



Nitrogen fixation : from molecules to crop productivity : proceedings of the 12th International Congress on Nitrogen Fixation, Foz do Iguacu, Paraná, Brazil, September 12-27, 1999 /

International Congress on Nitrogen Fixation (12th :. 1999 :. Paraná, Brazil)

Kluwer Academic Publishers, 2000

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This book brings together the diverse disciplines that study nitrogen fixation and describes the most recent advances made in various fields: chemists are now studying FeMoco, the active site of nitrogenase in non-protein surroundings, and the crystal structure of the enzyme has been refined to 1.6 angstroms. Recent advances in the complex regulation of nitrogen metabolism and nitrogen fixation gene expression in the free-living, associative, endophytic, symbiotic and photosynthetic diazotrophs are detailed, as well as factors involved in the nodulation process and nodule metabolism in legumes. In recent years molecular techniques have expanded phylogenetic studies and genome sequencing. Extensive studies on biological nitrogen fixation in sustainable agriculture, particularly in the tropics, environmental stress on plants and microbes, rhizobial strain selection, methods of soil reclamation and newly discovered plant bacterial associations are described. Finally, the possible avenues of nitrogen fixation research in the coming century, including the expression of nitrogen fixation genes and the establishment of nitrogenase function in plant organelles, the prospects of developing nitrogen fixation in rice and the development of resistant transgenic legumes are explored. All these developments were discussed at the 21st International Congress on Nitrogen Fixation held at Foz do Iguassu, Paran State, Brazil, and are covered in these proceedings

Título: Nitrogen fixation from molecules to crop productivity : proceedings of the 12th International Congress on Nitrogen Fixation, Foz do Iguaçu, Paraná, Brazil, September 12-27, 1999 edited by Fabio O. Pedrosa [and others]

Editorial: Dordrecht Boston Kluwer Academic Publishers 2000

Descripción física: 1 online resource (xxvi, 669 pages) illustrations

Mención de serie: Current plant science and biotechnology in agriculture 38

Bibliografía: Includes bibliographical references and index

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ISBN: 0306476150 electronic bk.) 9780306476150 electronic bk.) 6610201013 9786610201013 0792362330 9780792362333

Materia: Nitrogen- Fixation- Congresses SCIENCE- Life Sciences- Biochemistry Nitrogen- Fixation Bioquímica

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Enlace a formato físico adicional: Print version International Congress on Nitrogen Fixation (12th : 1999 : Paraná, Brazil). Nitrogen fixation. Dordrecht ; Boston : Kluwer Academic Publishers, 2000 0792362330 (DLC) 00028156 (OCoLC)43657015

Punto acceso adicional serie-Título: Current plant science and biotechnology in agriculture 38

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