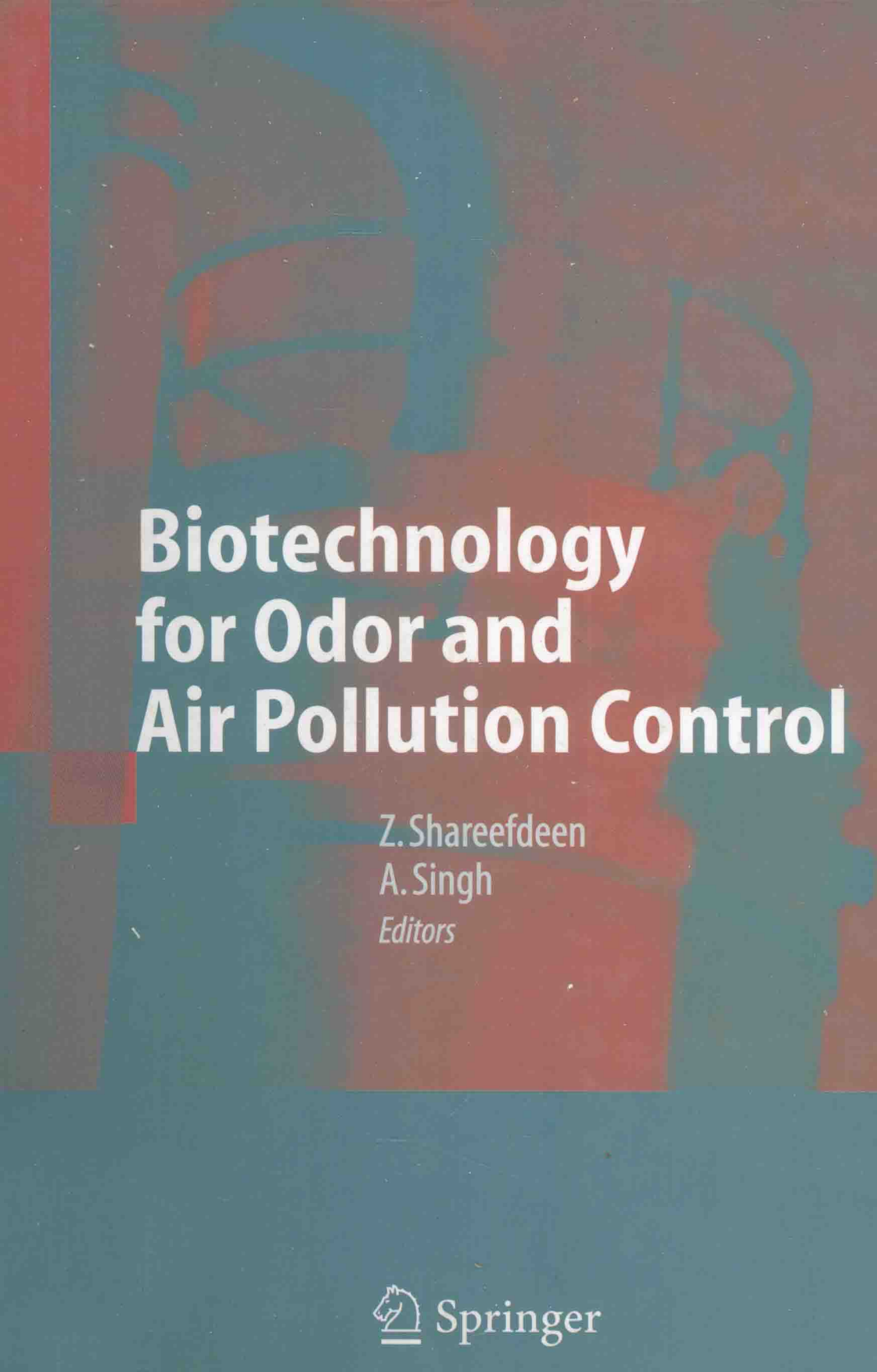

Biotechnology for Odor and Air Pollution Control

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Editors

Springer

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With 70 Figures

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Preface

Volatile organic and inorganic odorous compounds from various industries are emitted in large quantities and create hazards to the ecosystem and health effects to humans. The need for odor and air pollution control is driven by regulatory issues, generally enforced as a result of public complaints about poor local air quality and through emission monitoring by the enforcement agencies. With increasing populations, and new residential and industrial developments, the demand for air pollution control systems that provide nuisance-free, breathable air is growing.

Biotechnology offers one of the most economical and environmentally benign methods of air pollution control for industrial and municipal airstreams. Bioprocess is becoming an effective alternative to traditional physical and chemical odor removal methods used in wastewater treatment plants, rendering plants, chemical production facilities, and food and flavor manufacturing facilities.

This book, *Biotechnology for Odor and Air Pollution Control*, covers not only the basic microbiological and engineering aspects of various bioreactors, but also describes the design, modeling, and control of such bioreactors for their unique applications in odor and air pollution management, and control in industrial facilities and wastewater treatment plants. Specific topics include methods of odor and volatile organic compound (VOC) control, regulatory issues, microbiological aspects of bioreactors, selection of bioreactor media, description and design of various bioreactors for odor and air pollution control, such as biofilter, biotrickling filter, bioscrubber and membrane bioreactor, and applications and case studies related to these technologies for the treatment of air contaminants in municipal and industrial plants, and future prospects of biotechnology for odor and air pollution control.

The contributing authors are applied and industrial researchers from diverse backgrounds: universities, research institutes, and industries. They are experts in biological methods for odor and air pollution control. This book will be a valuable reference tool for graduate students, scientists, industrial consultants, biotechnologists, microbiologists, and chemical, biochemical, environmental and civil engineers who are interested in environmental sciences, and particularly, in innovative biological technologies for treatment and control of odor and air pollution. We hope that students, teachers, scientists and engineers, whether in academia, industry or government, will find the descriptive and practical contents of this book interesting and helpful.

We are grateful to all the authors for their excellent contributions. Several of our colleagues provided encouragement and help during the various stages of this editorial work. Continuous support and guidance provided by Dr. Jutta Lindenborn, Springer, during the preparation of this book is highly appreciated.

Guelph, Ontario, May 2004 *Zarook Shareefdeen and Ajay Singh*

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