



Nanded Education Society's

Science College, Nanded

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(Affiliated to Swami Ramanand Teerth Marathwada University, Nanded)

(Reaccredited with "A" grade by NAAC with (CGPA 3.38)

3rd Cycle, CPE Status, DST-FIST, Best College Award (SRTMUN)

SELF STUDY REPORT FOR IV CYCLE OF REACCREDITATION



Criterion- III

Research, Innovations and Extension

(Key Indicator 3.3- Research Publication and Awards)

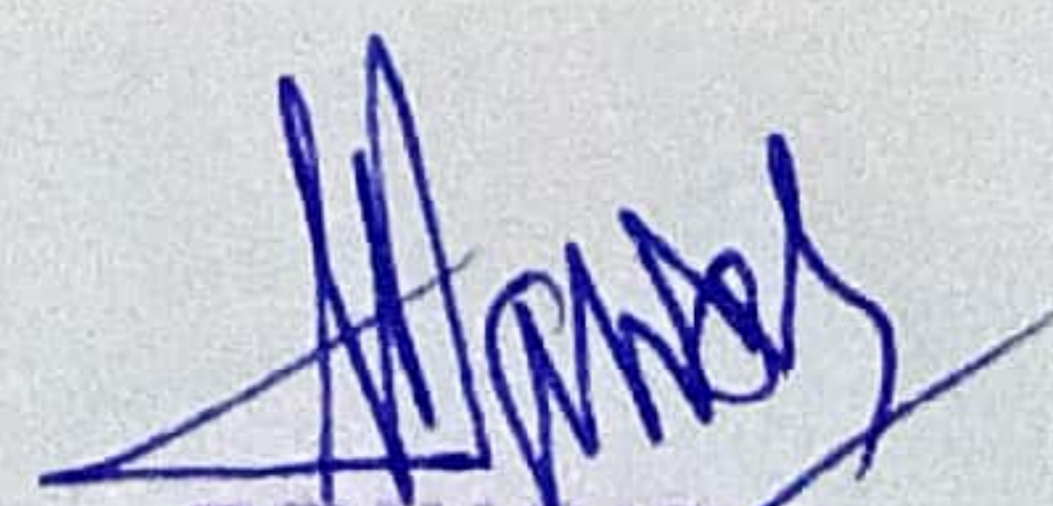
- 3.3.2. QnM** Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years

Science College, Nanded

List of Books/Book Chapters Published 2018-19 to 2023-24

Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	National / International	Calendar Year of publication	ISBN number of the proceeding
1	Dr. Aruna Shukla	Phanishwarnath Renu ka sahitya	Phanishwarnath Renu ki Kahaniya mai anchlikta	National	2021-22	976-93-85620703-1
2	Dr. Aruna Shukla	Badlate daur mai hindi sahitya ka vaishwikan	swadhinata andolan aur hini kavya	National	2022-23	978-93-005231-0
3	Dr. B. D. Gachande	Integrated mangement of crop diseases	In Vitro Antimycotic Efficacy of Plant Latex Against Seed-Borne Storage Fungi of Sunflower and Safflower in Plant Systematics and Biotechnology	National	2018	978-81-70196-02-2
4	Dr. B. D. Gachande	Integrated mangement of crop diseases	Fungal Diversity in Rhizosphere soil of different varieties of pigeonepea [cajanus cajan (L.) Millsp.] in Plant Systematics and Biotechnology	National	2018	978-81-70196-02-2
5	Dr. B. D. Gachande	Plant systematic and Biotechnology : Challenges and opportunities	In vitro antimycotic effect of leaf extracts against Fusarium causing wilts in some crop plants	National	2017	--
6	Dr. B. D. Gachande	Exprimental methods in plant pathology	--	National	2018	978-93-83411-80-1
7	Dr. B. D. Gachande	Introduction to research methodology	--	National	2018	978-93-89066-74
8	Dr. B. D. Gachande	Introduction to computer application	--	National	2018	978-93-89066-74
9	Dr. D. M. Jadhav	Diversity of Microbes and Mycorrhiza	--	National	2021	978-81-950373-6-0
10	Dr. D.U.Gawai	Fungi and their role in sustanble development	Role of fungi as biocontrol agents for the control of plant diseses in sustainable agriculture	International	2018	--
11	Dr. K. R. Gaikwad	Industrial Engineering and Management, pp. 79-86,	Non-Homogeneous Transient heat conduction problem and its thermal stress of a thin solid circular plate	International	2017	978-8-193-28501-5
12	Dr. K. R. Gaikwad	Latest Progress in Mathematics	Thermoelastic Stress Analysis of a Thin Circular Plate subject to Axi-symmetric Temperature Distribution	International	2017	978-9-387-38813-0
13	Dr. K. R. Gaikwad	Latest Progress in Mathematics	Thermal Deflection of a Thin Circular Plate Due to Internal Heat Generation	International	2017	978-9-387-388-130
14	Dr. K. S. Shillewar	Biochemical Composition of FENICE (Advances in	--	International	2022	978-3-96492-450-6




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		multidisciplinary and current research)				
15	Dr. K. S. Shillewar	Manual of Fishery Science	--	International	2022	978-620-5-48926-0
16	Dr. K. S. Shillewar	Manual de Ciencias de la Pesca" (Spanish)	--	International	2022	978-620-5-25011-2
17	Dr. K. S. Shillewar	"Manual di Scienza della Pesca" (Italian)	--	International	2022	978-620-525011-2
18	Dr. K. S. Shillewar	"Handbuch der Fischereiwissenschaft" (German)	--	International	2022	978-620-525002-0
19	Dr. K. S. Shillewar	"Manual de la science des peches" (French)	--	International	2022	978-620-525008-2
20	Dr. K. S. Shillewar	Pykoboactbo no pbioxoHagke" (Russian)	--	International	2022	978-620-525013-6
21	Dr. K. S. Shillewar	"Manual das ciencias da pesca" (Portuguese)	--	International	2022	978-620-525012-9
22	Dr. K. S. Shillewar	"A Hand Book of Fishery Science" (English)	--	International	--	
23	Dr. K. S. Shillewar	"Libro de texto de ciencias de la pesca" (Spanish)	--	International	--	978-47-941-44205
24	Dr. K. S. Shillewar	"Un libro di testo di scienza della pesca" (Italian)	--	International	--	--
25	Dr. K. S. Shillewar	"Ein Lehrbuch der Fischereiwissenschaft" (German)	--	International	--	978-62-039-42019
26	Dr. K. S. Shillewar	"Un manuel de sciences halieutiques" (French)	--	International	--	978-62-039-41999
27	Dr. K. S. Shillewar	"Yueqhnk pblqoxo3nctbeh" (Russian)	--	International	--	--
28	Dr. K. S. Shillewar	"Um Livro de texto de ciencias da pesca" (Portuguese)	--	International	--	978-62-039-41975
29	Dr. K. S. Shillewar	Research Trends in Fisheries and Aquatic Science	Biology of fish Notopterus notopterus	International	2019-2020	978-93-5335-441-1
30	Dr. K. S. Shillewar	A text book of fish seed production	--	International	2017	978-613-7-43194-8
31	Dr. K. S. Shillewar	Fabrication of Aquarium	--	National	2018	97893-87374-66-9
32	Dr. K. S. Shillewar	A Hand book of Aquarium fishes	--	National	2019	978-93-89116-16-8
33	Dr. K. S. Shillewar	A Hand book of Fishery Science II nd Edtion	--	National	2019	978-93-873774-91-1
34	Dr. K. S. Shillewar	Un librodil testo di scienzadellapesca	--	International	2021	978-620-3-94198-2
35	Dr. K. S. Shillewar	Un de manual Sciences halieutiques	--	International	2021	978-620-3-94199-9



