# LIST OF CONTENTS

<table>
<thead>
<tr>
<th>Foreword</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>6</td>
</tr>
<tr>
<td>List of Contents</td>
<td>7</td>
</tr>
<tr>
<td>List of Authors</td>
<td>15</td>
</tr>
<tr>
<td>List of Participants</td>
<td>19</td>
</tr>
</tbody>
</table>

**Pest and Disease Resistance**

Recent Progress in Understanding the Genetics of Pest and Disease Resistance in Grapevine  
*I.B. Dry*  
27

Additional Sources of Renl -like Powdery Mildew Resistance  
*S. Riaz, A. Tenscher, G.S. Dangl and M.A. Walker*  
35

New Generation of Resistant Table Grape Cultivars  
*P. Kozma, S. Hoffmann and P. Cindric*  
41

Introduction of Application of Chinese Wild Grapes Species  
*Yan Xu and Yuejin Wang*  
49

Identification of an R2R3 MYB Transcription Factor Involved in the Regulation of the Stilbene Synthase Pathway in Grapevine  
*A. Vannozzi, P.K. Boss, A.R. Walker, M. Lucchin and I.B. Dry*  
57

Breeding for Durable Resistance to Downy and Powdery Mildew in Grapevine  
*D. Merdinoglu, P. Blast, S. Wiedemann-Merdinoglu, P. Mestre, E. Peressotti, A. Poutaraud, E. Prado and C. Schneider*  
65

Sequencing of the Phylloxera Resistance Locus Rdvl of Cultivar ‘Börner’  
*L. Hausmann, R. Eibach, E. Zyprian and R. Töpfer*  
73

Dissecting the Genetic Determinants of Powdery Mildew Resistance in Grape  
*M. Rex, L.J. Welter, R. Töpfer and E. Zyprian*  
79

Dissection of Defense Pathways in the Grapevine-Powdery Mildew Interaction by Employing Arabidopsis Defense-Related Mutants  
*Wenping Qiu, W. Gassmann, Fei Gao, Kashmir Singh and Yiming Zhang*  
85

Development of Molecular Markers for Powdery Mildew Resistance in Grapevines  
*S. Mahanil Brooks, S. Lagerholm, A. Garris, C. Owens, D. Ramming and L. Cadle-Davidson*  
91

Sources of Penetration and PCD-Mediated Resistance to Grapevine Powdery Mildew in the Vitaceae Family  
*A. Feechan, S. Kabbara and I.B. Dry*  
101

Reaction of Grape Rootstocks to Meloidogyne incognita and M. javanica  
109
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Pressure Selection for New Grape Crossings (‘Riesling italico’ × ‘Pinot noir’; ‘Riesling italico’ × ‘Chardonnay’)</td>
<td>211</td>
</tr>
<tr>
<td>A. Vercesi, L. Bavaresco, M. Fregoni, M. Zamboni and M. Gatti</td>
<td></td>
</tr>
<tr>
<td>Brazilian Grape Breeding Program</td>
<td>219</td>
</tr>
<tr>
<td>U.A. Camargo, J.D.G. Maia, V. Quecini and P. Ritschel</td>
<td></td>
</tr>
<tr>
<td>Tetraploid Table Grape Breeding in Japan</td>
<td>225</td>
</tr>
<tr>
<td>N. Mitani, Y. Ban, A. Sato and A. Kono</td>
<td></td>
</tr>
<tr>
<td>Development of Australian Rootstocks with Root-Knot Nematode Resistance and Low Potassium Transport</td>
<td>231</td>
</tr>
<tr>
<td>B.P. Smith, P.R. Clingeleffer, N.B. Morales, M.R. Thomas and R.R. Walker</td>
<td></td>
</tr>
<tr>
<td>Introduction, Breeding and Production of Winegrapes in China</td>
<td>241</td>
</tr>
<tr>
<td>Lijun Wang, Shaohua Li and Peige Fan</td>
<td></td>
</tr>
<tr>
<td>Table Grape Breeding at the ARC Infruitec-Nietvoorbij, South Africa; Its Impact on the SA Industry and Latest Developments</td>
<td>245</td>
</tr>
<tr>
<td>Generation of a New Polyploid Grape Cultivar by Using Hybrid Seeds Induced with Colchicine</td>
<td>251</td>
</tr>
<tr>
<td>Jun Chen, Xiaoping Tang, Xiaohe Ma, Qifeng Zhao and Zhigang Dong</td>
<td></td>
</tr>
<tr>
<td>Effectiveness of Culture Media on the Success of Embryo Rescue Among Different Crosses of Seedless Grapes</td>
<td>259</td>
</tr>
<tr>
<td>Y. Hao, H. Wang, R. Yang, F.L. Wang and J. Lu</td>
<td></td>
</tr>
<tr>
<td>Polyploidy Induction of Mutation by Using Colchicine on Tube Seedlings of Victoria Grape</td>
<td>265</td>
</tr>
<tr>
<td>Y.Y. Chang, X. Ji, J.L. Zhu and Y. Hao</td>
<td></td>
</tr>
<tr>
<td>‘Tankeumchu’: A Mid-Ripening, Black-Fruited Table Grape</td>
<td>271</td>
</tr>
<tr>
<td>Jung Ho Noh, Kyo Sun Park, Hae Keun Yun, Youn Young Hur, Seo Jun Park, Sung Min Jung and Han Chan Lee</td>
<td></td>
</tr>
<tr>
<td>Genetic Control of Phyllotaxy Phase Shift in Juvenile Vines in a Rootstock Hybrid Population</td>
<td>275</td>
</tr>
<tr>
<td>P. Cousins</td>
<td></td>
</tr>
<tr>
<td>Drying Rate of Fresh Berries from Natural Dry-on-the-Vine (DOV) Grape Germplasm</td>
<td>281</td>
</tr>
<tr>
<td>D.W. Ramming</td>
<td></td>
</tr>
<tr>
<td>Quality Improvement in ‘Vignoles’ through Clonal Selection</td>
<td>287</td>
</tr>
<tr>
<td>P. Cousins and A. Garris</td>
<td></td>
</tr>
<tr>
<td>Development of Table and Raisin Grapes with High Anthocyanins Using a Leaf Disk Assay</td>
<td>291</td>
</tr>
<tr>
<td>D.W. Ramming and P. Cousins</td>
<td></td>
</tr>
<tr>
<td>Evaluation of Four New Rootstock Genotypes Obtained by Back Cross</td>
<td>297</td>
</tr>
<tr>
<td>P. Carnevali, L. Brancadoro and O. Failla</td>
<td></td>
</tr>
</tbody>
</table>
Characteristics of Promising Muscadine Grape (*Vitis rotundifolia* Michx.) Selections from the University of Georgia (USA) Breeding Program

