

Special Issue: Biotechnology

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The scope of Biotechnology defined here includes traditional fermentation, biocatalysis, and molecular biology. Biocatalysis uses whole cells or enzymes, in aqueous or nonaqueous systems, in their free or immobilized forms, for the production of useful chemicals.

On May 13, 1997, at the 88th AOCS Annual Meeting & Expo in Seattle, Washington, two symposium sessions on "Biocatalysis" were held with 18 invited speakers from all over the world. The program started with oxidoreductase, arylesterase, protease, lipoxigenase, and then continued into lipases, and included basic research and large-scale industrial production. The presentations were on biocatalytic synthesis of chiral drug intermediates by oxidoreductases, use of biocatalysis in the pharmaceutical industry, structure and functions of arylesterase, characterization of a cold-active protease, soybean lipoxigenase, selective rearrangement of allylic hydroperoxide to hydroxy epoxide, new yeast lipases, recognition of polyunsaturated lipid aggregation by lipase, altered acyl chainlength specificity of lipase through mutagenesis and molecular biology, enzymatic synthesis of low-calorie structured lipids, enzymatic partial hydrolysis to concentrated polyunsaturated fatty acids, preparation of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) ethyl esters, preparation of highly purified concentrates of EPA and DHA, high yield of DHA from marine microorganisms, industrial high-performance liquid chromatographic purification of DHA-E and EPA-E, purification of DHA by lipase selective esterification, lipase activity in papaya latex, and improvements of palm oil through breeding and biotechnology.

The symposium was highly successful, and the discussion continued into the evening. As we did for the past 2 yr, we published the symposium papers in this Biotechnology Special Issue. It is hoped this will stimulate research activities in biotechnology.

Finally, I would like to express thanks to my symposium cochairpersons, Dr. Koretaro Takahashi and Dr. Jei-Fu Shaw, for their assistance. We also appreciate the financial support to this symposium by Bristol-Myer Squibb Co., Loders Crokiaan Division of Quest International, Schering-Plough

Research Institute, Nagase Biochemicals, Ltd., SUNTORY, Ltd., and YMC Company Ltd.

Also, the Biotechnology Division held its first Student Paper Competition at the 88th AOCS Annual Meeting. The winners are:

First place: Ki-Teak Lee, Department of Food Science and Technology, University of Georgia (Athens, GA). Coauthored by C.C. Akoh, D.L. Dawe, and C.S. King. Title: Large-scale enzymatic synthesis of structured lipids containing eicosapentaenoic and medium-chain fatty acids and their dietary effects on serum lipids and immunological parameters in mice.

Second place: Liangping Yu, Department of Food Science and Technology, Iowa State University, (Ames, IA). Coauthored by I. Lee, E.G. Hammond, L.A. Johnson, and J.H. Van Gerpen. Title: The influence of trace components on the melting point of methyl soyate.

Co-third place: (A) Cameron Middleton, Department of Chemistry, The University of Lethbridge (Alberta, Canada). Title: Diacylglycerol acyltransferase: a possible marbling-specific marker in cattle. (B) Vimon Seriburi, Department of Food Science and Technology, University of Georgia (Athens, GA). Coauthored by C.C. Akoh. Title: Enzymatic transesterification of triolein and stearic acid to produce plastic fat.

Honorable mentions: (i) Xuebing Xu, Department of Biotechnology, Technical University of Denmark (Lyngby, Denmark). Coauthored by A.R.H. Skands, J. Adler-Nissen, C.-E. Hoy, H. Mu, and S. Balshen. Title: Production of specific structured lipids by enzymatic interesterification: elucidation of acyl migration and optimization of reaction by response surface design.

(ii) Kamariah Long, Department of Biotechnology, Faculty of Food Sciences and Biotechnology, University Pertanian Malaysia (Selangor, Malaysia). Coauthored by H.M. Ghazali, A. Ariff, and C. Bucke. Title: *Aspergillus flavus* lipase-catalyzed interesterification of palm olein: effect of adding molecular sieve.

(iii) Anil Mangla, Department of Chemistry and Biochemistry, Texas Tech University (Lubbock, TX). Coauthored by W.D. Nes. Title: Sterol methylation reactions: Drug design and testing with *Prototheca wickerhamii*.