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36	Dr. K. S. Shillewar	Libro de textotexto de ciencias de la pesca	--	International	2021	978-620-3-94200-2
37	Dr. K. S. Shillewar	EinlehrbuchderFishereiwissenschaft	--	International	2021	978-620-3-94201-9
38	Dr. K. S. Shillewar	A Text Book of Fishery Science	--	International	2021	978-620-3-58256-7
39	Dr. K. S. Shillewar	Fishing craft and gears, in book entitled Advances in Agricultural and life sciences	--	International	2021	978-3-96492-307-3
40	Dr. Mrs. V.V. Kulkarni	Published a chapter in a book entitled as <i>An Ontology of Indian Tribes</i> edited by Dr. Manmohan Singh on the topic <i>An Essence of Bastar Folk Art and Culture: A Critical Study of the Significant Tribal Life</i>	--	National	2021	978-93-90618-62-0,
41	Dr. Mrs. V.V. Kulkarni	Published a chapter in a book entitled as Gurcharan Das's A Fine Family: A Study of Cultural Transition in India Cultural Marvels in Multi-disciplinary Probes Edited by S.S.Priya	--	National	2022	978-81-950482-2-9
42	Dr. Mrs. V.V. Kulkarni	Body Language: The Communication Mightier than Words,	--	National	2021	978-93-91119-52-2
43	Dr. Mrs. V.V. Kulkarni	"Familial Discourse in <i>Tamarind Mem</i> by Anita Rao Badami"	--	International	2023	979-888951270-7
44	Dr. Mrs. V.V. Kulkarni	"A Critical Analysis of Vocalized Native Sentiments and Human Values in M. K. Gandhi's Narrative <i>An Autobiography: Story of My Experiments with Truth</i> "	--	National	2022	978-93-92464-27-0
45	Dr. Mrs. V.V. Kulkarni	'The Theme of Charity and Christmas in Charles Dickens' <i>A Christmas Carol</i> '	Literatures in English: Theories and Practices	International	2019-2020	978-81-942381-6-4
46	Dr. P. R. Kulkarni	Dynamical Systems and Some Results (Research Trends in Mathematics and Statistics (Volume - 16))	--	National	2023	978-93-5570-133-6
47	Dr. P. R. Kulkarni	Chaotic Dynamical Systems (Recent Research Trends in Mathematics, Vol. 2)	--	National	2023	978-93-93502-08-7




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48	Dr. P. R. Kulkarni	PROPERTIES OF TOPOLOGICALLY CONJUGATE MAPPINGS (Advances in Mathematical Sciences)	--	National	2023	978-93-90833-24-5
49	Dr. P. S. Borkar	Lipase: Its characterization, Production and Immobilization on Modified Organic Support	--	International	2022	7947-4979-5,
50	Dr. P. S. Borkar	Multiple Choice Questions for Undergraduates in Agricultural Microbiology, Microbiology and Biotechnology	--	International	2022	978-1-6780-2263-1
51	Dr. P. S. Borkar	A laboratory Manual for Undergraduates in Agricultural Microbiology, Microbiology and Biotechnology	--	International	2022	978-93-91768-69-0
52	Dr. R. A. Muneshwar	Some Specila Methods to Solve Fractional Diffrential Equations with Applications	--	National	2023	978-93-92310-22-5
53	Dr. R. V. Sangvikar	Fungi Bio-Prospects in Sustainable Agriculture, Environment and Nano-technology Vol.3: Fungal Metabolites and Nanotechnology (Food Safety Concern Related to Aflatoxin and Control)	--	International	2022	978-0-12-821734-4
54	Dr. R. V. Sangvikar, Dr. B.D.Gachande	Practical Manual-Cell, Molecular Biology, Genetics and Plant Breeding	--	National	2023	978-93-92310-13-3
55	Dr. S. L. Jadhav	Granthalay talikikaran tatwik	--	National	2018	978-93-84267-35-3
56	Dr. S. L. Jadhav	Granthalay talikikaran tatwik	--	National	2018	978-93-84267-35-3
57	Dr. S. L. Jadhav	Bird eye view on use of ICT in libraries	--	National		978-81-952217-7-6
58	Dr. S. L. Jadhav	Management of e-Resources in academic libraries	--		--	978-81-949113-8-8
59	Dr. S. L. Jadhav	Global trends in innovative librarianship :	N.E.S. Science College, Nanded Best Practice of	International	2019-2020	--




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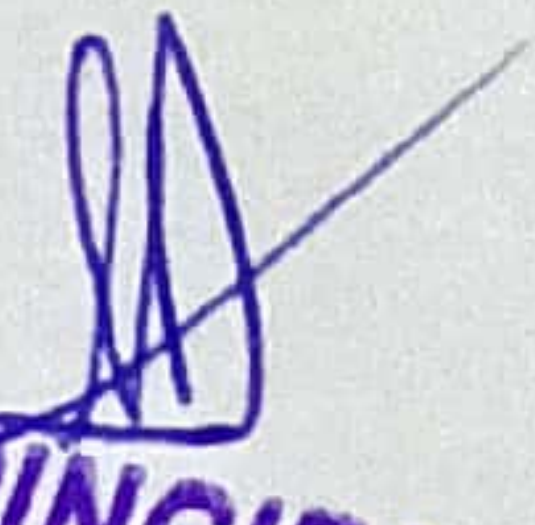
		Reshaping the academic and public libraries.	our library. Topic in Gaurav Granth July 2019			
60	Dr. Sangita Modi & Dr Sudhir B Jagtap	"Designing of ICT tool using web mining techniques"	--	International	2021-22	978-620-4-74677-7
61	Dr. Sangita Modi & Dr Sudhir B Jagtap	Web Development Using HTML CSS and JAVA Script	--	National	2021-22	978-93-91501-15-0
62	Dr. U. S. Patki	"Text Document Clustering: A Hard and Soft Computing Approach	--	International	2021-2022	978-620-4-74538-1
63	Dr. U. S. Patki	--	Programming in C	--	--	--
64	Dr. U. S. Patki	--	Text Document Clustering: A Hard and Soft Computing Approach	--	--	--
65	Dr. Ulhas Patki Dr. A.B. Kurhe	Role of IoT in Covid-19 pandemic (Post Covid-19 New Challenges and Strategies)	--	National	2022-23	978-93-92313-62-2
66	Dr. Ulhas Patki Dr. A.B. Kurhe	The Key takeaways to Date and actions still need to be taken for Covid-19 (Post Covid-19 New Challenges and Strategies)	--	National	2022-23	978-93-92313-62-2
67	Dr. V. R. Marathe	Sunscreens	A Prospectus of microbial metabolites as ingredients in Commercial Sunscreens.	International	2018	978-1-53613-294-6
68	Dr. V. R. Marathe	A text book of Botany Bsc. Third semester	--	National	2018	978-93-87278-12-7
69	Dr. V. R. Marathe	Interdisciplinary reserch in Life Sciences	Eleusine coracana (L) Gaertn (Finger Millet) an important sustainable food suppliment	National	2023	978-93-95369-85-5
70	Dr. V. R. Marathe	isolation and screening of neringianase producing microbe:an industrial inputs for agrowaste base enzyme industry	--		2022	978-1-0716-1723-6 978-1-0716-1724-3 (eBook)
71	Dr. V. R. Marathe	Isolation of Selenium Biotransforming Microbes as New Age Bioinputs.	--		2022	978-1-0716-1723-6 978-1-0716-1724-3 (eBook)
72	Dr. V. R. Marathe and Dr. D. M. Jadhav	Fundamentals of Ecology	--	National	2021	978-81-950373-0-8
73	Dr. V.A. Jadhav	Application of genetic Algorithm	--	National	2018	978-1-387-23919-2