P.J. Conner

**Genomics, Transcriptomics, Proteomics, and Metabolomics**

Grapevine Genome Update and Beyond

A.-F. Adam-Blondon

Toward the Deciphering of Chromosome Structure in *Vitis vinifera*


Coordinate Induction of Anthocyanin Biosynthetic Pathway Genes by VvMYBAs

P.R. Poudel, A. Azuma, S. Kobayashi and N. Goto-Yamamoto

Metagenomic Deep-Sequencing: a Promising Tool to Elucidate Etiology


In Silico SNP Detection for Anthocyanin Metabolism Genes in *Vitis*

G. Dequigiovanni, P.S. Ritschel, J.D.G. Maia and V. Quecini

*Vitis vinifera* Genome Annotation Improvement Using Next-Generation Sequencing Technologies and NCBI Public Data

C. Muñoz, A. Di Genova, A. Maass, A. Orellana, P. Hinrichsen and A. Aravena

Assessing the Genetic Variability of Grape Clones


Preliminary Observations on the Role of Sirtuin Genes in Grapevine (*Vitis vinifera L.*) Physiology

M. Cucurachi, M. Busconi, C. Fogher, B. Hubbard, D.A. Sinclair, L.G. Kovacs, R. Oláh, P. Winterhagen, A. Perl and L. Bavaresco

Cyclophilin: a Downy Mildew Resistance Gene Candidate in Grapevine

A. Figueiredo, F. Monteiro, A.M. Fortes, M.S. Pais, M. Rex, R. Töpfer and E. Zyprian

Characterization of a *Vitis GAI* Promoter in *Arabidopsis*

Yingzhen Yang and Gan-Yuan Zhong

DIGE Substantially Reduces Protein Spot Variability Caused by 2D-PAGE and Increases Detection of Differentially Expressed Proteins

