

1. Record Nr.	UNINA9910298426403321
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Titolo	Plant Physiology, Development and Metabolism [[electronic resource] /] / by Satish C Bhatla, Manju A. Lal
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2018
ISBN	981-13-2023-3
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XXXIV, 1237 p. 707 illus., 431 illus. in color.)
Disciplina	571.2
Soggetti	Plant physiology Plant anatomy Plant development Plant ecology Plant breeding Plant genetics Plant Physiology Plant Anatomy/Development Plant Ecology Plant Breeding/Biotechnology Plant Genetics and Genomics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part I TRANSPORT OF WATER AND NUTRIENTS -- Chapter 1. Plant water relations -- Chapter 2. Mineral nutrition -- Chapter 3. Water and soluble transport -- Part II METABOLISM -- Chapter 4. Concepts in metabolism -- Chapter 5. Photosynthesis -- Chapter 6. Photosynthate translocation -- Chapter 7. Respiration -- Chapter 8. ATP synthesis -- Chapter 9. Metabolism of storage carbohydrates -- Chapter 10. Lipid metabolism -- Chapter 11. Nitrogen metabolism -- Chapter 12. Sulphur, phosphorus and iron metabolism -- Part III DEVELOPMENT -- Chapter 13. Light perception and transduction -- Chapter 14. Plant growth regulators -- Chapter 15. Auxins -- Chapter 16. Cytokinins -- Chapter 17. Gibberellins -- Chapter 18. Abscisic acid -- Chapter 19. Ethylene -- Chapter 20. Brassinosteroids -- Chapter 21. Jasmonic acid

-- Chapter 22. Recently discovered plant growth regulators -- Chapter 23. Mechanisms of signal reception and transduction -- Chapter 24. Embryogenesis, vegetative growth and organogenesis -- Chapter 25. Physiology of flowering -- Chapter 26. Pollination, embryogenesis and seed development -- Chapter 27. Fruit development and ripening -- Chapter 28. Seed dormancy and germination -- Chapter 29. Plant movements -- Chapter 30. Senescence and programmed cell death -- Part IV STRESS PHYSIOLOGY -- Chapter 31. Abiotic stress -- Chapter 32. Biotic interactions -- Part V APPLIED PLANT PHYSIOLOGY -- Chapter 33. Secondary metabolites -- Chapter 34. Plant physiology in agriculture and biotechnology -- Glossary.

Sommario/riassunto

This book focuses on the fundamentals of plant physiology for undergraduate and graduate students. It consists of 34 chapters divided into five major units. Unit I discusses the unique mechanisms of water and ion transport, while Unit II describes the various metabolic events essential for plant development that result from plants' ability to capture photons from sunlight, to convert inorganic forms of nutrition to organic forms and to synthesize high energy molecules, such as ATP. Light signal perception and transduction works in perfect coordination with a wide variety of plant growth regulators in regulating various plant developmental processes, and these aspects are explored in Unit III. Unit IV investigates plants' various structural and biochemical adaptive mechanisms to enable them to survive under a wide variety of abiotic stress conditions (salt, temperature, flooding, drought), pathogen and herbivore attack (biotic interactions). Lastly, Unit V addresses the large number of secondary metabolites produced by plants that are medicinally important for mankind and their applications in biotechnology and agriculture. Each topic is supported by illustrations, tables and information boxes, and a glossary of important terms in plant physiology is provided at the end. .
