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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	1. Introduction to fundamental and applied bioinformatics research in plant life sciences -- Concept, development and application of novel computational methods for the analysis and integration of –omics data -- 3. Impact of high-throughput techniques on plant translational research -- 4. Functional genomics approaches in plant research -- 5. Bioinformatical versus experimental analyses of small RNAs in plants -- 6. Systems analyses of plant functions -- 7. Phylogenetic analyses and whole genome duplication (WGD) events -- 8. Application of bioinformatics in agriculture, plant breeding and, improved complex traits (e.g. yield and quality) -- 9. Application of bioinformatics in developing resistance against insects and harsh environments -- 10. Discovery of molecular markers such as single sequence repeats (SSRs) involved in gene mapping, molecular breeding and genetic diversity -- 11. Significance of bioinformatics in the new crop diseases-emergence -- 12. From genomics to the improved crop phenotype -- 13. Deciphering the effects of microbiome on plants using computational methods -- 14. Bioinformatics resources for plants -- 15. Recent Technological advances in plant bioinformatics -- 16. ‘Big Data’

challenges and future trends in plant bioinformatics research.

Sommario/riassunto

Dr. Khalid Rehman Hakeem (PhD) is working as Associate Professor at Department of Biological Sciences, Faculty of Science, King Abdulaziz University, Jeddah, Saudi Arabia, He has obtained his MSc. (Environmental Botany) as well as PhD (Botany) from Jamia Hamdard, New Delhi, India in 2006 and 2011 respectively. He has conducted his Post Doctorate research in the fields of plant ecology and plant biotechnological studies from Universiti Putra Malaysia from 2012-2013. Dr. Hakeem has more than Nine years of teaching and research experience in Plant Eco-Physiology, Biotechnology & Molecular biology, Plant Bioinformatics, Plant-Microbe-soil interactions as well as in Environmental sciences. Recipient of several fellowships at both national and international levels, Dr. Hakeem has so far edited and authored more than Twenty books with International publishers. He has also to his credit more than 100 research publications in peer reviewed international journals, including 35 book chapters with international publishers. He is also the Editorial board member and reviewer of several high impact international Journals. Dr. Hakeem is currently engaged in studying the plant processes at ecophysiological as well as proteomic levels. Adeel Malik (PhD) is currently working as a Research Professor at Chungnam National University, Daejeon, South Korea. He obtained his PhD (2009) from the Dept. of Biosciences, Jamia Millia Islamia (JMI), New Delhi, India. During his PhD, he developed computational methods for the prediction of carbohydrate binding sites in proteins using sequence and evolutionary information. He obtained his postdoctoral fellowship from School of Computational Sciences, Korea Institute for Advanced Study (KIAS), Seoul, South Korea (2011-2012). As a part of his research, he investigated plant lectin-carbohydrate interactions via community-based network analysis by using glycan array data. He worked as an Assistant Professor at School of Biotechnology, Yeungnam University, South Korea and later at Perdana University Center for Bioinformatics (PU-CBi), Malaysia. His research interests include developing computational methods for studying protein-carbohydrate interactions and applyinging bioinformatics approaches to explore the role of glycogenes in various biological processes. He has published about 19 research articles in high impact journals including 3 book chapters. Prof. Munir Ozturk (PhD, DSc.) was born in Kashmir (1943) and holds PhD+DSc degrees in Ecology & Environmental Sciences from Ege University, Turkey. He is author of over 450 papers on ecological studies as well as biomonitoring in different habitats and is member in the editorial board of as well as reviewer in several journals. Dr. Öztürk has received fellowships from Alexander von Humboldt and Japanese Society for Promotion of Science. He has worked at the University of Chapel Hill, North Carolina using the grant from National Science Foundation, USA; as well as a Consultant Fellow at the Faculty of Forestry, University Putra Malaysia and as “Distinguished Visiting Scientist” at the ICCBS, Karachi University, Pakistan. His fields of scientific interest are; Plant Eco-Physiology; Conservation of Plant Diversity; Biosaline Agriculture and Crops; Pollution, Biomonitoring, Medicinal/Aromatic Plants. The current number of his publications lies around 450. These include over 40 books, nearly 55 book chapters, more than 170 papers in impact factor journals and more than 150 presentations in “National and International Conferences, Workshops, Symposia” and has acted as guest editor for several international journals. Prof. Vardar-Sukan (PhD) is a chemical engineer graduated from Ege University, Izmir, Turkey with aPh.D.in biochemical engineering from University College London, UK. She has 35 years of teaching and research experience and

has over150 publications in the fields of scale-up, mass and momentum transfer in bioreactors, re-utilization of agro-industrial waste through bio-industries and R&D & I management and support and nearly 1500 citations. She is the founding head of the Bioengineering Department at Ege University since 2000 and is a pioneer in the field in Turkey. She has been involved in 21 EU supported projects and 27 national and international projects supported by different national, international funds or industry on biotechnology, R&D and innovation support, science and society, either as a coordinator, partner or researcher. She is a refree in numerous scientific journals. She is the holder of Turkish Scientific and Technological Council Incentive award in Bioegineering in 1989 and has three patent applications one of them being a PCT. She is currently the Chair-person of the national Biotechnology Strategy Committee of the Ministry of Science, Industry and Technology of TurkeyIndustry and Technology of Turkey.