Molecular Breeding

for Rice Abiotic Stress Tolerance and Nutritional Quality

Edited by
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Editor Biographies

Dr. Mohammad Anwar Hossain is a Professor in the Department of Genetics and Plant Breeding, Bangladesh Agricultural University (BAU), Mymensingh, Bangladesh. He received his BSc in Agriculture and MS in Genetics and Plant Breeding from BAU, Bangladesh. He also received an MSc in Agriculture from Kagawa University, Japan, in 2008 and a PhD in Abiotic Stress Physiology and Molecular Biology from Ehime University, Japan, in 2011 through a Monbukagakusho scholarship. As a JSPS postdoctoral researcher he has worked on isolating low phosphorus stress tolerant genes from rice at the University of Tokyo, Japan, during the period of 2015–2017. His current research program focuses on understanding physiological, biochemical, and molecular mechanisms underlying abiotic stresses in plants and the generation of stress-tolerant and nutrient-efficient plants through breeding and biotechnology. He has over 60 peer-reviewed publications and has edited 10 books, including this one, published by CRC press, Springer, Elsevier, and Wiley.

Dr. Lutful Hassan is a Professor in the Department of Genetics and Plant Breeding, BAU, Mymensingh, Bangladesh. Currently he is the Vice-Chancellor of BAU, Bangladesh. He obtained his BSc Agriculture and MSc in Genetics and Plant Breeding from BAU and his PhD in Plant

Breeding from the University of Wales, UK. He has conducted post-doctoral research in different countries across the world through Japan Society for the Promotion of Science, Alexander von Humboldt, Norman E. Borlaug, and Royal Society Fellowship. He has also worked at the International Rice Research Institute (IRRI) as a consultant in “Stress to tolerant rice for Africa and South Asia (STRASA)” and “Sustainable Rice Seed Production and Delivery System (SRSPDS)” projects. His current research includes the development of high-yielding stress-tolerant rice and mustard varieties through conventional and molecular breeding approaches. He is a recipient of the John Dillon Memorial Fellow Award for agricultural research management, agricultural policy and/or extension technologies. He has over 150 peer-reviewed publications, and has edited 3 books including this one. He has given over 50 invited presentations nationally and internationally.

Dr. Khandakar Md. Iftekharuddaula is a Chief Scientific Officer and Head in the Division of Plant Breeding, Bangladesh Rice Research Institute, Gazipur, Bangladesh. He received his BSc in Agriculture and MS in Genetics and Plant Breeding from Bangladesh Agricultural University, Bangladesh. He has completed PhD research from the International Rice Research Institute and obtained his degree in Genetics and Plant Breeding from Bangladesh Agricultural University, Bangladesh. He has acted as Collaborative Research Fellow in the Transforming Rice Breeding Project implemented at the Bangladesh Rice Research Institute funded by the Bill and Melinda Gates Foundation for the duration of four years. He has special research experience in the development of submergence and stagnant flooding tolerant, deep-water tolerant, water-saving, irrigated, and premium quality rice varieties utilizing breeding and biotechnological tools. He has published 60 full-length scientific papers, five books/book chapters and six bulletins/proceeding papers.

Dr. Arvind Kumar is the Director of the International Rice Research Institute, South Asia Regional Centre, Varanasi, India. Dr. Kumar has twenty-six years of experience in rice research in South Asia and Southeast Asia. From breeding lines developed by him, 65 rice varieties have been released in 10 different countries. He successfully introgressed drought grain yield QTLs in popular high-yielding varieties following marker-assisted breeding (MAB) and has developed drought-tolerant improved versions of several popular varieties as well as varieties tolerant to multiple abiotic and biotic stresses. Dr. Kumar has identified 14 QTLs for grain yield under drought. Identified QTLs are being used on a large scale in marker-assisted breeding programs all over the world to develop rice varieties with improved yield under drought. Dr. Kumar also has identified seven genes for resistance against rice gall midge, which are used in breeding programs across the world, as well as QTLs for traits enhancing rice adaptability to dry direct-seeded situations. He has implemented 28 research projects, supervised more than 30 scholars, and published more than 30 chapters and 143 research manuscripts. For his varietal development work, he was awarded with the highest award for contribution to Indian agriculture, the Rafi Ahmed Kiwi Award by the Indian Council of Agricultural Research (ICAR), Government of India in 2014. The Nepal Council of Agricultural Research (NARC), Government of Nepal recognized him with honor in 2016 for his contribution to agriculture in Nepal for development of drought-tolerant varieties.

Professor Robert Henry conducts research on the development of new products from plants. His research targets improved understanding of the molecular basis of the quality of products produced from plants and genome analysis to capture novel genetic resources for diversification of food and energy crops. He is the Professor of Innovation in Agriculture and Foundation Director of the Queensland Alliance for Agriculture and Food Innovation, an Institute of the University of Queensland in partnership with the Queensland Government. He was previously director of the Centre for Plant Conservation Genetics at Southern Cross University and Research Program Leader in the Queensland Agricultural Biotechnology Centre. He has been involved in establishing several Cooperative