INTRODUCTION TO THE PROCEEDINGS
OF THE SIXTEENTH SYMPOSIUM ON
BIOTECHNOLOGY FOR FUELS AND CHEMICALS

Brian H. Davison
Chemical Technology Division
Oak Ridge National Laboratory*
Oak Ridge, Tennessee 37831-6224

For publication in the
Proceedings of the Sixteenth Symposium on
Biotechnology for Fuels and Chemicals
Held at Gatlinburg, Tennessee
May 9-13, 1994

The submitted manuscript has been authored
by a contractor of the U.S. Government
under contract No. DE-AC05-84OR21400.
Accordingly, the U.S. Government retains a
nonexclusive, royalty-free license to
publish or reproduce the published form
of this contribution, or allow others to
do so, for U.S. Government purposes.

*Managed by Martin Marietta Energy Systems, Inc. for the U.S. Department of Energy under contract
DE-AC05-84OR21400.
DISCLAIMER

 Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.
Biotechnology is both an old and new technology. It has expanded from the fermentation industry to applied molecular biology.

Biotechnology can be defined as the use of biologically derived materials and biocatalysts to carry out desired transformations from one material to another. These biocatalysts can be enzymes or microorganisms. The transformation may be of raw materials into useful compounds or for the destruction of industrial wastes. One use of biotechnology is for the production of fuels and chemicals. These may be produced from renewable resources or fossil fuels.

This has been the broad area focused on by this Symposium for the past 16 years. The Symposium on Biotechnology for Fuels and Chemicals presents both applied and fundamental work in this area performed by universities, industries, and government institutions. The goal, whether near term or long term, is to find and demonstrate efficient, economical methods for the use of biotechnology to supply society's needs for fuels and chemicals. The Symposium allows interactions among the researchers in an intimate setting to foster the interactions that will be necessary to commercialize and use these technologies. Efforts presented include all aspects of the process: the pretreatment and beneficiation of the raw material, the biological conversion in some reactor, the separation and recovery of the desired product, and the treatment of the waste streams from this and earlier legacy processes. There are also efforts of the sensing, monitoring, and control of the process and well and the economic analysis to estimate the overall utility and impact.

The Sixteenth Symposium on Biotechnology for Fuels and Chemicals provided a forum for the exchange of ideas. There were 34 oral presentations and 81 poster presentations for a total of 115. These were organized into sessions of thermal, chemical, and biological processing; bioprocessing research; process economics and commercialization; and environmental biotechnology. There was also a special session on Past, Present, and Emerging Concepts in Applied Biological Research held in honor of Dr. C. D. Scott and marking the establishment of an award in his honor.


Organization of the symposium was as follows:
Organizing Committee

Jonathan Woodward, Chairman, Oak Ridge National Laboratory
Charles E. Wyman, Cochairman, National Renewable Energy Laboratory
Graham F. Andrews, Idaho National Engineering Laboratory
Antonios A. Antonopoulos, Argonne National Laboratory
Rakesh Bajpai, University of Missouri
David Boron, U.S. Department of Energy
James Doncheck, Bio-Technical Resources, L.P.
Barbara J. Goodman, National Renewable Energy Laboratory
Elias Greenbaum, Oak Ridge National Laboratory
Michael E. Himmel, National Renewable Energy Laboratory
Donald L. Johnson, Grain Processing Corporation
Raphael Katzen, Raphael Katzen Associates International, Inc.
Richard F. Moorer, U.S. Department of Energy
Mark E. Reeves, Oak Ridge National Laboratory
John N. Saddler, University of British Columbia

Session Chairpersons and Cochairpersons

Session 1: Thermal, Chemical, and Biological Processing
Bruce E. Dale, Texas A&M University
Gene Petersen, National Renewable Energy Laboratory

Session 2: Past, Present, and Emerging Concepts in Applied Biological Research
Arthur E. Humphrey, Pennsylvania State University
Charles E. Wyman, National Renewable Energy Laboratory

Session 3: Bioprocessing Research
William A. Weigand, University of Maryland
Eric N. Kaufman, Oak Ridge National Laboratory

Session 4: Process Economics and Commercialization
Raphael Katzen, Raphael Katzen Associates International, Inc.
James Doncheck, Bio-Technical Resources, L.P.

Session 5: Environmental Biotechnology
James Petersen, Washington State University
Frederick Colwell, Idaho National Engineering Laboratory

Poster Session
Karel Grohmann, U.S. Citrus and Subtropical Products Research Laboratory
Antonios A. Antonopoulos, Argonne National Laboratory

ACKNOWLEDGMENT

The submitted manuscript has been authored by a contractor of the U.S. Government under contract DE-AC05-84OR21400. Accordingly, the U.S. Government retains a nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or allow others to do so, for U.S. Government purposes.

Oak Ridge National Laboratory is managed by Martin Marietta Energy Systems, Inc., for the U.S. Department of Energy under contract DE-AC05-84OR21400.

The National Renewable Energy Laboratory is operated by Midwest Research Institute, for the U.S. Department of Energy under contract DE-AC02-83CH10093.
REFERENCES


This symposium has been held annually since 1978. We are pleased to have the proceedings of the Sixteenth Symposium currently published in this special issue to continue the tradition of providing a record of the contributions made.

The Seventeenth Symposium is planned for May 7-11, 1995, in Vail, Colorado. We encourage comments or discussions relevant to the format or content of that meeting.