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74	Dr. V.A. Jadhav	Fractional Transportation Problem Using FuZZy Programming Problem	--	National	2018	978-1-387-44602-6
75	Dr. N. P. Pawar	Lab Experiments in Physics Vol-II B.Sc. II year	--	National	2018	978-81-933652-3-6
76	Dr. N. P. Pawar	Lab Experiments in Physics Vol-IV B.Sc. III year	--	National	2018	978-81-933652-5-0
77	Dr. N. P. Pawar	Lab Experiments in Physics Vol-I B.Sc. I year	--	National	2018	978-81-933652-4-3
78	Dr. S. L. Jadhav	Status of E-Resources & E-Services in Academic Libraries	--	National	2021	978-81-952217-7-6
79	Mr. Ajay Hiware	--	Biology of Gobius Striatus		2020	978-93-90052-32-5
80	Mrs. Varsha D. Borgaonkar	Lecture Notes in Functional Analysis	--	National	2023	978-81-19678-81-5
81	Mrs. Varsha D. Borgaonkar	--	studies on fixed point theorems for the families of selfmaps on rings	National	2024	978-935547-509-1
82	Mrs. Varsha D. Borgaonkar	--	Some contractive type mapping in b-metric space	National	2024	978-81-971-164-0-7
85	Dr. S. S. Modi	Proceedings of the International Conference on Communication and Electronics Systems (ICCES 2018)		International	2018	978-1-5386-4765-3
86	Dr. D. U. Gawai	Diseases of Crop Plants		National	2019	978-93-87160-45-3
87	Dr. D. U. Gawai	Physiological and Molecular Plant Pathology		National	2018	978-93-87160-44-6




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फणीश्वरनाथ रेणु की कहानियों में आंचलिकता

डॉ. सौ. अरुणा राजेंद्र शुक्ल

नई कहानी में आंचलिकता का प्रयोग करने वाले कहानीकारों में रेणु प्रमुख कहानीकार हैं। इनकी कहानियों में अंचल उभरता है। रेणु की कहानियों के मूल में मनुष्य है, उनकी समस्याएं हैं, और उसका यथार्थ है। नई कहानी के साथ-साथ उसकी एक सशक्त प्रवृत्ति के रूप में प्रायः आंचलिकता पर विचार विमर्श होता है। पहले पहल तो नगर कहानी बनाम ग्राम कहानी के रूप में चर्चा चली और इस बात को लेकर मतभेद भी था कि किस संदर्भ को लेकर लिखी जाने वाली कहानी को नई कहानी माना जाय। आंचलिक शब्द वाद में चालू हो गया। हिंदी में प्रचलित कहानी के इस प्रवृत्ति विशेष के विभिन्न पक्षों पर विचार करने के पहले यह देखा जा सकता है कि अन्य भारतीय भाषाओं में इस प्रवृत्ति का तत्कालिक परिप्रेक्ष्य क्या है।

स्वातंत्र्योत्तर भारतीय साहित्य में लोक चेतना से युक्त एक दृष्टि का विकास हुआ है। सभी भाषाओं में यह प्राप्त है। साहित्य के पहले यह प्रवृत्ति कला के क्षेत्र में विकसित हुई, विशेष रूप से चित्रकला और वास्तुकला के क्षेत्र में। इसके पीछे भारतीय अस्मिता की खोज वर्तमान हैं। लोक चेतना का स्फुरण साहित्यिक विधाओं में विभिन्न प्रकार से दिखाई देता है। कथा साहित्य में यह दृष्टि ग्रामीण जीवन के वैविध्य के चित्रण करते हुए विकसित हुई। भारत की सभी भाषाओं में यह प्रवृत्ति नजर आती है। यह मात्र स्थानीय रंग के मोह से उद्भूत दृष्टि नहीं है। अतः आंचलिक कहानी लोक चेतना का अभिव्यक्ति पक्ष है। भले ही यह प्रवृत्ति शीघ्र रूप में पहले भी रही हो। फिर भी स्वातंत्र्योत्तर युग में ही यह बलवती हो गई है। हिंदी में यह प्रवृत्ति स्वातंत्र्योत्तर युग की देन है। हिंदी के कई आलोचकों ने इस बात का समर्थन किया है। आंचलिकता की शुरुआत के बारे में राजेंद्र अवस्थी



Principal
N.E.S. Science College,
Nanded

फणीश्वरनाथ रेणु का साहित्य : संदर्भ और प्रकृति :: 209



स्वाधीनता आंदोलन और हिंदी काव्य

प्रो. डॉ. अरुणा राजेंद्र शुक्ल

हिंदी विभागाध्यक्षा तथा प्रोफेसर सायन्स कॉलेज, नांदेड, 431602

महाराष्ट्र भारत

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स्वतंत्रता आंदोलन भारतीय इतिहास का वह युग है, जो पीडा, कष्टवाहट, दंभ, आत्म सम्मान, गर्व, गौरव तथा सबसे अधिक शहीदों के लहू को समेटे है। स्वतंत्रता के इस महायज्ञ में समाज के प्रत्येक वर्ग ने अपने-अपने तरीके से बलिदान दिए। इस स्वतंत्रता के युग में साहित्यकारों और लेखकों ने भी अपना बहुत योगदान दिया। हमारे देश में अंग्रेजों ने अपना आधिपत्य जमा रखा था उनको भगाने में कलम कारों ने अपनी भूमिका बड़ी बखूबी से निभाई। क्रांतिकारियों से लेकर देश के आम लोगों तक के अंदर लेखकों ने अपने शब्दों में जोश भरा। विविध साहित्यकारों में जैसे उपन्यासकार, नाटककार, निबंधकार, पत्रकार, देश के कविगण इन सभी का योगदान रहा है। इन सभी के संघन ने आम जन में राष्ट्रप्रेम की भावना जगाने में कारगर सिद्ध हुई है। इन विविध साहित्यकारों में से कवियों ने अपनी कविता से लोगों में देश प्रेम की ऐसी अलख जगाई कि लोग अपने घरों से बाहर निकल आए और क्रांतिकारी स्वतंत्रता आंदोलन में हिस्सा लिया। भारत में स्वाधीनता संग्राम का इतिहास उतना ही पुराना है जितना कि हमारी परतंत्रता का इतिहास। यह देश हजारों वर्षों से भी अधिक समय तक गुलाम रहा, परंतु इसका सांस्कृतिक स्वरूप अक्षुण्ण बना रहा। भारत की राष्ट्रीयता का आधार राजनीतिक एकता न होकर सांस्कृतिक एकता रही है।

भारतेंदु हरिश्चंद्र ने जिस आधुनिक युग का प्रारंभ किया, उसकी जड़े स्वाधीनता आंदोलन में ही थीं। भारतेंदु और भारतेंदु मंडल के साहित्यकारों ने युग चेतना को पद्य और गद्य दोनों में अभिव्यक्ति दी। इसके साथ ही इन साहित्यकारों ने स्वाधीनता संग्राम और सेनानियों की भूर-भूरी प्रशंसा करते हुए भारत के स्वर्णिम अतीत में लोगों की आस्था जगाने का प्रयास किया। वहीं दूसरी ओर उन्होंने अंग्रेजों की शोषणकारी नीतियों का खुलकर विरोध किया। भारतेंदु हरिश्चंद्र ने महत्वपूर्ण भूमिका स्वतंत्रता आंदोलन में निभाई। अंग्रेजों द्वारा निधि है भारतीय जनता पर जुल्मों गितम व लूट का सूट का उन्होंने बड़-बड़कर विरोध किया है। उन्हें इस बात का क्षोभ था कि अंग्रेज यहां से सारी संपत्ति लूट कर विदेश ले जा रहे थे। इस लूटपाट और भारत की बदहामी पर उन्होंने काफी कुछ लिखा। 'अंधेर नगरी चौपट राजा' नामक व्यंग के माध्यम से भारतेंदु ने तत्कालीन राजाओं की निरंकुशता, अंधेर नगरी और उनकी मूर्खता का सटीक वर्णन किया है। अपनी भावना को व्यक्त करते हुए उन्होंने लिखा है-

