

FRONTIERS IN BIOLOGICAL SCIENCES



Dr. S. G. Yadav



Co-ordinator
IQAC
Shri Guru Buddhiswami Mahavidyalaya
Purna (Jp) Dist. Parbhani - 431511 (M.S.)

PRINCIPAL
Shri Guru Buddhiswami Mahavidyalaya
Purna (Jp) Dist. Parbhani

Contents

1. BIO-PRUNING: A REVOLUTIONARY THOUGHT AGAINST CHEMICALS-BASED CROP IMPROVEMENT (1)
Sumitha Thomas and Jisha K.C.
2. ECO-FRIENDLY PLANT DISEASE MANAGEMENT BY MEANS OF MICROBIAL CONTROL AGENTS (20)
Ravindra R. Rakh, Sanjay M. Dalvi and Laxman S. Raut
3. STRENGTHENING THE IMMUNE SYSTEM AND REDUCING INFLAMMATION AND OXIDATIVE STRESS THROUGH THE DIET AND NUTRITION: CONSIDERATIONS DURING THE COVID-19 CRISES. (49)
Vimala K John
4. IN VITRO EVALUATION OF ANTIFUNGAL POTENTIAL OF TERMINALIA SPECIES AGAINST PHOMOPSIS VEXANS (68)
Kushwaha Pradeep Singh and Shinde Saheb L
5. INFLUENCE OF FOUR PLANT BASED CAROTENOIDS ON THE COLOURATION OF TWO ORNAMENTAL FISHES, KOI CARP (*CYPRINUS CARPIO*) AND MOLLY FISH (*POECILIA SPHENOPS*) (86)
Riya Jose, Aaggi Maria Phyllip and Simimole Sebastian
6. USE OF BLUE GREEN ALGAE IN SEED GERMINATION: A SUSTAINABLE APPROACH (101)
Milind J. Jadhav and Bibhishan B. Mahadik
7. PLANTS USED FOR PHYTOREMEDIATION OF CONTAMINATED SOILS (111)
Pratap Vyankatrao Naikwade
8. BIOSYNTHESIS OF NANOPARTICLES AND ITS ROLE IN BIOLOGICAL SCIENCE (132)
Laxmikant V. Shinde, Shekhar Parkhe and Thete Nisan

PRINCIPAL
Guru Buddhishwami Mahavidyalaya
Purna (Jn.) Dist. Parbhani

Co-ordinator
IQAC

Shri Guru Buddhishwami Mahavidyalaya
Purna (Jn) Dist. Parbhani - 431511 (M.S.)

NOTION PRESS

India, Singapore, Malay sia.

Published by Notion Press 2022

Copyright © Dr. S. G. Yadav 2022

All Rights Reserved.

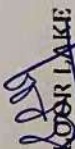
ISBN 979-888629608-2

This book has been published with all reasonable efforts taken to make the material error-free after the consent of the author. No part of this book shall be used, reproduced in any manner whatsoever without written permission from the author, except in the case of brief quotations embodied in critical articles and reviews.

The Author of this book is solely responsible and liable for its content including but not limited to the views, representations, descriptions, statements, information, opinions and references ["Content"]. The Content of this book shall not constitute or be construed or deemed to reflect the opinion or expression of the Publisher or Editor. Neither the Publisher nor Editor endorse or approve the Content of this book or guarantee the reliability, accuracy or completeness of the Content published herein and do not make any representations or warranties of any kind, express or implied, including but not limited to the implied warranties of merchantability, fitness for a particular purpose. The Publisher and Editor shall not be liable whatsoever for any errors, omissions, whether such errors or omissions result from negligence, accident, or any other cause or claims for loss or damage of any kind, including without limitation, indirect or consequential loss or damage, or for the use, inability to use, or about the reliability, accuracy or sufficiency of the information contained in this book.

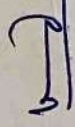


9. TAXIMETRIC STUDY OF THE GENUS CASSIA FROM MAHARASHTRA, INDIA
Munakshi Mahajan (1154)
10. HEAVY RAINFALL AND GLOBAL WARMING INCREASES WATERBORNE DISEASE
Rajesh H. Desai (1169)
11. CHANGES IN THE PROTEIN CONTENT IN FRESHWATER INVALVE AFTER ACUTE TOXICITY TO CADMIUM DURING SUMMER SEASON.
Shakhi Yasmeen and T. S. Pathan (1185)
12. MUTATION BREEDING: A NOVEL APPROACH FOR PLANT IMPROVEMENT
K.D. Savant (1198)
13. PHOSPHATE SOLUBILIZING MICROORGANISMS (PSMs) AS BIOFERTILIZERS: AN APPROACH FOR SUSTAINABLE DEVELOPMENT IN AGRICULTURE
Sanjay M. Dalvi, Laxman S. Raut and Ravindra R. Rakh (1207)
14. MINERALOGY ON THE BASIS OF PETROGRAPHIC STUDY OF LATERITES AND BAUXITES OF SHAHUWADI TALUKA OF KOLHAPUR DISTRICT, MAHARASHTRA.
J. V. Khanapurkar, R. A. Suryawanshi, S. V. Pathare (1231)
15. ANTIFUNGAL ACTIVITY OF PLANT EXTRACT AGAINST DOMINANT SEED-BORNE STORAGE FUNGI OF SOME OIL SEEDS
Sarkate P.S and Badar K.V (1258)
16. APPLICATION OF DOMESTIC WASTE BIOBIOGAS PRODUCTION
Sanap S.B. and Chavan S.P. (1271)
17. MEDICINAL IMPORTANT AND NUTRITIONAL POTENTIAL OF SOME WILD LEAF VEGETABLES IN MARATHI DISTRICT MAHARASHTRA
Surverse S. A. and B. P. Sarwade, (1297)
18. STATUS OF OXYGEN LEVELS IN KOLHAPUR LAKE
Patwari J.M and Narkhede R.K. (1308)


