## **CONTENTS**

1	ETHYLENE AND PLANT DEVELOPMENT: AN INTRODUCTION Fred B Abeles, US Department of Agriculture, Agricultural Research Service, Appalachian Fruit Research Station, Kearneysville, West Virginia, USA	1
2	METABOLISM OF 1-AMINOCYCLOPROPANE-1-CARBOXYLIC ACID S F Yang, Y Liu, L Su, G D Peiser, N E Hoffman and T McKeon, Department of Vegetable Crops, University of California, Davis, California, USA	9
3	STUDIES ON THE ENZYMES OF ETHYLENE BIOSYNTHESIS H Kende, M A Acaster and M Guy, MSU-DOE Plant Research Laboratory, Michigan State University, East Lansing, Michigan, USA	23
4	THE OXYGEN AFFINITY OF 1-AMINOCYCLOPROPANE-1-CARBOXYLIC ACID OXIDATION IN SLICES OF BANANA FRUIT TISSUE N H Banks, Cambridge University	29
5	CARBON DIOXIDE FLUX AND ETHYLENE PRODUCTION IN LEAVES Roger F Horton, Department of Botany, University of Guelph, Ontario, Canada	37
6	THE EFFECT OF TEMPERATURE ON ETHYLENE PRODUCTION BY PLANT TISSUES Roger J Field. Plant Science Department, Lincoln College, Canterbury, New Zealand	47
7	THE RELATIONSHIP BETWEEN POLLINATION, ETHYLENE PRODUCTION AND FLOWER SENESCENCE A D Stead, Department of Botany, Royal Holloway & Bedford Colleges, Egham, Surrey, UK	71

8	THE ETHYLENE FORMING ENZYME SYSTEM IN CARNATION FLOWERS K Manning, Glasshouse Crops Research Institute, Littlehampton, West Sussex, UK	83
9	ETHYLENE BIOSYNTHESIS IN PENICILLIUM DIGITATUM INFECTED CITRUS FRUIT Oded Achilea, Edo Chalutz, Yoram Fuchs and Ilana Rot, Department of Fruit and Vegetable Storage, Agricultural Research Organization, The Volcani Center, Bet Dagan 50250, Israel	93
10	ETHYLENE BINDING A R Smith and M A Hall, Department of Botany and Microbiology, University College of Wales, Aberystwyth, Dyfed, UK	101
11	ETHYLENE BINDING IN PHASEOLUS VULGARIS L COTYLEDONS C J Howarth, A R Smith and M A Hall, Department of Botany and Microbiology, University College of Wales, Aberystwyth, Dyfed, UK	117
12	ETHYLENE METABOLISM E M Beyer Jr, E I du Pont de Nemours & Co Inc, Agricultural Chemicals Department, Building 402, Experimental Station, Wilmington, Delaware, USA	125
13	ETHYLENE METABOLISM IN PISUM SATIVUM L AND VICIA FABA L A R Smith, D E Evans, P G Smith and M A Hall, Department of Botany and Microbiology, University College of Wales, Aberystwyth, Dyfed, UK	139
14	REGULATION OF THE EXPRESSION OF TOMATO FRUIT RIPENING GENES: THE INVOLVEMENT OF ETHYLENE  D Grierson, A Slater, M Maunders, P Crookes, Department of Physiology and Environmental Science, University of Nottingham Faculty of Agricultural Science, G A Tucker, Department of Applied Biochemistry and Food Science, University of Nottingham Faculty of Agricultural Science, W Schuch and K Edwards, ICI Corporate Bioscience and Colloid Laboratory, Runcorn, Cheshire	147
15	INDUCTION OF CELLULASE BY ETHYLENE IN AVOCADO FRUIT Mark L Tucker, Department of Molecular Plant Biology, University of California, Berkeley, CA 94720, USA, Rolf E Christoffersen, Mann Laboratory, University of California, Davis, CA 95616, USA and Lisa Woll and George G Laties, Department of Biology and Molecular Biology Institute, University of California, Los Angeles, USA	163
16	ETHYLENE AND ABSCISSION R Sexton, Department of Biological Science, Stirling University, Stirling, UK, L N Lewis, Molecular Plant Biology, University of California, Berkeley, California, USA and A J Trewavas and P Kelly, Department of Botany, Edinburgh University, Edinburgh, UK	173