"भीतर भीतर सब रस चुसे, हंसी हंसी के तन मन धन मुसी।

जाहिर बातों में अति तेज, क्यों सखि सज्जन, न सखि अंगरेजा।।" 1

'राष्ट्रीय काव्यधारा को विकसित करने वाली सुभद्रा कुमारी चौहान का 'त्रिधारा' और 'मुकुल की राखी', 'आंसी की रानी', 'वीरों का कैसा हो वसंत' आदि कविताओं में तीखे भावों की पूर्ण भावना मुखरित है। उन्होंने असहयोग आंदोलन में सक्रिय भूमिका निभाई। आंदोलन के दौरान उन्हें कई बार जेल जाना पड़ा। जालियांवाला बाग में 'वसंत' कविता में इस नृशंसा हत्याकांड पर कवयित्री के करुण क्रंदन से उसके मुक वेदना मूर्तिमान हो उठी है-

"आओ प्रिय ऋतुराज, किंतु धीरे से आना

यहाँ शोक स्थान, यहाँ मत शोर मचाना।



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IN VITRO ANTIMYCOTIC EFFICACY OF PLANT LATEX AGAINST SEED-BORNE STORAGE FUNGI OF SUNFLOWER AND SAFFLOWER

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ABSTRACT


Seed-borne fungi were isolated from sunflower and safflower seeds. Ten dominant fungal species were subjected to solvent and aqueous latex extracts of *Jatropha curcas* and *Thevetia peruviana* for their antimycotic efficacy by agar well diffusion method. Development of clear zone around the well indicated the efficacy of latex extract. *Jatropha curcas* latex showed inhibitory effect against all test fungi except *A. parasiticus* and *F. moniliforme* while the latex extract of *Thevetia peruviana* inhibitory to *A. parasiticus*.

Key words: Seed-borne fungi, oil seeds, sunflower, safflower, plant latex.

INTRODUCTION

Seed is the plant part associated with either propagation of plant for its continuous existence or serves as food for human beings and it act as a catalyst in agricultural production. Seed plays a vital role for the production of healthy crop and about 90 % of all the world's food crops are grown from seeds (Schwinn, 1994). Seeds are generally associated with certain saprophytic or parasitic microbes which perpetuate in the seed lots on the advent of favorable conditions.




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FUNGAL DIVERSITY IN RHIZOSPHERE SOIL OF DIFFERENT VARIETIES OF PIGEONPEA [*Cajanus cajan* (L.) Millsp.]

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ABSTRACT

The rhizosphere is the zone of soil surrounding a plant root where the biology and chemistry of the soil are influenced by the root. It is an area of intense biological and chemical activity influenced by compounds exuded by the root, and by microorganisms feeding on the compounds. Total 58 fungal species were isolated from the non-rhizosphere and rhizosphere of ten different varieties of pigeonpea [*Cajanus cajan* (L.) Millsp] i.e. PUSA-992, BDN-2, BDN-708, BSMR-853, BSMR-736, BSMR-175, ICP-8863, ICPL-8S7119, ICP-2376 and AKT-9913 at three different stages of plant growth viz. vegetative, flowering and fruiting stages. Fungal population was higher at flowering stage than at vegetative (non-flowering) and at fruiting stage. Altogether, 29 fungal species belonging to 14 genera was recorded throughout the study from non-rhizosphere and 58 fungal species belongs to 23 genera was from rhizosphere. Comparatively higher fungal population was recorded in rhizosphere than non-rhizosphere. Maximum number of fungal species was recorded from variety PUSA-992 and BDN-708. The population of ascomycetous fungi was higher than that of Deuteromycetous and Phycomycetous fungi. The dominance of Ascomycetous fungi varies according to different stages of plant growth. *Aspergillus flavus*, *A. niger* and *A. nidulans* these three fungal species were dominant in all the stages of



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IN VITRO ANTIMYCOTIC EFFECT OF *DATURA* LEAF EXTRACTS AGAINST *FUSARIUM* CAUSING WILTS IN SOME CROP PLANTS

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ABSTRACT

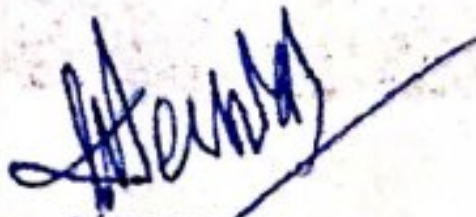
Aqueous, methanolic and ethanolic leaf extracts prepared from four species of *Datura* viz. *D. stramonium* L., *D. innoxia* Mill. Gard, *D. metal* L. and *D. ferox* L. Amoer and were screened for their antimycotic effect against pathogenic *Fusarium* sp. such as *Fusarium oxysporum* f. sp. *vasinfectum*, *Fusarium oxysporum* f.sp. *ciceri* and *Fusarium oxysporum* f.sp. *cubense* causing wilt diseases in Cotton, Gram and Banana respectively. The leaf extract of *Datura* sp. at 5, 10, 15 and 20% concentrations were incorporated in glucose nitrate medium. The ethanolic leaf extracts at highest concentrations (20%) were excellently inhibited the growth of pathogenic fungi; next to this the methanolic extracts were also showed good inhibitory activity against wilt pathogens. The ethanolic extracts prepared from *D. stramonium* at 20% concentration were more effective than other against *Fusarium* sp. causing wilts.

Key Words: *Datura* sp., antimycotic effect, *Fusarium* sp.

INTRODUCTION

Green plants represent a reservoir of effective chemotherapeutants and can provide valuable sources of natural pesticides (Hostettmann and Wolfender, 1997). Plant metabolites and plant based pesticides have minimal environmental impact and danger to consumers in contrast to




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Experimental Methods in
Plant Pathology

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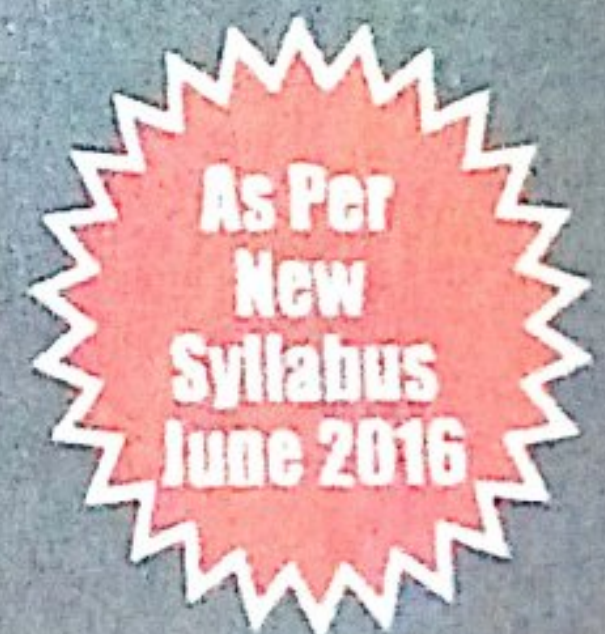
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Introduction to Research Methodology

