

AU4	Considering the immense significance of plants for life on Earth, the major foci of research in modern plant biology have been to (a) select plants that best fit the purposes of humans; (b) develop crop plants superior in quality, quantity, and farming practices when compared to natural (wild) plants; and (c) explore strategies to help plants to adapt biotic and abiotic/environmental stress factors. However, the development of methods, technologies, and implementations for a better mechanistic representation of the complex plant system has been increasingly witnessed in current exhaustive plant research. In particular, with the advancement in technology, a huge amount of biological data is emerging from multi-omics approaches aimed at addressing numerous aspects of plant systems under biotic or abiotic stresses. Thus, to decipher plant strategies to combat various stresses, a proper management, analysis, and interpretation of this high-throughput data is required. The field of plant bioinformatics has become a panacea for the highlighted issue where the analysis of the huge data sets available in databases is made possible with specific software.	95 96 97 98 99 100 101 102 103 104 105 106 107 108
AU5	Despite the field of plant bioinformatics evolving at a rapid pace, information on the cross-talks and/or critical digestion of research outcomes in context with plant bioinformatics is scarce.	109 110 111
AU6	In view of the above, taking into account authoritative chapters contributed by eminent scientists and researchers in the arena of plant bioinformatics, the current edited volume is aimed to (i) introduce fundamental and applied bioinformatics research in the field of plant life sciences; (ii) enlighten the potential users toward the recent advances in the development and application of novel computational methods available for the analysis and integration of plant omics data; (iii) highlight relevant databases, software, tools, and web resources developed till date to provide ease of access for researchers working to decipher plant responses toward stresses; (iv) present critical cross-talks on the available high-throughput data versus plant bioinformatics, bioinformatical versus experimental analyses of plant small RNAs, bioinformatics significance in the new crop disease emergence and biotic/abiotic stress tolerance, and functional genomics approaches in plant research; (v) provide the role of different areas of bioinformatics such as genomics, proteomics, systems biology, etc. in agriculture; and (vi) summarize challenges and provide	112 113 114 115 116 117 118 119 120 121 122 123 124 125
AU7		

126 recommendations to overcome the limitations in employing computational methods
127 to solve problems in the current context.

128 We believe that the present volume could be of great interest among research
129 students and the teaching community and could also be used as a reference material
130 by professional researchers.

AU 131 We are highly grateful to all our contributors for readily accepting our invitation
132 and for not only sharing their knowledge and research but for venerably integrating
133 their expertise in dispersed information from diverse fields in composing the chap-
134 ters and enduring editorial suggestions to finally produce this venture. We greatly
135 appreciate their commitment. We are also thankful to Prof. Raul Cuero for writing
136 the foreword. Last but not the least, we are also thankful to the Springer International
137 team for their generous cooperation at every stage of the book's production.

AU 138 Jeddah, Saudi Arabia

139 Daejeon, Republic of Korea

140 Bornova, Izmir, Turkey

141 Bornova-Izmir, Izmir, Turkey

Khalid Rehman Hakeem

Adeel Malik

Munir Ozturk

Fazilet Vardar-Sukan

Plant Bioinformatics

Decoding the Phyta

Hakeem, K.R.; Malik, A.; Vardar-Sukan, F.; Ozturk, M.

(Eds.)

2017, XIV, 459 p. 50 illus., 49 illus. in color., Hardcover

ISBN: 978-3-319-67155-0