17	TARGET CELLS FOR ETHYLENE ACTION Daphne J Osborne, Developmental Botany, Weed Research Organization, Oxford, Michael T McManus, Department of Biochemistry, University of Oxford and Jill Webb, Electron Microscopy, Weed Research Organization, Oxford	197
18	ETHYLENE, LATERAL BUD GROWTH AND INDOLE-3-ACETIC ACID TRANSPORT  J R Hillman, Botany Department, The University, Glasgow, UK, H Y Yeang, Rubber Research Institute of Malaysia, Kuala Lumpur, Malaysia and V J Fairhurst, Botany Department, The University, Glasgow, UK	213
19	ETHYLENE AND PETIOLE DEVELOPMENT IN AMPHIBIOUS PLANTS Irene Ridge, Biology Department, Open University, Walton Hill, Milton Keynes, UK	229
20	ETHYLENE AND THE RESPONSES OF PLANTS TO EXCESS WATER IN THEIR ENVIRONMENT—A REVIEW Michael B Jackson, Agricultural and Food Research Council, Letcombe Laboratory, Letcombe Regis, Wantage, Oxfordshire, UK	241
21	ETHYLENE AND FOLIAR SENESCENCE Jeremy A Roberts, Physiology and Environmental Science, Gregory A Tucker, Applied Biochemistry and Food Science and Martin J Maunders, Physiology and Environmental Science, University of Nottingham Faculty of Agricultural Science	267
22	ETHYLENE AS AN AIR POLLUTANT David M Reid and Kevin Watson, Plant Physiology Research Group, Biology Department, University of Calgary, Alberta, Canada	277
23	SOURCES OF ETHYLENE OF HORTICULTURAL SIGNIFICANCE Fred B Abeles, US Department of Agriculture, Agricultural Research Service, Appalachian Fruit Research Station, Kearneysville, West Virginia, USA	287
24	EVALUATING THE PRACTICAL SIGNIFICANCE OF ETHYLENE IN FRUIT STORAGE Michael Knee, East Malling Research Station, East Malling, Maidstone, Kent, UK	297
25	ETHYLENE IN COMMERCIAL POST-HARVEST HANDLING OF TROPICAL FRUIT F J Proctor and J C Caygill, Tropical Development and Research Institute, Gray's Inn Road, London, UK	317
26	RESPIRATION AND ETHYLENE PRODUCTION IN POST-HARVEST SOURSOP FRUIT (ANNONA MURICATA L) J Bruinsma, Department of Plant Physiology, Agricultural University,	333

	Wageningen, The Netherlands and R E Paull, Department of Botany, University of Hawaii at Manoa, Honolulu, Hawaii, USA	
27	THE EFFECT OF HEAVY METAL IONS ON TOMATO RIPENING Graeme E Hobson, Royston Nichols and Carol E Frost, Glasshouse Crops Research Institute, Littlehampton, West Sussex, UK	339
28	POST-HARVEST EFFECTS OF ETHYLENE ON ORNAMENTAL PLANTS R Nichols and Carol E Frost, Glasshouse Crops Research Institute, Littlehampton, West Sussex, UK	343
29	SIGNIFICANCE OF ETHYLENE IN POST-HARVEST HANDLING OF VEGETABLES S P Schouten, Sprenger Instituut, Wageningen, The Netherlands	353
30	RELATIONSHIP BETWEEN ETHYLENE PRODUCTION AND PLANT GROWTH AFTER APPLICATION OF ETHYLENE RELEASING PLANT GROWTH REGULATORS K Lürssen and J Konze, Bayer AG, Pflanzenschutz, Anwendungstechnik, Biologische Forschung, Leverkusen, FRG	363
31	COMMERCIAL SCALE CATALYTIC OXIDATION OF ETHYLENE AS APPLIED TO FRUIT STORES C J Dover, East Malling Research Station, East Malling, Maidstone, Kent, UK	373
32	LOW ETHYLENE CONTROLLED-ATMOSPHERE STORAGE OF McINTOSH APPLES F W Liu, Cornell University, Ithaca, New York, USA	385
33	A COMMERCIAL DEVELOPMENT PROGRAMME FOR LOW ETHYLENE CONTROLLED-ATMOSPHERE STORAGE OF APPLES G D Blanpied, James A Bartsch and J R Turk, Cornell University, Ithaca, New York, USA	393
	APPENDIX	405
	LIST OF PARTICIPANTS	407
	INDEX	413