- Dr. Ramesh B. Bhise
- Dr. B. D. Gachande
- Dr. V. D. Kulkarni



Ramesh B. Bhise
Principal
N.E.S. Science College,
Nanded



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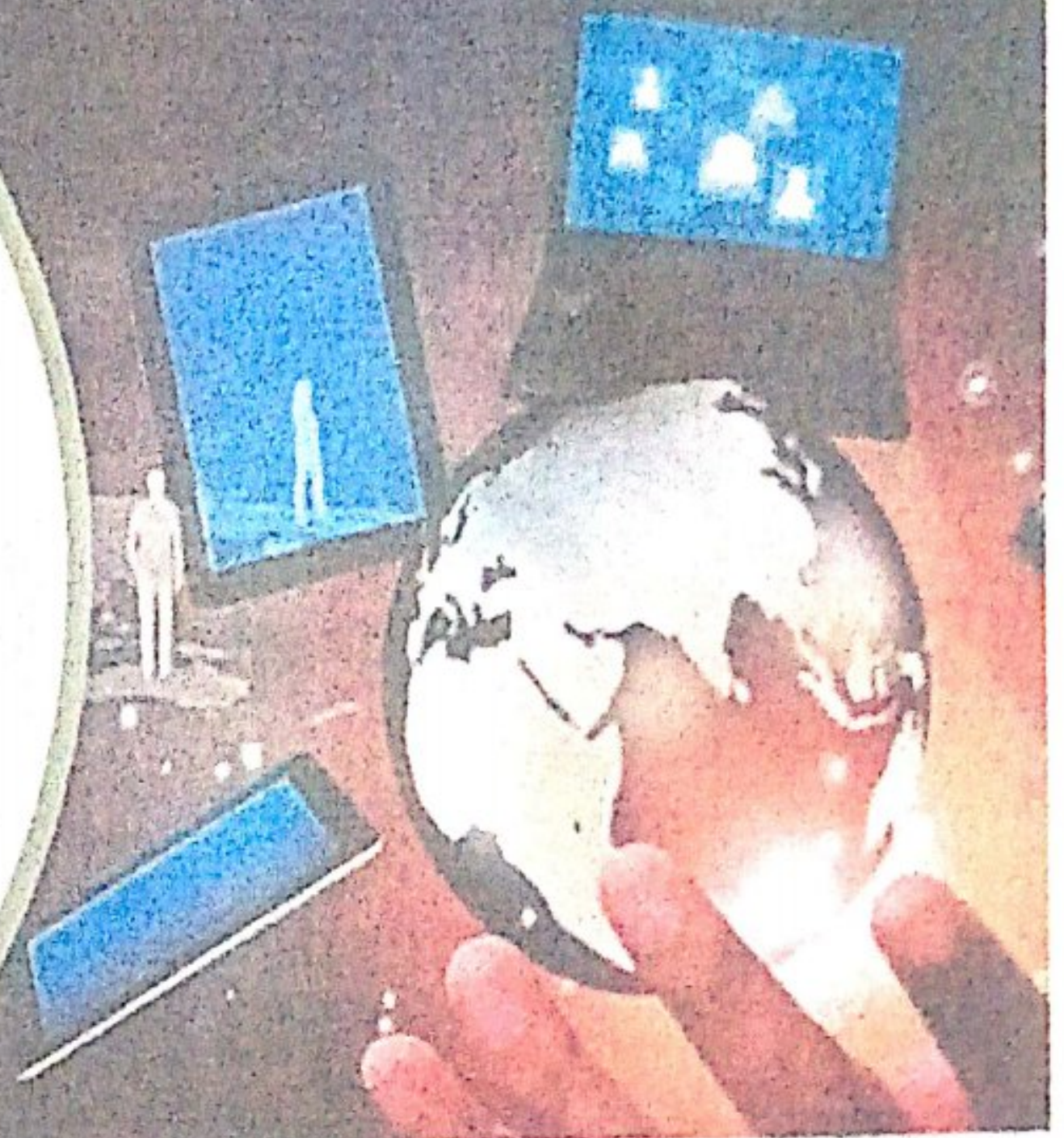
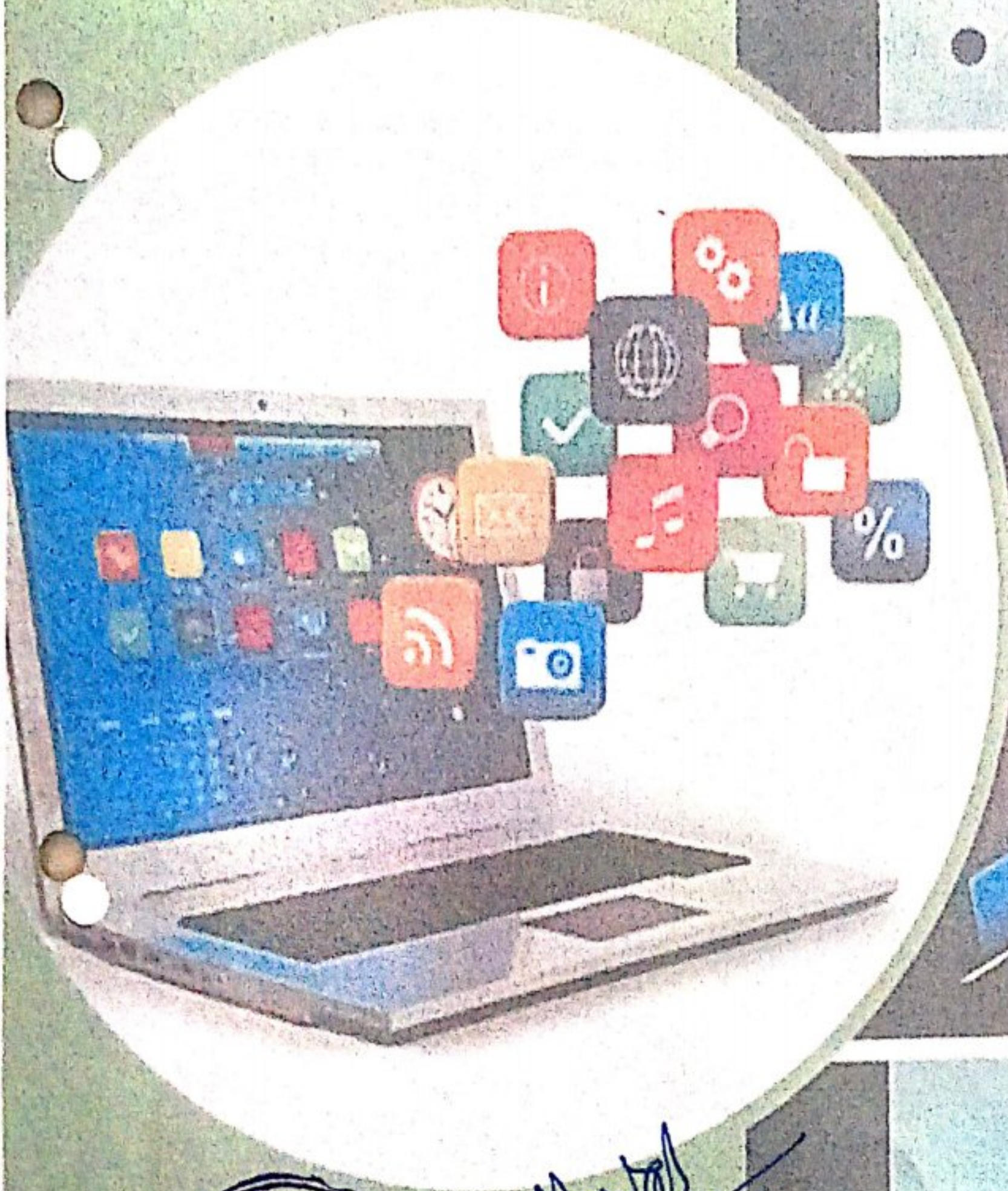
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Introduction to Computer Applications

- Dr. Ramesh B. Bhise
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- Dr. V. D. Kulkarni



