



MES ASMABI COLLEGE
P. VEMBALLUR

NCIATRI 23 ABSTRACTS 2023

Editors

**Ansar E. B., Dhanya P. R., Jisha K. C., Kesavan K.
Lathif Penath, Mohammed Areej E. M. & Sheena P. A.**

Editors:

Dr. Ansar E. B.

Dr. Dhanya P. R.

Dr. Jisha K. C.

Dr. Kesavan K.

Mr. Lathif Penath

Mr. Mohammed Areej E. M.

Dr. Sheena P. A.

© Jisha K. C.

First Edition: May 2023

ISBN: 978-93-5813-509-1

All rights reserved. No part of this publication may be reproduced, stored in or introduced into retrieval system or transmitted, in any form, or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior written permission of the publisher. Authors are solely responsible for the contents of the chapters in this volume. The editor has the best effort in the preparation of this book. Errors, if any, are purely unintentional and readers are requested to intimate the errors to the editor to avoid discrepancies in the future.

Published by:

MES Asmabi College, P. Vemballur, Kodungallur, Kerala, India.

PIN: 680671

Price: ₹300/-

Date of publication: 25 May 2023

Design & layout: Aneesh C. S., Maker Design Studio, Mathilakam, Kerala, India.

Contents

No.	Title & Authors	Page No.
16	Ecofriendly Synthesis of Silver Nanoparticles from Aqueous Leaf Extract of <i>Piper nigrum</i> L. and Evaluation of Its Antimicrobial Activity Against Infectious Pathogens <i>Aparna U. & Rekha K.</i>	26
17	Priming Enhances tolerance to Waterlogging Stress in Turmeric Varieties (<i>Curcuma longa</i> L.) <i>Athira T. R.* & Jisha K. C.</i>	27
18	Identification of the Best Extraction Solvent for <i>Humboldtia sanjappae</i>, Elucidation of Its Anti-inflammatory Potential, and LC-MS Screening of Major Phytocompounds <i>Jameemo Sidhique*, Arunaksharan Narayanankutty & Satheesh George</i>	28
29	Evaluation of Antigenotoxic Potential of Turmeric Extract Against Sodium Pottassium Tartrate, a Food Additive <i>Merrin George & Rekha K.</i>	29
30	Phytochemical and GC-MS/MS Analysis of <i>Strophanthus wightianus</i> Wall. ex Wight <i>Sabin P. Q.* & Girija T. P.</i>	30
31	Crop Improvement of Ginger (<i>Zingiber officianale</i> Rosc.) Through Biopriming <i>Sumitha Thomas* & Jisha K. C.</i>	31
32	Production and Purification of Lasperginase Enzyme Using <i>Bacillus</i> Spp and It's Anti Cancer, DNA Damage Analysis <i>Anusree K. M., Hasna Shahana E. N., Fathima Safa V. P., Ahsana K., Mohamed Shefin K. P., Rincy C. K. & Raghunandan</i>	32
33	Invitro and Insilico Studies of Certain Curcumin Analogues' Antibacterial Effect <i>Lovely Jacob A. & Tom Cherian</i>	33
34	Synthesis of Novel Anthracene-maleimide Adduct Derived Difunctional and Trifunctional Mechanophore Incorporated Poly (Methyl Methacrylate) for Stress Sensing and Self Healing Applications <i>Nishad K. M.*. Ram Joseph, Prathapan S.</i>	34
35	Microstructure and Mechanical properties of Friction Stir Welded Az31 Magnesium Alloy <i>Rahul R., Kadhakrishna Panicker M. R., Job P. A.</i>	35
36	Interaction of Two Heterocyclic Derivatives on Carbon Steel in 1M HCl Medium: Gravimetric, Electrochemical and Quantum Chemical Approach <i>Keeja Johnson</i>	36

Crop Improvement of Ginger (*Zingiber officinale* Rosc.) Through Biopriming

Sumitha Thomas* & Jisha K. C.

Research & PG Dept. of Botany, MES Asmabi College, P. Vemballur, Kodungallur, Kerala.

*Corresponding author: sumithat07@gmail.com

Ginger (*Zingiber officinale* Rosc.) is a crop which mainly cultivated for its underground spicy rhizomes. Currently various methods are adopting for crop improvement, among these techniques, priming is the best method for agriculturist for the better establishment of crops. Various chemicals, UV rays, magnetic field, nanoparticles and biological organisms are used as priming agents. In this work, ginger (var. Karthika) is primed with various concentrations (10^5 - 10^9 cfu) of *Pseudomonas fluorescence*, a well-known bacterium that is widely used for crop improvement program. Surface sterilized ginger rhizome cuttings were incubated with solutions containing bacteria for different time duration (6,12,18 and 24 hrs). The entire process was maintained in the germ-free conditions with sterile soil and pots in the culture room. The primed ginger showed sprouting within six days, while the sprouting took more than 20 days for unprimed ones. All bacterial concentrations primed at 6 h and 12 h were rejected due to poor growth patterns. The selected concentration was 10^6 CFU for 24 hours, which showed the highest growth rate in terms of morphological attributes (shoot length 61 cm and leaf length 28 cm). Moreover, the plants also showed highest chlorophyll content in the leaves when compared to control and other priming treatments. In conclusion the bio-primed (10^6 CFU for 24 hours) plants showed an enhancement in germination, growth and photosynthetic pigment, hence this priming concentration and duration was suitable for the biopriming and crop improvement of ginger plants.

KEYWORDS: Biopriming, Ginger, Growth, Improvement, *Pseudomonas*.