

**TECHNIQUES  
IN  
MYCORRHIZAE**

**Editors  
M. J. Bukhari  
&  
B. F. Rodrigues**

**Department of Botany  
Government College of  
Arts, Science & Commerce  
Quepem Goa 403 705.**

## **Techniques in Mycorrhizae**

pp. 87 + Plate I & II

**Note:** No part of this publication may be reproduced, re-recorded or stored in a retrieval system or transmitted in any form or by any means – including print, photocopy, microfilm, electric or electromagnetic without prior permission of the publisher.

**Disclaimer:** The authors are responsible for the contents of the articles.

**First edition:** 2006

**Editors:** M. J. Bukhari & B. F. Rodrigues

**Price:** Rs. 150 (Inclusive of Postage) (For individuals)  
Rs. 300 (Inclusive of Postage) – (For Institutions)

**Published by:**  
Government College, Quepem, Goa 403 705.

**Publication supported by:**  
University Grants Commission (UGC), New Delhi.

**Workshop supported by:**  
University Grants Commission (UGC), New Delhi.

**Printed by:**  
M/s Lairae Printers, Margao Goa.  
Tel.: 0832-2704213 / 9822102040

# CONTENTS

	<b>Page</b>
<b>Preface</b>	v
<b>Foreword</b>	vii
<b>I. Invited Lectures</b>	
1. Arbuscular mycorrhizal fungi in sustainable agriculture. <b>D. J. Bagyaraj</b>	1
2. Biodiversity and taxonomy of arbuscular mycorrhizal fungi. <b>C. Manoharachary</b>	9
3. Arbuscular Mycorrhizal Fungi of Coastal Sand Dunes. <b>K. R. Sridhar</b>	30
4. Role of arbuscular mycorrhizal (AM) fungi in sustainable development and mine waste land management. <b>B. F. Rodrigues</b>	43
5. Ectomycorrhizal associations. <b>K. Natrajan</b>	58
6. Perspectives of fungi. <b>D. J. Bhat</b>	67
<b>II. Technical demonstrations</b>	
1. Isolation of Arbuscular Mycorrhizal (AM) spores in soil. <b>A. Venugopal &amp; M. J. Bukhari</b>	71
2. Estimation of Arbuscular Mycorrhizal (AM) fungal spores. <b>M. J. Bukhari</b>	74
3. Assessment of Arbuscular Mycorrhizal (AM) colonization in roots. <b>K. P. Radhika</b>	77
4. Mounting Arbuscular Mycorrhizal (AM) spores on glass slides <b>K. P. Radhika</b>	78

5. Most Probable Number (MPN) method for estimating number of infective propagules of AM fungi in soil. <b>R.Lakshmipathy</b>	79
6. Mass multiplication of Arbuscular Mycorrhizal (AM) fungal spores using various techniques. <b>B. F. Rodrigues</b>	81
7. Taxonomic identification of Arbuscular Mycorrhizal (AM) fungi. <b>B. F. Rodrigues</b>	84

## **PREFACE**

Mycorrhizal symbiosis has of late created a keen interest among biological scientists as a result of which considerable progress has been made in furthering knowledge on various aspects of mycorrhizas. This is evident from the fact that a large number of biologists have chosen to work on various aspects of mycorrhizal fungi. It has been convincingly demonstrated that inoculation of agriculture crop plants and forest trees with mycorrhizal fungi enhances growth and development especially in deficient soils of arid and semi-arid tropics. Presently, much attention is being diverted towards production of bulk inoculum of mycorrhizal biofertilizers for use in agriculture, forestry, horticulture, floriculture, *etc.*

The primary objective of this workshop is to impart the state of the art training to mycorrhizal researchers and to review the progress and identify constraints so as to give momentum to this field of research. To sustain the impact of this workshop, the organizing committee decided to bring out this publication on the inaugural day of the workshop rather than deferring it to a later date. This publication embodies selected invited papers as well as useful protocols pertaining to mycorrhizal techniques.

We place on record our sincere thanks to Shri B. G. Nayak, Principal Government College of Arts, Science and Commerce, Quepem for all his cooperation and support. We are also grateful to all the invited resource persons and all those who directly or indirectly have rendered their help to bring out this volume, which will be of immense use for all those teachers, scientists and researchers who are pursuing their research interests in the field of mycorrhiza. We are confident that this publication would receive a wide acceptability among the mycorrhizal researchers besides teachers and student community in the country.

**M. J. BUKHARI**  
**B. F. RODRIGUES**