



Plant High-Throughput Phenotyping and Functional Phenomics

Edited by Jen-Tsung Chen



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This book provides a series of comprehensive summaries highlighting the emerging achievements in the fields of plant high-throughput phenotyping that leads to constructing functional phenomics, one of the essential components of plant functional genomics. It presents broad aspects of methods, applications, and future directions. It offers an efficient way for readers to overview this crucial topic to realize the concept as a whole, to advance the design of their future experiments, and to inspire the exploration of the knowledge, which eventually leads to better crop development in the future by scientists, plant biologists, and crop breeders. It covers advanced tools for studying functional phenomics, including artificial intelligence, imaging, remote sensing, robotics, and aerial vehicle technologies, to empower crop speed breeding, particularly in the development of stress-tolerant future crops. The knowledge of this book supports the Sustainable Development Goals (SDGs) of the United Nations to develop climate-smart and sustainable agriculture for achieving zero hunger globally.

Dr. Jen-Tsung Chen is a professor of cell biology at the National University of Kaohsiung in Taiwan. He also teaches genomics, proteomics, plant physiology, and plant biotechnology. His research interests include bioactive compounds, chromatography techniques, plant molecular biology, plant biotechnology, bioinformatics, and systems pharmacology. He is an active editor of academic books and journals to advance the exploration of multidisciplinary knowledge involving plant physiology, plant biotechnology, nanotechnology, ethnopharmacology, systems biology, and drug discovery. He serves as an editorial board member and a guest editor in several reputed journals. He published books in collaboration with international publishers on diverse topics such as drug discovery, herbal medicine, medicinal biotechnology, nanotechnology, bioengineering, plant functional genomics, plant speed breeding, CRISPR-based plant genome editing, and artificial intelligence. In 2023 and 2024, Stanford University/Elsevier included Dr. Chen in the "World's Top 2% Scientists".

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Contents

Preface.....	viii
List of Contributors.....	ix
Chapter 1 Bioinformatics Tools and Deep Learning for Plant High-Throughput Phenotyping and Phenomics	1
<i>Gunasekaran Arthi, Murugesan Loganathan, Jothi Dheivasikamani Abidharini, Balasubramanian Balamuralikrishnan, Meyyazhagan Arun, Pappuswamy Manikantan, Jeyabal Philomenathan Antony Prabhu, and Arumugam Vijaya Anand</i>	
Chapter 2 Plant High-Throughput Phenotyping and Phenomics for Accelerating Crop Breeding.....	19
<i>Marium Khatun, Sumi Sarker, Farzana Mustafa Era, Muhiuddin Faruquee, and Abul Kalam Mohammad Aminul Islam</i>	
Chapter 3 Remote Sensing Technologies for High-Throughput In-Field Crop Phenotyping.....	40
<i>Tasfia Binte Anam Priya, Falguni Akter Shraboni, M. Kamal Hossain, Stephen P. Klassen, Suresh Kadaru, and Abul Kalam Mohammad Aminul Islam</i>	
Chapter 4 High-Throughput Field Phenotyping: Enhancing Crop Monitoring for Food Security	73
<i>Amooru Harika, Seethalaxmi, Ezhumalai Sivapragasam, Sudhir Kumar, Viswanathan Chinnusamy, Mahesh Kumar, Madhurima Das, and Dhandapani Raju</i>	
Chapter 5 Imaging Techniques for High-Throughput Phenotyping: Methods and Applications.....	84
<i>Ezhumalai Sivapragasam, Amooru Harika, Madhurima Das, Seethalaxmi, Viswanathan Chinnusamy, Mahesh Kumar, and Sudhir Kumar</i>	
Chapter 6 High-Throughput Phenotyping for Plant Metabolomics: Methods and Applications with a Special Focus on Chemical Ecology.....	99
<i>Ishita Paul, Swati Hazra, Akbar Hossain, and Pratap Bhanu Singh Bhadoria</i>	
Chapter 7 High-Throughput Phenotyping: An Effective Tool for Plant Breeders to Dissect Crop Responses to Abiotic Stresses	111
<i>Swati Hazra, Priyanka Joshi, Arkabane Mukherjee, and Akbar Hossain</i>	

