1. Record Nr. UNINA9910812338503321

Titolo	The chemical biology of plant biostimulants / / edited by Danny Geelen, Lin Xu
Pubbl/distr/stampa	Hoboken, New Jersey ; ; West Sussex, England : , : Wiley, , 2020 ©2020
ISBN	1-119-35724-1 1-119-35710-1 1-119-35725-X
Descrizione fisica	1 online resource (326 pages)
Collana	Wiley series in renewable resources
Disciplina	575.97
Soggetti	Plant growth promoting substances Plant biotechnology Plants - Composition Botanical chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Agricultural functions and action mechanisms of plant biostimulants (PBs) : an introduction -- Plant biostimulants from seaweed : an overview -- Seaweed carbohydrates -- Possible role for electron shuttling capacity in elicitation of PB activity of humic substances on plant growth enhancement -- Auxin : at the crossroads between chemistry and biology -- Plant biostimulants in vermicomposts : characteristics and plausible mechanisms -- Exploring natural resources for biostimulants -- Biostimulant mode of action : impact of biostimulant on whole plant level -- Biostimulant mode of action : impact of biostimulant on cellular level -- Biostimulant mode of action : impact of PBs on molecular level -- Use of plant metabolites to mitigate stress effects in crops.
Sommario/riassunto	"This book will present examples of chemical biology approaches that have resulted in the identification of new small chemicals with an impact on plant development and physiology, and give illustrations of how the mode of action is being studied using molecular tools. Although molecular laboratory experiments have a high discovery rate

and give very detailed information on the studied processes, the interchange of field studies and that of lab scale investigations is required to narrow down the parameters that determine the effectiveness of biostimulants, something that is of great importance for the successful commercialization of these products. Examples will be given of studies that contribute to closing the gap between the lab and the field. Topics covered include: Introduction to biostimulants. Categories of biostimulants: humic acid and fulvic acid, amino acids and protein hydrolysate, seaweed extracts, chitin/chitosan/oligosaccharides, substances with hormone like activities: Small molecule identification and metabolomics: technology to detect the fate of biostimulants, chemical screens and reporter systems. Biostimulant mode of action. Biostimulant by design: in silico structure prediction. Biostimulants, a practical guide: Examples of commercial biostimulants with more or less known mode of action. The biostimulant business and agricultural scientists are showing an increased interest in investigating the mode of action of biostimulants. This book will help them to get an overview of different aspects of biostimulant research, and provide access to new approaches and methods being developed in the wake of chemical biological studies"--