G.R. Cramer, L.G. Deluc, K. Spreeman, K. Schegg and A. Fennell

**Abiotic and Biotic Stress Tolerance**

Cloning and Characterization of the Dagger Nematode Resistance Gene *Xr1*

Chin-Feng Hwang, Kenong Xu, Rong Hu, S. Riaz and M.A. Walker
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Development of Techniques and Molecular Markers for Interspecific Breeding of Grape for Freezing Tolerance</td>
<td>395</td>
</tr>
<tr>
<td>A. Nassuth, T. Martinez, L. Crapper, Z. Jetha, M. Siddiqua, J. Zandstra and H. Fisher</td>
<td></td>
</tr>
<tr>
<td>Identification of ABA Inducible Genes from Cold-Hardy Vitis amurensis Rupr. 'Zuoshan-1' by Suppression Subtractive Hybridization</td>
<td>403</td>
</tr>
<tr>
<td>Yali Zhang, Jiao Wu, Huiqin Zhang and Jiang Lu</td>
<td></td>
</tr>
<tr>
<td>Applications of Polyploids in Muscadine Grape (Vitis rotundifolia Michx.) Breeding</td>
<td>411</td>
</tr>
<tr>
<td>X. Xu, J. Lu and F. Bradley</td>
<td></td>
</tr>
<tr>
<td>In Vitro Selection of HYP Tolerant Cell Lines from 'Chardonnay' Embryogenic Suspension Culture</td>
<td>419</td>
</tr>
<tr>
<td>R. He, Y. Zhang, C. Wang, J. Wu, L. Zhu, M.A. Walker, X. Xu and J. Lu</td>
<td></td>
</tr>
<tr>
<td>Phenotypic Evaluation of ‘Thompson Seedless’ Grapes Transformed with AtNHX1 Growing in Hydroponics and Potted Soils</td>
<td>423</td>
</tr>
<tr>
<td>M. Venier, A. Bermejillo, M.F. Filippini, S. Fernández Alonso, C.B. Agüero, E. Blumwald and A. Dandekar</td>
<td></td>
</tr>
<tr>
<td>Genetics of Fruit Quality</td>
<td></td>
</tr>
<tr>
<td>New Insight into the Genetics of Color in Grape</td>
<td>433</td>
</tr>
<tr>
<td>A. Fournier-Level, L. Le Cunff, A. Doligez, A. Ageorges, J.M. Souquet, V. Cheynier and P. This</td>
<td></td>
</tr>
<tr>
<td>Differential Expression of Genes in Berries of cv. ‘Sangiovese’ (Vitis vinifera L.) during Ripening Following Cluster Thinning at Veraison</td>
<td>441</td>
</tr>
<tr>
<td>C. Pastore, I. Filippetti, S. Zenoni, M. Fasoli, A. Ferrarini, M. Pezzotti and C. Intrieri</td>
<td></td>
</tr>
<tr>
<td>Co-Localization of QTLs for Seedlessness and Downy Mildew Resistance in Grapevine</td>
<td>449</td>
</tr>
<tr>
<td>Genetic Characterization Based on the Best Linear Unbiased Predictor of Traits Related to Cluster Architecture of Vitis vinifera L.</td>
<td>457</td>
</tr>
<tr>
<td>J. Correa, D. Laborie, X. Casanueva, N. Mejia, P. Hinrichsen and M. Pinto</td>
<td></td>
</tr>
<tr>
<td>Polyphenolic Potential of the Rare Croatian Cultivar ‘Dobricic’ (Vitis vinifera L.)</td>
<td>463</td>
</tr>
<tr>
<td>I. Budić-Leto, G. Zdunić and I. Tomic-Potrebujes</td>
<td></td>
</tr>
<tr>
<td>Monoterpene Levels in Different Grapevine (Vitis vinifera L.) Cultivars and Clones during Fruit Ripening</td>
<td>471</td>
</tr>
<tr>
<td>M. Nitsch, M. Hey, E.H. Rühl and O. Bitz</td>
<td></td>
</tr>
<tr>
<td>A Molecular Marker System for Identification of the Colour-Locus in Different Tissues of Grapevine (Vitis vinifera L.)</td>
<td>477</td>
</tr>
<tr>
<td>N. Ruh, E. Bleser, E. Rühl and O. Bitz</td>
<td></td>
</tr>
</tbody>
</table>
Marker Assisted Selection for Seedlessness in a Multiresistant Table Grape
Hybrid Family

Drawing Links from Transcriptome to Metabolites: the Evolution of Muscat
Aroma in the Ripening Berry
L. Costantini, J. Battilana, C. Kappel, F. Emanuelli, M. Sordo, S. Delrot
and M.S. Grando

Ripening-Related Ethylene Responsive Factor Characterization by
Agrobacterium-Mediated Gene Transfer in Grapevine
A. Dal Ri, L. Dalla Costa, V. Poletti, L. Martinelli and C. Moser

Morphological Characteristics of Cracking Susceptible Korean Table Grapes,
‘Heukgoosul’ and ‘Tamnara’
In-Chang Son, Sung-Il Oh and Daeil Kim

Characteristics of Berry Growth in Cracking Susceptible Tetraploid Grapevines
Heon-Kyu Lim, In-Chang Son, Sung-Il Oh, Hyunsuk Shin, Young-Jae Oh,
Seo-Jun Park and Daeil Kim

Genetic Analysis of Wine Grape High-Quality Ripening in the ‘Monastrell’ ×
‘Syrah’ Progeny
A. Bayo-Canha, J.I. Fernández-Fernández, A. Martínez Cutilas
and L. Ruiz-García

