

**PLANT TISSUE
CULTURE
APPLICATIONS FOR
VALUABLE CROPS**

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EDITORS

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www.penerbit.utm.my

2025

First Edition 2025
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Editor/Editors: **AZMAN ABD SAMAD & RAIHANA RIDZUAN**
Editor Penyelaras/Acquisition Editor: **RASYIAH ABDUL RANI**
Pereka Kulit /Cover Designer: **NUR'ATIQA ARSHAD**

Diatur huruf oleh /Typeset by:
AZMAN ABD SAMAD & RAIHANA RIDZUAN
Fakulti of Science
UNIVERSITI TEKNOLOGI MALAYSIA
81310 UTM Johor Bahru,
Johor Darul Ta'zim, MALAYSIA

Diterbitkan di Malaysia oleh/
Published in Malaysia by:
PENERBIT UTM PRESS
UNIVERSITI TEKNOLOGI MALAYSIA
81310 UTM Johor Bahru,
Johor Darul Ta'zim, MALAYSIA
(Ahli Majlis Penerbitan Ilmiah Malaysia (MAPIM) dan
Persatuan Penerbit Buku Malaysia (MABOPA)
no. keahlian 9101)

Dicetak di Malaysia oleh/
Printed in Malaysia by:
JASAMAX ENTERPRISE
No.16, Jalan Kebudayaan 2,
Taman Universiti,
81300 Skudai,
Johor Darul Ta'zim,
MALAYSIA



Cataloguing-in-Publication Data
Perpustakaan Negara Malaysia
A catalogue record for this book is available from the
National Library of Malaysia
ISBN 978-983-52-2104-0

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PREFACE

Plant tissue culture has become an indispensable tool in modern agriculture, offering innovative solutions for propagating, improving, and sustainably producing valuable crops. This edited volume, *Plant Tissue Culture Applications for Valuable Crops*, brings together a collection of chapters that explore various aspects of tissue culture applications, with a special focus on globally significant crops, particularly in Malaysia.

The purpose of this book is to provide a comprehensive resource that reflects the current advancements and practical applications of plant tissue culture in the context of valuable crop production. As the agricultural sector faces increasing challenges related to food security, sustainability, and climate change, this book aims to highlight the role of tissue culture as a transformative technology that can address these issues.

We have had to be selective in choosing the topics discussed in this book. The chapters cover a wide range of subjects, from examining the current trend and prospects of plant tissue culture in Malaysia, and potential future technological advancements in tissue culture. Different plant regeneration systems such as organogenesis and somatic embryogenesis are utilised for mass plant propagation and manipulating plant secondary metabolites using tissue culture systems. The book delves into critical parameters involved in somatic embryogenesis in rice. It also explores rapid micropropagation techniques for moringa, in vitro propagation methods for bananas, sterilisation approaches for red ginger, strategies for enhancing the antidiabetic properties of cat's whiskers through tissue culture and tissue culture technique for Mucuna.

Each chapter is authored by experts in their respective fields, providing insights, methodologies, and case studies that showcase the versatility and impact of plant tissue culture in modern agricultural practices. Whether you are a researcher, student, or practitioner in the

field of plant sciences, this book aims to be a valuable resource for understanding the latest advancements and applications of plant tissue culture for valuable crop production.

We express our gratitude to all the contributors for their valuable insights and contributions, which have made this book possible. It is our hope that this compilation will inspire further research, innovation, and collaboration in the field of plant tissue culture, ultimately contributing to the sustainable and efficient production of valuable crops worldwide.

Azman Abd Samad

Raihana Ridzuan

Universiti Teknologi Malaysia

2025