Chapter 8	Genetic Dissection of Major Crops by High-Throughput Phenotyping and Phenomics	126
	<i>Gunasekaran Arthi, Jothi Dheivasikamani Abidharini, Balasubramanian Balamuralikrishnan, Meyyazhagan Arun, Manikantan Pappuswamy, Murugesan Loganathan, Jeyabal Philomenathan Antony Prabhu, and Arumugam Vijaya Anand</i>	
Chapter 9	High-Throughput Phenotyping and Phenomics for Exploration of Plant Growth and Development	155
	<i>Shivani Chauhan and Arshdeep Singh</i>	
Chapter 10	Root Phenotyping for Breeding of Climate-Resilient Crops	175
	<i>Sreehari V. Santhosh, Sudhir Kumar, Madhurima Das, Seethalaxmi, Ezhumalai Sivapragasam, Arumugam Tamilselvan, Sachin Bellubbi, Raman Rajasekar, and Viswanathan Chinnusamy</i>	
Chapter 11	High-Throughput Plant Phenotyping Platforms for Cereal Crop Breeding to Improve Abiotic Stress Tolerance	195
	<i>Raman Rajasekar, Arumugam Tamilselvan, Seethalaxmi, Sreehari V. Santhosh, Allimuthu Elangovan, Madhurima Das, Sudhir Kumar, Mahesh Kumar, and Viswanathan Chinnusamy</i>	
Chapter 12	High-Throughput Phenotyping and Phenomics for Climate-Smart Crop Breeding	214
	<i>Arumugam Tamilselvan, Raman Rajasekar, Seethalaxmi, Sreehari V. Santhosh, Biswabiplab Singh, Ramesh Ramasamy, Sudhir Kumar, Madhurima Das, Mahesh Kumar, and Viswanathan Chinnusamy</i>	
Chapter 13	High-Throughput Plant Phenotyping and Phenomics: Advances and Prospects	226
	<i>Seethalaxmi, Ezhumalai Sivapragasam, Arumugam Tamilselvan, Raman Rajasekar, Sreehari V. Santhosh, Mahesh Kumar, Viswanathan Chinnusamy, and Sudhir Kumar</i>	
Chapter 14	Technical Advancements in Plant High-Throughput Phenotyping and Phenomics: An Overview	246
	<i>Sarfraz Ahmad, Maksud Hasan Shah, Mohammad Ghani Raghieb, Saniya, Vikas Belwal, Shokat Ali, Rubina Khan, Shoumik Saha, and Sk Naim Aktar</i>	
Chapter 15	Statistical Tools and Data Analysis for Organizing Plant High-Throughput Phenomics	260
	<i>Mahankali Sravanalakshmi, Mani Manoj, Priti Kumari, Macharla Srinidhi, Kannan Vijayarani, Shanmugam Velayuthaprabhu, Muhukrishnan Saradhadevi, and Arumugam Vijaya Anand</i>	

Chapter 16	Robotics and Aerial Vehicle for High-Throughput Phenotyping: Technologies and Prospects	282
	<i>Priti Kumari, Mani Manoj, Mahankali Sravanalakshmi, Macharla Srinidhi, Marudhachalam Kamalesh, Shanmugam Gavaskar, Alagarsamy Sumithra, and Arumugam Vijaya Anand</i>	
Chapter 17	Technical Advancements in Plant Metabolic Phenotyping Based on High-Throughput and High-Resolution Analytical Platforms	311
	<i>Kuttikattuparambil Sudheer Aditi, Manoharan Rajesh, Natarajan Pushpa, Chenniappan Anchana Devi, Kandasamy Vijayalakshmi, and Arumugam Vijaya Anand</i>	
Chapter 18	High-Throughput Metabolomics for Agricultural Research.....	323
	<i>Govindarajan Ramkumar, Sureshkumar Tharani, Siva Daniel Ajay Samuel, Chithra Devi Balasundarm Saraswathy, Sarah Jaison, Krishnan Kutty Sunitha Kumari, Muthukrishnan Arun, and Arumugam Vijaya Anand</i>	
Chapter 19	Dissecting Plant-Pathogen Interactions by High-Throughput Metabolomics for Developing Biotic Stress-Resilient Crops	345
	<i>Krishnan Kutty Sunitha Kumari, Sureshkumar Tharani, Sarah Jaison, Govindarajan Ramkumar, Siva Daniel Ajay Samuel, Chithra Devi Balasundarm Saraswathy, Muthukrishnan Arun, and Arumugam Vijaya Anand</i>	
Chapter 20	Applied Metabolomics for Plant Disease Management	363
	<i>Ganesan Megha, Domesa Monisha, Kempanna Sushmitha, Manoharan Rajesh, Natarajan Pushpa, Chenniappan Anchana Devi, Kandasamy Vijayalakshmi, and Arumugam Vijaya Anand</i>	
Index		385