Co-ordinator
IQAC
 Shri Guru Buddhiswami Mahavidyalaya
 Purna (Jn) Dist. Parbhani - 431511 (M.S.)



19. TAXONOMY & DIVERSITY OF LOPHARIA FROM KINHAT (NANDED) DISTRICT MAHARASHTRA
Dr. Rathole H.K. (304)
20. CHEMICAL CHARACTERS OF SORGHUM SILAGE UNDER INFLUENCE OF N FERTILIZER AND MECHANICAL TREATMENT
Smita Basole and Smita Bhosle (310)
21. AN ASSESSMENT OF A NEW SPECIES OF PETRIEFIELD PALM STEM FROM THE DECCAN INTERTROPICAL BELT OF UMARIA, MADHYA PRADESH, INDIA
S. V. Chate (318)
22. EFFECT OF EXTRACTS OF VARIOUS PLANT PARTS ON SEED MYCOFLORA AND DEED GERMINATION OF CHILLI VAR. PETA JAWALA
Telang S.M. (333)
23. HARMFUL AND USEFUL ASPECTS OF WEEDS
D. R. Chamle (341)
24. STUDY OF PLANTS USED AS ETHNOMEDICINE IN THE TREATMENT OF JAUNDICE FROM AKOLE TAHSIL AREA IN AHMEDNAGAR DISTRICT OF MAHARASHTRA, INDIA
Kaveri P. Birari, Milind J. Jadhav and Avinash D. Landge (355)
25. INFLUENCE OF DIFFERENT DORMANCY BREAKING SEED TREATMENTS OF ABRUS PRECATORIUS FOR BIODIVERSITY CONSERVATION.
Rajesh Shrirangrao Gaikwad (366)
26. COLLECTION OF AZOTOBACTER SPP. SAMPLE FROM FIELDS OF AURANGABAD DISTRICT
M.T. Kuchekar and B.T. Pawar (377)
27. SPECIES DIVERSITY OF PEDIASTRUM (MAYAN, 1829) OF BANSHELKI DAM, UDGIR IN THE MARATHWADA REGION OF MAHARASHTRA.
Biradar Rajkumar Gundajirao (382)


PRINCIPAL
 Shri Guru Buddhiswami Mahavidyalaya
 Purna (Jn) Dist. Parbhani

PHOSPHATE SOLUBILIZING MICROORGANISMS (PSMS) AS BIOFERTILIZERS: AN APPROACH FOR SUSTAINABLE DEVELOPMENT IN AGRICULTURE

Sanjay M. Dalvi *, **Laxman S. Raut @** and
Ravindra R. Rakh #

* Department of Botany, **Shri Guru Buddhiswami
Mahavidyalaya, Purna (Jn.)- 431511**

@ Department of Microbiology, Sant Tukaram College of Arts
and Science, Parbhani – 431401

Department of Microbiology, Shri Guru Buddhiswami
Mahavidyalaya, Purna (Jn.)- 431511

Introduction:

Soluble Phosphorus (P) is most crucial macronutrient, for growth and development of plants as it plays a significant role in different metabolic pathways like photosynthesis, biological oxidation, nutrient uptake, energy transport, signal transduction, macromolecular biosynthesis, respiration of plants, cell division and cell building (Gupta *et al.*, 2012; Pathak *et al.*, 2017, Rakh *et al.*, 2021).

Unlike N, the environment does not provide soluble P to plants for their growth. And hence, the major source of Phosphorous available in soil is largely the primary and secondary minerals and dead and decaying organic materials. In contrast to other nutrients, Phosphorous concentration in soil solution is much lower and ranges from 0.001 to 1 mg/l (Brady and Weil 2002, Khatun *et al.*, 2014). Phosphorous present in soil can be placed into three categories: (i)


Co-ordinator
IQAC
Shri Guru Buddhiswami Mahavidyalaya
Purna (Jn) Dist. Parbhani - 431511 (M.S.)


PRINCIPAL
Shri Guru Buddhiswami Mahavidyalaya
Purna (Jn.) Dist. Parbhani