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Titolo	Plant Microtechniques and Protocols // edited by Edward Chee Tak Yeung, Claudio Stasolla, Michael John Sumner, Bing Quan Huang
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ISBN	3-319-19944-7
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (572 p.)
Disciplina	570
Soggetti	Plant breeding Plant anatomy Plant development Plant systematics Plant taxonomy Plant Breeding/Biotechnology Plant Anatomy/Development Plant Systematics/Taxonomy/Biogeography
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	A Guide to the Study of Plant Structure with Emphasis on Living Specimens -- Chemical and Physical Fixation of Cells and Tissues: an Overview -- Paraffin and Polyester Waxes -- The Glycol Methacrylate Embedding Resins -- Technovit 7100 and 8100 -- Epoxy Resins for Light and Transmission Electron Microscopy -- LR White Acrylic Resin -- High Pressure Freezing and Freeze Substitution of In vivo and In vitro Cultured Plant Samples -- Three-Dimensional Imaging for Electron Microscopy of Plastic-embedded Plant Specimens -- Fluorescent Staining of Living Plant Cells -- Improved Methods for Clearing and Staining of Plant Samples -- Whole Mount Immunofluorescence Staining of Plant Cells and Tissues -- Protoplast Isolation and Staining -- Guiding Principles for Live Cell Imaging of Plants using Confocal Microscopy.-Immunogold Labeling for Electron Microscopy: Strategy and Problem Solving -- Abscisic Acid

Immunostaining -- Plant Chromosome Preparations and Staining for Light Microscopic Studies -- Chromosome techniques and FISH -- Detection of S-phase of Cell Division Cycle in Plant Cells and Tissues by using 5-ethynyl-2'-deoxyuridine (EdU) -- Staining Methods for Programmed Cell Death -- Laser Microdissection of Plant Tissues -- RNA In situ Hybridization -- Microscopic Examination of Wood: Sample Preparation and Techniques for Light Microscopy -- Collecting and Processing Wood Microcores for Monitoring Xylogenesis -- Three-dimensional Imaging of Cambium and Secondary Xylem Cells by Confocal Laser Scanning Microscopy -- Collection of Plant Remains from Archaeological Contexts -- Archaeological Wood Preparation -- Archaeopalynological Preparation Techniques -- Phytoliths: Preparation and Archaeological Extraction -- Starch Granules: Preparation and Archaeological Extraction -- Plant Collection, Identification, and Herbarium Procedures -- Index.

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Sommario/riassunto

This work gathers common plant microtechniques and updates their procedures using a simple and fully understandable approach. The text serves as a handy resource for scientists familiar with the protocols and as a guide for the novice, especially students just beginning to learn about various structural methods for the first time. This book analyzes a range of topics in order to generate cross-talks among scientists in different research disciplines. The first section of this volume covers the more commonly used embedding methods, with emphasis on the preparative methods for light and electron microscopy. A number of cell biology related protocols are compiled in the second section to showcase the usefulness of various techniques based on different processing and staining methods. The third section highlights some common and recent procedures in wood preparation. The last section includes botanical methods related to archaeological uses of plant materials. A special chapter on field and herbarium procedures is also included to serve as a guide to students interested in plant collection and taxonomic studies.

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