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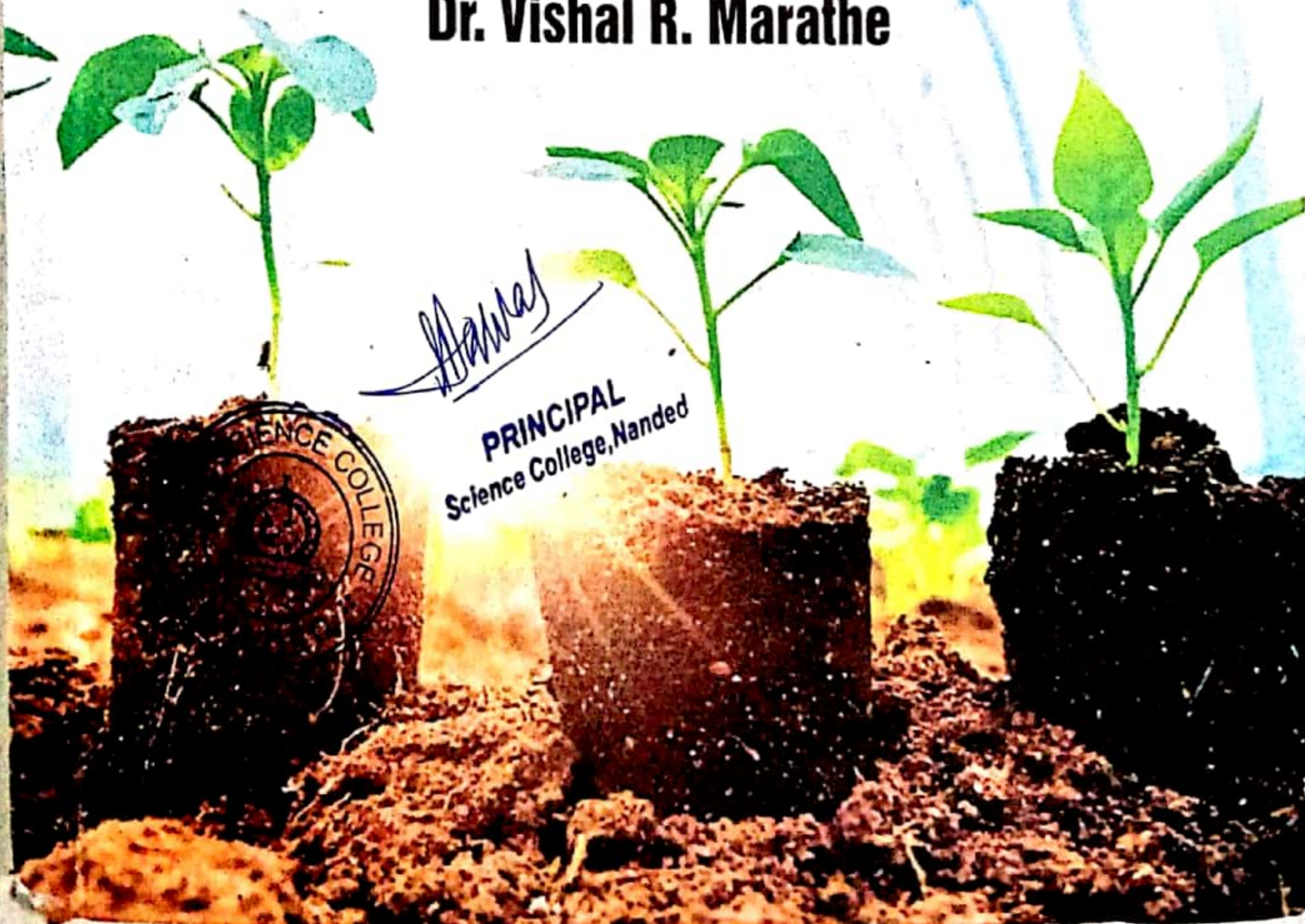
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DIVERSITY OF MICROBES AND MYCORRHIZA

Dr. Dayanand M. Jadhav
Dr. Vishal R. Marathe



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PRINCIPAL
Science College, Nanded

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About The Book

Classification based on morphological characteristics, such as the size and shape of spores or fruiting structures, has traditionally dominated fungal taxonomy. Species may also be distinguished by their biochemical and physiological characteristics, such as their ability to metabolize certain biochemicals, or their reaction to chemical tests. The biological species concept discriminates species based on their ability to mate. The application of molecular tools, such as DNA sequencing and phylogenetic analysis, to study diversity has greatly enhanced the resolution and added robustness to estimates of genetic diversity within various taxonomic groups.

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- Diatoms
- Phylogenetics
- Algal Blooming
- Englenoids
- Rhizosphere
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- Diversity of Microbes

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Chapter 16

Role of Fungi As Biocontrol Agents for the Control of Plant Diseases in Sustainable Agriculture



D. U. Gawai

Abstract Biological control is the process which decreases the inoculum density of the pathogenic microbes, present in dormant state by the other microbes. Generally, it involves either the naïve or genetically modified microbes which reduce the effect of pests, pathogen, and diseases. The plant disease is controlled by the pesticides, which are now extensively used. Due to excessive use of pesticides, socioeconomic and environmental pollution issues have been resulted, which demand the alternative method to reduce content of chemical pesticides. Biological control is an eco-friendly method employed to control the plant diseases, with the aim of developing a sustainable system in agriculture. Biological control mechanism involves the interaction among the antagonists and pathogens, which aid in selection and manipulation to develop an effective control system. Currently, this approach is employed when no other alternative is available. Emergent of fungal antagonistic has made it a promising biological control strategy to control the plant diseases. The major factors which hinder the efficiency of the biocontrol agents to control the plant diseases need to be considered during the formulation of biocontrol procedure, biocontrol agent, and its application time.

Keywords Biocontrol · Fungal antagonists · Sustainable agriculture · Disease control


16.1 Introduction

Biological control is the process which reduces the number of microbes or pathogens by other microorganisms, without the external intervention of humans (Cook and Baker 1983). In 1967, Beirner stated that biological control is the controlling of one microbe by the other. This can be stated either as a large community of pest (DeBach 1964) or as an inhibitor of severe pest damage irrespective of the pest inhabitants (Cook and Baker 1983). It largely depends on the understanding of

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Chapter

VI

NON-HOMOGENEOUS TRANSIENT HEAT CONDUCTION PROBLEM AND ITS THERMAL STRESS OF A THIN SOLID CIRCULAR PLATE

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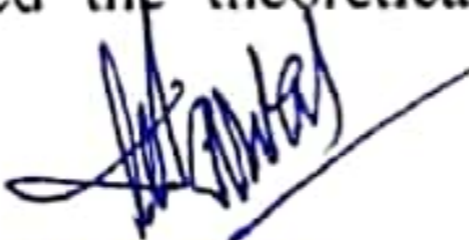
(Corresponding author)*

During the second half of the twentieth century, non-isothermal problems of the theory of elasticity became increasingly important. This is due mainly to their many applications in widely diverse fields. First, the high velocities of modern aircraft give rise to aerodynamic heating, which produces intense thermal stresses, reducing the strength of the aircraft structure. Second, in the nuclear field, the extremely high temperatures and temperature gradients originating inside nuclear reactors influence their design and operations.

The solution of partial differential equations of heat conduction by the classical method of separation of variables is not always convenient. It is for this reason that we considered the integral transform technique for the solution of linear, homogeneous boundary value problem of heat conduction. The integral transform technique provides a systematic, efficient and straight forward approach for the solution of both homogeneous and non-homogeneous, steady-state and time-dependent boundary value problem of heat conduction.

