

CONTENTS

PART 1. ANTHER CULTURE

Advances in Anther Culture Investigations in China	Hu Han	3
Obtaining Pollen Plants of <i>Hevea brasiliensis</i> Muell.-Arg.	Chen Cheng-hua et al.	11
Induction of Pollen Plants of Maize and Observations on Their Progeny	Miao Shu-hua et al.	23
Induction Factors and Morpho-cytological Characteristics of Pollen-derived Plants in Maize (<i>Zea mays</i>)	Ku Ming-kuang et al.	35
The N ₆ Medium and Its Applications to Anther Culture of Cereal Crops	Chu Chih-ching	43
A Set of Potato Media for Wheat Anther Culture	Chuang Chia-chun et al.	51
The Advance of Studies on Medium for Anther Culture of Rice in China	Liang Hai-man	57
Strategies in the Improvement of Yields in Anther Culture	N. Sunderland	65
On the Inductive Conditions of Rice Pollen Plantlets in Anther Culture	Hu Chung et al.	87
Studies of Increasing the Induction Rate of Callus Tissue and Pollen Plants from Anthers of <i>Oryza sativa</i> Cultured <i>in vitro</i>	Song Hak Gun et al.	97
The Use of <i>in vitro</i> Culture Technique for Plant Improvement	C. Nitsch	107
Study on the Induction of Haploid Plants Derived from Isolated Pollen Grains of <i>Nicotiana tabacum</i> L. Cultured <i>in vitro</i>	Lu Wen-liang	109
Androgenesis of Cereal Crops	Sun Ching-san	117
A Preliminary Observation on Histogenesis and Organogenesis of the <i>in vitro</i> Development from Rice Microspores into Plantlets	Chang Hsin-ying et al.	125
The Production of Wheat Pollen Embryo and the Influence of Some Factors on Its Frequency of Induction	Pan Ching-li et al.	133
The Induction Effect of Somatic Tissues in the Anther Cultured <i>in vitro</i> on Androgenesis and Its Control	Sung Pei-lun et al.	143
Studies on the Albino Pollen Plantlets of Rice	Wang Ching-chü et al.	149
A Study of Submicroscopic Structure and Metabolic Blocks in the Albino Anther Plants of Rice	Liang Chih-cheng et al.	161
Variation in Ploidy Levels of Plants Derived from Anther Culture	J. A. McComb	167
Aspects of Plant Cell Culture and Their Role in Plant Improvement	W. R. Scowcroft	181

Investigation and Utilization of Pollen-derived Haploid Plants in Rice and Wheat	Chen Ying et al.	199
The Study of Anther Culture in "Three Lines" Breeding and Utilization of Heterosis in <i>Oryza sativa</i> Subsp. <i>hsien</i>	Ling Ting-hou et al.	213
A Preliminary Study on the Heredity and Vitality of the Progenies of Tobacco Pollen Plants	Research Laboratory of Breeding, Institute of Tobacco Research, Chinese Academy of Agricultural Sciences	223
Induction of Haploid Plants of <i>Solanum melongena</i> L.	Research Group of Haploid Breeding, Institute of Vegetables, Chinese Academy of Agricultural Sciences	227
A Study on the New Cultivar of Rice Raised by Haploid Breeding Method	Heilungkang Academy of Agricultural Science	233

Abstracts of Contributed Papers

Callus Formation Induced from the Anther Culture of Upland Cotton (<i>Gossypium hirsutum</i> L.)	Hsi Yuan-ling et al.	239
Induction and Culture of Regenerated Plantlets from Anthers of Genus <i>Populus</i>	Chang Li-kung	241
Induction and Cultivation of Pollen Plants from Poplar Pollen	Lu Chi-hua et al.	242
A Preliminary Report on the Study of Pollen Plants of Sweet Peppers (<i>Cap-sicum annuum</i> L. var. <i>grossum</i> Bell.)	Wang Yu-ying et al.	243
Studies on Medium Component in Anther Culture of <i>Oryza sativa</i> Subsp. <i>hsien</i> by Mathematical Methods	Huang Hung-shu et al.	244
An Investigation on Callus Induction Hormones in Rice Anther Culture	Chou Chang et al.	247
The Deficiency of Soluble Proteins and Plastid Ribosomal RNA in the Albino Pollen-plants of Rice	Sun Ching-san et al.	248
Preliminary Observations on Chromosomal Variation of Pollen Plants in <i>hsien</i> (<i>indica</i>) Rice	Ecology Laboratory and Institute of Cereal Crops, Kwangtung Academy of Agriculture	249
Studies on Anther Culture of Hybrid Rice	Cooperative Research Group on Anther Culture and Haploid Breeding, Kwangsi Chuang Autonomous Region	250
A Consideration of the Main Points of the Discussion on Haploid Sporophyte Production from Anther and Pollen Culture	J. A. McComb	251

PART 2. PROTOPLAST CULTURE AND SOMATIC HYBRIDIZATION

Protoplast Culture and Somatic Hybridisation	E. C. Cocking	255
Protoplasts and Tissue Culture Methods in Crop Plant Improvement	O. L. Gamborg et al.	265

