

Contents

Contributors	ix
Preface	
Alan B. Bennett and Sharman D. O'Neill	xv
Acknowledgments	xvii
Organizing Committee	xvii
Germplasm Resources	
Summary: Germplasm Resources	
Calvin O. Qualset	1
Germplasm Conservation and Utilization in Horticulture	
O.H. Frankel	5
Experimental Introgression to the Cultivated Tomato From Related Wild Nightshades	
Charles M. Rick, Joseph W. DeVerna, and Roger T. Chetelat	19
Wide-Hybridization of Citrus Via Protoplast Fusion: Progress, Strategies, and Limitations	
Jude W. Grosser and Frederick G. Gmitter, Jr.	31
Prospects for a U.S. Plant Genome Mapping and DNA Sequencing Program	
Bruno Quebedeaux	43
Gene Transfer	
Summary: Gene Transfer	
Carole P. Meredith	49
Strategies for Plant Transformation	
JoAnne J. Fillatti	51
The Molecular Biology of Wheat Dwarf Virus (WDV) and Its Potential Application in Plant Genetic Engineering	
V. Matzeit, J. Laufs, M. Kammann, S. Schaefer, H.-J. Schalk, B. Schmidt, U. Wirtz, B. Baker, and B. Gronenborn	71

Gene Isolation

Summary: Gene Isolation

Sharman D. O'Neill	83
--------------------------	----

A Single Copy *Ds* Insertion Library in Tomato

John I. Yoder, Michael Lassner, Joe Palys, and Peter Peterson	85
---	----

Development of Large DNA Methods for Plants

Plinio Guzmán and Joseph R. Ecker	95
---	----

T-DNA Insertional Mutagenesis in *Arabidopsis thaliana*

Ken A. Feldmann, T.J. Carlson, S.A. Coomber, C.E. Farrance, M.A. Mandel, and A.M. Wierzbicki	109
---	-----

Genome Structure

Summary: Genome Structure

Dina St. Clair	121
----------------------	-----

Genetic Analysis of the Tomato Nuclear Genome

Nora L.V. Lapitan, Martin W. Ganal, Merideth W. Bonierbale, and Steven D. Tanksley	123
---	-----

Transposable Elements From *Antirrhinum majus*: Their Uses in Gene Isolation and Characterization

Cathie Martin, Clare Lister, Hans Thijs, Andrea Prescott, David Jackson, and Steve MacKay	137
--	-----

Prospects for Homologous Recombination in Plants

Alex Peterhans and Jerzy Paszkowski	155
---	-----

Flower Development

Summary: Flower Development

Abraham H. Halevy	171
-------------------------	-----

The Origin and Development of Flowers

Ian M. Sussex and Nancy M. Kerk	173
---------------------------------------	-----

Modification of Maize A1 Gene Expression in Transgenic *Petunia* by DNA Methylation

Heinz Saedler, Felicitas Linn, Iris Heidmann, and Peter Meyer	183
---	-----

Manipulation of Floral Pigmentation Genes in *Petunia*: "Sense and Antisense Make Sense"

J.N.M. Mol, A.R. van der Krol, and A.R. Stuitje	191
---	-----

Regulation of Gene Expression in Senescing Carnation Petals

W.R. Woodson, K.A. Lawton, R.C. Meyer, Jr., K.G. Raghothama, and P.B. Goldsbrough	203
--	-----

Ripening & Senescence

Summary: Ripening and Senescence

Alan B. Bennett. 213

Expression of a Chimeric Polygalacturonase Gene in Transgenic *Rin* (Ripening Inhibitor) Tomato Fruit

James J. Giovannoni, Dean DellaPenna, Coralie C. Lashbrook,
Alan B. Bennett, and Robert L. Fischer 217

Controlling Gene Expression in Transgenic Tomatoes

D. Grierson, C.J.S. Smith, C.F. Watson, P.C. Morris, A.J. Turner,
W. Schuch, C.R. Bird, J. Ray, and A. Hamilton 229

Cloning the mRNA of ACC Synthase

Athanasios Theologis, Takahide Sato, Paul Oeller, Pung-Ling Huang,
Julie Keller, Jean Murphy, William Rottman, and Gary Peter 237

RFLP Technology

RFLP Technology

Joseph W. DeVerna and Kevin B. Alpert. 247

Biotic Stress

Summary: Biotic Stress

John J. Harada 261

Biology of *Bacillus thuringiensis*: A Bacterial Insecticide

Bruce C. Carlton 263

Engineering Virus Resistance in Transgenic Plants

W. Gregg Clark, Jim Register III, and Roger N. Beachy 273

Molecular Basis of Host Range and Specificity in Two Bacterial Pathogens of Tomato

Maureen C. Whalen and Brian J. Staskawicz 285

Abiotic Stress

Summary: Abiotic Stress

André Läuchli 291

Physiological and Molecular Mechanisms of Ion Accumulation and Compartmentation Contributing to Salt Adaptation of Plant Cells

P.M. Hasegawa, M.L. Binzel, M. Reuveni, A.A. Watad, and
R.A. Bressan 295

Studies on Cold Acclimation in *Arabidopsis thaliana*

M. Thomashow, S.J. Gilmour, R. Hajela, D. Horvath, C. Lin,
and W. Guo 305

Drought- and ABA-Regulated Gene Expression in Tomato Leaves

Elizabeth Bray, Aine Plant, and Amybeth Cohen. 315

Commercial Applications

Summary: Commercial Applications

W.R. Reinert.....	323
-------------------	-----

Use of Anther Culture in Plant Breeding

Warren Springer and Anita Bailey.....	327
---------------------------------------	-----

Application of RFLP Technology to Applied Plant Breeding

Mark Walton.....	335
------------------	-----

Field Evaluation of Tomatoes With Reduced Polygalacturonase by Antisense RNA

Matthew Kramer, Rick A. Sanders, Raymond E. Sheehy, Miguel Melis, Michael Kuehn, and William R. Hiatt.....	347
---	-----

Marketing Novel Horticultural Commodities

Thomas J. Orton and William R. Romig.....	357
---	-----

Index.....	373
------------	-----