Nowacki [1] has determined the steady-state thermal stresses in a circular plate subjected to an axi-symmetric temperature distribution on the upper surface with zero temperature on the lower surface and with the circular edge thermally insulated. Ootao et al. [2] have studied the theoretical analysis of a three




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CHAPTER - 1

Thermoelastic Stress Analysis of a Thin Circular Plate subject to Axi-symmetric Temperature Distribution

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1. Introduction

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Nowacki [1] determined steady-state thermal stresses in a circular plate subjected to an axi-symmetric temperature distribution on the upper surface. The lower face is kept at zero temperature and the fixed circular edge is thermally insulated. The direct problem of normal deflection of an axi-symmetrically heated circular plate in the case of fixed and simply supported edges have been considered by Boley and Weiner [2]. Further, Roy Choudhury [3] discussed the normal thermal



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CHAPTER - 2

Thermal Deflection of a Thin Circular Plate Due to Internal Heat Generation

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Nowacki (1957) determined steady-state thermal stresses in a circular plate subjected to an axi-symmetric temperature distribution on the upper surface. The lower face is kept at zero temperature and the fixed circular edge is thermally insulated. The direct problem of normal deflection of an axi-symmetrically heated circular plate in the case of fixed and simply supported edges have been considered by Boley and Weiner (1960). Further, Roy Choudhury (1972) discussed the normal thermal deflection of a thin clamped circular plate due to ramp type heating of concentric circular region of the upper face and lower face




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Chapter - 4

Biochemical Composition of Fishes

Dr. Kiran Shillewar and Dr. D.V. Totwar

Abstract

Analysis of biochemical components of fresh water fishes such as moisture, protein, fat, glycogen from the muscles of male and female fish. Variations to seasonal changes have been carried out.

Keywords: Fresh water fish, biochemical composition

Introduction

Fish is known as an important source of food and also provide certain other useful products and hence has a great significance in the life of mankind. Balanced diet is very essential for satisfactory growth and health of human beings. Imbalanced diet causes many abnormalities and diseases. To face and in order to solve this problem satisfactorily and to fulfill the fundamental requirements of a balanced diet, the natural resources at common have to be explored. Fish is one of the good natural resource which can be easily explored from aquatic environment and plays an important role in this country would be overcome by increasing the supply and consumption of fish. Fish is normally consumed by all class of people, and comes up to the requirements as a first class protein food. Among the three important energy yielding constituents of food, mainly protein, carbohydrate and fat, the fat yield the highest amount of energy.

Knowing the importance of fish as a nutrient but it is essential to know its nutritive value and variations in there relation to the spawning and maturation, sex and growth of fish and feeding intensity. To find out biochemical compositions such as proteins, fat, glycogen and water from the body of a fish estimation method has to be carried out. All these biochemical constituents undergo fluctuations in relation to the seasons, the food, the sexes, and the stage of maturity and growth of fish.

In the present study on biochemical composition such as moisture, fat, protein, glycogen were estimated monthly in the muscles of fishes. Monthly estimations of body components from April 2020 to March 2021.

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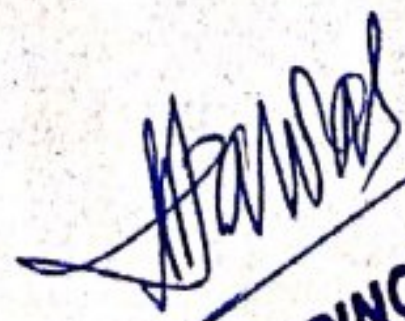
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Kiran Shillewar
Dipti V Totawar

Manual Of Fishery Science

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Fishery Science is one of the important subjects in the curriculum of both under and post graduate students of all Indian Universities. The teachers, scientists and students are also actively engaged in research in fishery science. For this purpose the proper methodology is necessary. Being a fishery science teachers we felt the information required particularly the methodology to study the Manual of Fishery Science in a consolidated manner. A effort has been made towards bringing out a manual to fulfill the requirement of students and researchers concerned with Fishery Science.
The present manual is prepared for students and teachers as well as researches.

Dr Kiran Shillewar is working as a Head Department Of Zoology & Fishery Science ,Science College, Nanded. Maharashtra. India. He is a Research Guide in Zoology & Fishery Science .



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Ciencias de la pesca (Guarani Edition)

Kiran Shillewar
Dipti V Totawar

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Manual de ciencias de la pesca

La ciencia de la pesca es una de las asignaturas importantes en el currículum de los estudiantes de grado y postgrado de todas las universidades indias. Los profesores, científicos y estudiantes también se dedican activamente a la investigación en la ciencia de la pesca. Para ello es necesaria la metodología adecuada. Siendo profesores de ciencia fishery sentimos la información requerida particularmente la metodología para estudiar el Manual de Ciencia Pesquera de una manera consolidada. Se ha hecho un esfuerzo para sacar un manual que satisfaga las necesidades de los estudiantes e investigadores relacionados con la ciencia de la pesca.

El presente manual se ha preparado para estudiantes y profesores, así como para investigadores.

El Dr. Kiran Shillewar trabaja como jefe del Departamento de Zoología y Ciencias de la Pesca, Colegio de Ciencias, Nanded, Maharashtra, India. Es Guía de Investigación en Zoología y Ciencias de la Pesca.



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Dipti V Totawar

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Manuale di scienza della pesca

La scienza della pesca è una delle materie più importanti nel curriculum degli studenti universitari e postuniversitari di tutte le università indiane. Gli insegnanti, gli scienziati e gli studenti sono anche attivamente impegnati nella ricerca nel campo delle scienze della pesca. A questo scopo è necessaria una metodologia adeguata. Essendo insegnanti di scienze della pesca, abbiamo sentito il bisogno di informazioni, in particolare della metodologia per studiare il Manuale di Scienze della Pesca in modo consolidato. È stato fatto uno sforzo per realizzare un manuale che soddisfacesse le esigenze degli studenti e dei ricercatori che si occupano di Scienze della pesca.

Il presente manuale è stato preparato per gli studenti, gli insegnanti e i ricercatori.

La dottoressa Kiran Shilewar lavora come capo del Dipartimento di Zoologia e Scienze della Pesca, Science College, Nanded, Maharashtra, India. È una guida alla ricerca in Zoologia e Scienze della pesca.



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Kiran Shillewar
Dipti V Totawar

Handbuch der Fischereiwissenschaft

Fischereiwissenschaft (German Edition)



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Handbuch der Fischereiwissenschaft

Fischereiwissenschaft ist eines der wichtigsten Fächer im Lehrplan von Studenten und Doktoranden aller Indischen Universitäten. Die Lehrer, Wissenschaftler und Studenten sind auch aktiv in der Forschung im Bereich der Fischereiwissenschaft tätig. Zu diesem Zweck ist eine angemessene Methodik erforderlich. Als Lehrer für Fischereiwissenschaft waren wir der Meinung, dass die erforderlichen Informationen, insbesondere die Methodik, für das Studium des Handbuchs der Fischereiwissenschaft in einer konsolidierten Form erforderlich sind. Wir haben uns bemüht, ein Handbuch herauszubringen, das den Anforderungen von Studenten und Forschern, die sich mit Fischereiwissenschaft beschäftigen, gerecht wird. Das vorliegende Handbuch richtet sich an Studenten und Lehrer sowie an Forscher.

Dr. Kiran Shillewar arbeitet als Leiter der Abteilung für Zoologie und Fischereiwissenschaft am Science College in Nanded, Maharashtra, Indien. Er ist ein Forschungsleiter in Zoologie und Fischereiwissenschaft.



