Journal of Industrial Microbiology (1995) 17, vi

Introduction

Biodiversity has become a popular buzz word among politicians, economists and the public in general. Sequencing the *Methanococcus jannaschii* genome has greatly expanded our knowledge of life's diversity and improved public awareness of the role microbes play. Thanks to the persistence of academic, government and industrial microbial ecologists, physiologists and molecular phylogeneticists, microorganisms are being recognized for their value in maintaining both a direct and indirect balance in our lives. Several workshops have been held by the National Science Foundation and the American Academy of Microbiology to evaluate the importance of biodiversity. What does microbial diversity really mean, why are we interested in it, how does society benefit from scientific studies and how have our lives been improved with respect to health, food, and environment?

The value and benefits of studying biodiversity are multifold and include:

- expanding the frontiers of knowledge about the strategies and limits of life;
- bringing to the fore the critical importance of microorganisms to the sustainability of life on our planet;
- discovering the untapped diversity of microorganisms as a resource for new genes and organisms of value to biotechnology;
- using diversity patterns of microorganisms for monitoring and predicting environmental change;
- understanding how microbes play a role in conservation and restoration biology of higher organisms;
- developing microbial communities as models for understanding biological interactions and evolutionary history.

What JIM has tried to capture in these two special issues on microbial diversity is the depth and breadth of some of the current research going on in areas assessing microbial diversity at the systematic, molecular, physiological, ecological, utility and informatics levels. The first of these two issues focuses on microbial molecular diversity, phylogeny, physiology and ecology. The second issue focuses on processes, products and bioinformatics.

A sincere thank you is extended to each and every one of our authors and to the 77 reviewers who patiently reviewed the manuscripts. A sincere thank you is also extended to Mrs Avril Quarrie who painstakingly dealt with all the paperwork and phone calls. We leave you with this quote to ponder and go forward by combining both classic and new approaches to studying the microbial diversity that exists on earth and probably elsewhere!

'The key to taking the measure of biodiversity lies in a downward adjustment of scale . . . Most of the Earth's largest species — mammals, birds, and trees — have been seen and documented. But microwildernesses exist in a handful of soil or aqueous silt collected almost anywhere in the world . . . Bacteria, protistans, nematodes, mites, and other minute creatures swarm around us, an animate matrix that binds Earth's surface . . . If I could do it all over again, and relive my vision in the twenty-first century, I would be a microbial ecologist . . . Into that world I would go with the aid of modern microscopy and molecular analysis.'

So wrote Edward O Wilson in his autobiography *Naturalist* in 1994 (Island Press, Washington, DC).

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