

Plant Tissue Culture Engineering

Edited by

S. Dutta Gupta and Yasuomi Ibaraki

Decades of research in plant tissue culture has passed through many challenges, created new dreams and resulted in landmark achievements. This has been possible not only due to the refinements of cultural practices and application of cutting-edge areas of molecular biology but also due to the judicious inclusion of engineering principles and methods to the system. It has been the aim of the editors of this volume to offer a comprehensive survey of the engineering principles and methods applied in plant tissue culture, which has led the foundation to many successes and opened up new vistas in this field.

This volume, *Plant Tissue Culture Engineering*, signals a turning point: the recognition that this specialized field of plant science must be integrated with engineering principles in order to develop efficient, cost effective and large scale applications of these technologies. A diverse team of key researchers, technologists and engineers have joined to describe in a lucid manner how various engineering disciplines can contribute to the improvement of plant tissue culture techniques and transform it to a technology. The volume contains 5 parts:

- 1) Machine vision systems for non-invasive and objective evaluation of cultures
- 2) Innovative bioreactor technologies and its engineering bases
- 3) Mechanized and/or automated culture processes
- 4) Engineering cultural environment
- 5) Physical aspects of plant tissue culture engineering

Readers of this volume will find a unique collection of chapters that will focus our attention on the interface of plant biotechnologies and engineering technologies.

This volume will be of use to graduate students, teachers and research workers in the fields of horticulture, agricultural botany and plant biotechnology in general and also to individuals who may or may not have an engineering background but be interested in industrial plant tissue culture.

ISBN 1-4020-3594-2



9 781402 035944