The Aroma-Forming Substances of Hybrid Seedlings of Grape
S.V. Levchenko and V.A. Volynkin

Anthocyanin Profiling of the Berry Skins of Five Vitis amurensis Grapes and
One Related Hybrid Cultivar
Fei He, Qiu-Hong Pan, Chang-Qing Duan and Jun Wang

Changes of Content and Antioxidant Activity of Phenolic Compounds during
Gibberellin-Induced Development of Seedless Muscat Grapevines
Shu-fen Tian

Marker-Assisted Breeding: Identification of Monoterpensynthases in Grapevine
(Vitis vinifera) and Their Potential as Markers in Breeding
O. Bitz, M. Nitsch, O. Budich, M. Schmidt, T. Wolf, M. Hey and E. Rühl

Functional Characterization of Terpene Synthases of ‘Aromatic’ and ‘Non-
Aromatic’ Grapevine Cultivars
C. D’Onofrio, F. Matarese, G. Scalabrelli and P.K. Boss

Grapevine Genetic Resources

Genealogy Investigation in over 2,300 Grapevine Cultivars (Vitis vinifera)
T. Lacombe, V. Laucou, M. Di Vecchi-Staraz, P. This and J.-M. Boursiquot

Intravarietal Variability of ‘Criljenak Kastelanski’ and Its Relationship with
‘Zinfandel’ and ‘Primitivo’ Selections
G. Zdunić, S. Šimon, N. Malenica, I. Budić-Leto, E. Maletić,
J. Karoglan Kontić and I. Pejić
Molecular Survey of Georgian Traditional Grapevine Genetic Resources
S. Imazio, G. De Lorenzis, A. Scienza, O. Failla, D. Maghradze, R. Bacilieri and P. This
581

Characterization of Grape Cultivars through ESTP
E. Sawasaki, M.F. Moura, A.R. Verdi and C.L. Messias
587

Phenotypic Divergence among Grapevine Accessions of the Germplasm Collection at IAC
593

Brazilian Grape Germplasm Bank: Phenology and Incidence of Main Fungal Diseases
U.A. Camargo, J.D.G. Maia, C.A.E. Machado and P. Ritschel
599

Grapevine Variety Determination from Herbarium and Archeological Specimens
N. Malenica, E. Maletic, S. Simon and I. Pejic
603

Plastid DNA Sequence Diversity in a Worldwide Set of Grapevine Cultivars (Vitis vinifera L. subsp. vinifera)
T. Beridze, I. Pipia, J. Beck, S.-C. Hsu, B. Schaal, M. Gamkrelidze, M. Gogniashvili, V. Tabidze, P. This, R. Bacilieri, V. Gotsiridze and M. Glonti
609

Analysis of Grape Rootstocks by Microsatellite Markers
G. Jahnke, J. Majer, B. Szoke, P. Varga, G. Kocsisné Molnár, E. Tarczal and L. Kocsis
617

Analysis of Pinot Cultivars by Microsatellite Markers
G. Jahnke, J. Majer, P. Varga and B. Szoke
627

Italian Wild Grapevine: a State of the Art on Germplasm and Conservation in 2010; the Year of Biodiversity
B. Biagini, S. Imazio, G. De Lorenzis, A. Scienza, O. Failla and E. Quattrini
639

‘Ribolla Gialla’ from North Eastern Italy, ‘Rebula’ from Northern Balkans and ‘Robola’ from Ionian Islands; Do They Belong to the Same Population Variety or Are They Genetically Different?
S. Imazio, G. De Lorenzis, A. Scienza, O. Failla, J. Vouillamoz, Z. Korosec-Koruza, D. Rusjan and N. Nikolao
645

Proteomic Analysis among Different Aglianico Ecotypes
A.S. Negri, B. Prinsi, S. Imazio, G. De Lorenzis, O. Failla, A. Scienza, M. Cocucci and L. Espen
653

Viticultural Performances of Different ‘Cabernet Sauvignon’ Clones
M. Gatti, S. Civardi, F. Ferrari, N. Fernandes, M.I. van Zeller de Macedo Basto Goncaves and L. Bavaresco
659

The Software for a ‘Universal Grapevine Database’
C. D’Onofrio and G. Scalabrelli
665
Molecular Characterization of the Grapevine Germplasm Collection Held at the Fondazione Edmund Mach

Analysis of Genetic Structure of Twelve Sicilian Grapevine Cultivars
E. Branzanti, G. De Lorenzis, S. Imazio, A. Scienza, O. Failla and L. Brancadaro

An AFLP-Marker Study of the Vitis vinifera L. Cultivar ‘White Riesling’ Comprising 86 Clones to Investigate the Stability of Clones
U.C.M. Anhalt, S. Crespo Martinez, E. Rühl and A. Forneck