Plant Hybrids by Fusion of Protoplasts	G. Melchers	279
The Preparation and Properties of Cellulase "EA ₃ -867"	Hsu Chu-yun <i>et al.</i>	285
Isolation and Culture of Cereal Protoplasts	K. J. Scott	293
A Further Study on the Isolation and Culture of Rice (<i>Oryza sativa</i> L.) Protoplasts	Tsai Chi-kuei <i>et al.</i>	317
Regeneration of Whole Plants from Tobacco Leaf Protoplasts	Li Wen-an <i>et al.</i>	325
Plant Protoplast Fusion and Somatic Hybrids	K. N. Kao	331
Isolation of Hybrid Lines after Protoplast Fusion	J. A. McComb	341
Preliminary Studies on Protoplast Fusion of Wheat and Petunia	Li Hsiang-hui <i>et al.</i>	351
Studies on the Fusion of Broad Bean and Barley Protoplasts	Hsia Chen-au <i>et al.</i>	355

Abstracts of Contributed Papers

Effects of Inorganic Nitrogen, Carbon Source and Hormone on Growth and Division of Mesophyll Protoplasts of Wheat	Chen Shao-lin <i>et al.</i>	359
Plant Regeneration of Protoplast Isolated from the Calli of Carrot	Wu Shih-chün <i>et al.</i>	360
Isolation and Culture of Wheat Protoplasts	Li Hsiang-hui	361
Plant Regeneration from Mesophyll Protoplast in Petunia (<i>Petunia hybrida</i>)	Li Wen-pin <i>et al.</i>	362
Regeneration of Plants from Tobacco Protoplasts and Some Factors Affecting the Plant Differentiation	Tsai Chi-kuei <i>et al.</i>	363
Culture of Mesophyll Protoplasts of Barley	Yen Chiu-sheng <i>et al.</i>	364
A Discussion on the Culture of Cereal Leaf Protoplasts	Research Group of Somatic Hybridization, Institute of Botany, Academia Sinica	365
A Consideration of the Main Points of the Discussion on Protoplast Culture	K. J. Scott	366

PART 3. VEGETATIVE PROPAGATION AND OTHERS

Cell Differentiation	Y. Yamada	371
Molecular Vectors for Plant Cells	J. Langridge	391
Plant Tissue Culture and Nitrogen Fixation	W. R. Scowcroft	397
<i>In vitro</i> Organogenesis of <i>Arabidopsis thaliana</i> L. Heinh — A Model System	I. Negruțiu	409
Some Observations on the Isozymes of Haploid Tissues of Gymnosperm Female Gametophytes	P. N. A. Tigerstedt	421
Tissue Culture Propagation of <i>Eucalyptus focifolia</i> F. Muell	R. A. de Fossard	425
Nuclear Stocks, Multiplication Rates and Economic Considerations of Tissue Culture Propagation of Horticultural Species	R. A. de Fossard	439

The Present Status of the Practical Application of Plant Tissue and Cell Culture in China	Loo Shih-wei	449
Cultivation of Alga-free <i>Azolla</i> , Isolation of <i>Anabaena azollae</i> and Preliminary Attempt at Their Association	Pai Ke-chih et al.	455
Meristem Culture of Potatoes and the Production of Virus-free Seed-potatoes	Tao Kuo-ching et al.	459
Triploid Citrus Plantlet From Endosperm Culture	Wang Ta-yuan et al.	463
Callus Cultures of the Three Well-known Chinese Herbs and Their Medicinal Contents	Cheng Kuang-chih et al.	469
The Preliminary Experiment on the Callus Tissue Culture of <i>Dioscorea zingiberensis</i> Wright	Research Group of Plant Morphology, Kiangsu Botanical Institute	481
Shoot Tip Culture of Apple Rootstocks and Apple Seedlings <i>in vitro</i>	Liu Shih-feng et al.	485
Preliminary Studies on Tissue Culture of <i>Panax ginseng</i>	Chu Wei-hua et al.	491
Studies on Organogenesis in the Culture of the Leaf Explant of <i>Nicotiana tabacum</i>	Hsu Chih-hung et al.	501
Cytological Observations on Calluses Derived from Apple Endosperm Cultured <i>in vitro</i>	Mu Shih-kin et al.	507
Chemical Control of Sex Expression of Excised Shoot Apex of <i>Cucumis sativus</i> L. under Aseptical Conditions	Wang Ben-li et al.	511
A Preliminary Report on Callus Induction and Plant Regeneration from Shoot Apex of the Hybrid Rice in <i>Oryza sativa</i> L. Subsp. <i>keng</i> Ting	Tsai Yi-hsin et al.	517
Selection of Nutrient Mutants in Somatic Cell Culture of <i>Nicotiana tabacum</i>	Chang Teh-yi	521

Abstracts of Contributed Papers

Preliminary Studies on Tissue Culture of <i>Corydalis turtachaninovii</i> Bess. f. <i>yanhusuo</i> Chou et Hsü	Institute of Materia Medica, Chekiang People's Academy of Experimental Hygiene . .	525
Induction of Callus and Plantlet from Stem Segment in Chinese Gooseberry	Kwei Yao-lin et al.	526
A Preliminary Study on the Shoot Apex Culture of <i>Citrus sinensis</i>	Li Keng-kuang et al.	527
Callus Formation and Organ Regeneration in the Tissue Culture of <i>Fritillaria thungergii</i> Miq	Sun Ching-san et al.	528
Single-cell Culture and Root Differentiation in Peanut (<i>Arachis hypogaea</i> L.)	Sun Yung-ru et al.	529
A Consideration of the Main Points of the Discussion on Tissue Culture	W. R. Scowcroft	530