editing contributions in this book.

Kazue Tazaki
Kanazawa University
Japan

January 14, 2003

The symposium < Water and Soil Environments; Microorganisms play an important role> was held in Kanazawa University in 2002 December 4th. We invited 6 guest speakers, about 50 audiences and 2 PD of the COE. The symposium and the scientific exchange meeting were very successful, as shown in commemorative photographs.

Program leader ; Kazuichi Hayakawa
Session organizer ; Kazue Tazaki