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Manuel de la science des pêches

Science des pêches (French Edition)

Kiran Shillewar
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Manuel de la science des pêches

La science de la pêche est l'un des sujets importants du curriculum des étudiants de premier et de second cycle de toutes les universités indiennes. Les enseignants, les scientifiques et les étudiants sont également activement engagés dans la recherche en fishery science. À cette fin, la méthodologie appropriée est nécessaire. En tant qu'enseignants de la science des fisheries, nous avons ressenti les informations nécessaires, en particulier la méthodologie pour étudier le Manuel de la Science des Pêches d'une manière consolidée. Un effort a été fait dans le but de publier un manuel pour répondre aux besoins des étudiants et des chercheurs concernés par la science des pêches.

Le présent manuel est préparé pour les étudiants et les enseignants ainsi que pour les chercheurs.

Le **Dr Kiran Shillewar** travaille comme chef du département de zoologie et des sciences de la pêche, Science College, Nanded, Maharashtra, Inde. Il est guide de recherche en zoologie et en sciences halieutiques.



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Руководство по рыбохозяйственной науке

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Руководство по рыбохозяйственной науке

Наука о рыболовстве является одним из важных предметов в программе обучения студентов и аспирантов всех индийских университетов. Преподаватели, ученые и студенты также активно занимаются исследованиями в области рыбохозяйственной науки. Для этого необходима соответствующая методология. Будучи преподавателями fishery science, мы почувствовали необходимость в информации, особенно в методологии для изучения Руководства по рыбохозяйственной науке в консолидированной форме. Была предпринята попытка выпустить учебник, чтобы удовлетворить потребности студентов и исследователей, занимающихся наукой о рыболовстве. Настоящее пособие подготовлено для студентов и преподавателей, а также для исследователей.

Д-р Киран Шиллевар работает заведующим кафедрой зоологии и рыболовства, Научный колледж, Нандед, Махараштра, Индия. Он является научным руководителем в области зоологии и рыболовства.





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Manual das Ciências da Pesca

Ciência da pesca (Portuguese Edition)

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Manual das Ciências da Pesca

A Ciência da Pesca é uma das disciplinas importantes no currículo dos alunos de graduação e pós-graduação de todas as Universidades Indianas. Os professores, cientistas e estudantes estão também activamente empenhados na investigação em fishery science. Para este fim, é necessária uma metodologia adequada. Sendo um fishery professor de ciências, sentimos a informação necessária, particularmente a metodologia para estudar o Manual de Ciências da Pesca de uma forma consolidada. Foi feito um esforço no sentido de trazer um manual para fulfill a exigência dos estudantes e investigadores preocupados com a Ciência da Pesca.

O presente manual está preparado para estudantes e professores, assim como para investigadores.

O Dr. Kiran Shillewar está a trabalhar como Chefe do Departamento de Zoologia e Ciência da Pesca, Faculdade de Ciências, Nanded, Maharashtra, Índia. Ele é um Guia de Investigação em Zoologia e Ciência da Pesca.



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A Hand Book of FISHERY SCIENCE

(IIInd EDITION)

Dr. Kiran Shillewar
Dr. Dipti V. Totawar



Dr. Kiran Shillewar
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Ciencia de la pesca (Spanish Edition)

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Libro de texto de ciencias de la pesca

La ciencia de la pesca es una de las asignaturas importantes en el plan de estudios de los estudiantes de grado y postgrado de todas las universidades indias. El profesor, los científicos y los estudiantes también se dedican activamente a la investigación en ciencias de la pesca. Para ello es necesario una metodología adecuada. Siendo un profesor de ciencias de la pesca tenemos la información requerida particularmente la metodología para estudiar la biología de los peces y el concepto básico en un consolidado.

El Dr. Kiran Shillewar trabaja como jefe del Departamento de Ciencias de la Pesca, en la Facultad de Ciencias, Nanded. Es un guía de investigación en Ciencias de la Pesca y Zoología.



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Ein Lehrbuch der Fischereiwissenschaft

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Ein Lehrbuch der Fischereiwissenschaft

Die Fischereiwissenschaft ist eines der wichtigsten Fächer im Lehrplan der Studenten und Doktoranden aller Indischen Universitäten. Die Lehrer, Wissenschaftler und Studenten sind auch aktiv in der Forschung in der Fischereiwissenschaft tätig. Zu diesem Zweck ist die richtige Methodik notwendig. Als Lehrer der Fischereiwissenschaft fühlen wir die erforderlichen Maßnahmen, insbesondere die Methode zum Fischbiologie und das

Dr. K. V. Shilpa war arbeitet als Leiter der Abteilung für Fischereiwissenschaft, Science College, Nanded. Er ist ein Forschungsleiter in Fischereiwissenschaft und Zoologie.



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Science des pêches (French Edition)

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Un manuel de sciences halieutiques

La science de la pêche est l'un des sujets importants du programme d'études des étudiants de premier et de deuxième cycle de toutes les universités indiennes. Les enseignants, les scientifiques et les étudiants sont également activement engagés dans la recherche en sciences halieutiques. Pour ce faire, une méthodologie appropriée est nécessaire. En tant qu'enseignant en sciences de la pêche, nous avons recueilli les informations requises, en particulier la méthodologie pour étudier la biologie des poissons et le concept de base dans un cadre consolidé.

Le Dr. K. S. Sillawar travaille comme chef du département des sciences de la pêche à la Fisheries College, Nanded. Il est guide de recherche en sciences



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Учебник рыбохозяйственной науки

Наука о рыболовстве (Russian Edition)




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Учебник рыбохозяйственной науки

Рыбохозяйственная наука является одним из важных предметов в учебном плане студентов и аспирантов всех индийских университетов. Преподаватели, ученые и студенты также активно занимаются исследованиями в области рыбохозяйственной науки. Для этого необходима соответствующая методология. Будучи преподавателем рыбохозяйственных наук, мы почувствовали необходимость в информации, особенно в методологии изучения биологии рыб и основных понятий в консолидированном виде.

Д-р Киран Шиллевар работает заведующим кафедрой рыбохозяйственных наук в Научном колледже, Наидед. Он является научным руководителем в области рыболовства и зоологии.





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Um Livro de Texto de Ciências da Pesca

Ciência da Pesca (Portuguese Edition)

Kiran Shillewar
Dipti V Totawar

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Um Livro de Texto de Ciências da Pesca

A Ciência da Pesca é uma das disciplinas importantes no currículo tanto de alunos de graduação como de pós-graduação de todas as Universidades Indianas. O professor, cientistas e estudantes também estão ativamente engajados na pesquisa em ciência da pesca. Para isso, a metodologia adequada é necessária. Sendo um professor de ciências pesqueiras sentimos a informação necessária particularmente a metodologia para estudar a biologia dos peixes e o conceito básico em uma consolidação.

O Dr. Kiran Shillewar está a trabalhar como Chefe do Departamento de Ciências da Pesca, Faculdade de Ciências, Nanded. Ele é um Guia de Pesquisa em Ciência da Pesca e Zoologia.



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Chapter - 2

Biology of Fish *Notopterus Notopterus*

Dr. Kiran S. Shillewar and Dr. D.V. Totawar

Abstract

Systematic position, Maturity & Spawning, Sex composition, Reproductive organs is the most important aspect in Biological studies of fish *Notopterus notopterus*. For this study 226 specimens of *Notopterus notopterus* were collected from River Godavari, out of them 190 male & 36 female we studied. The result show Maturity & Spawning, Systematic position, Sex composition, Reproductive organs of fish *Notopterus notopterus*.

Keyword: Systematic position, maturity & spawning, sex composition, reproductive organs, *notopterus notopterus*

Systematic Position

Introduction

Notopterus notopterus is a teleost fish Commonly Known as 'Chapati' or 'Chambari' in Marathwada region, Maharashtra. The fish belongs to the family Notopteriidae which includes a large number of fresh water fishes, distributed all over the world.


The fish under investigation belong to the subfamily Notopteridae, account of which have been given by pallas (1769) Day (1878), Gunther (1880) and Das (1936) and Misra (1976).

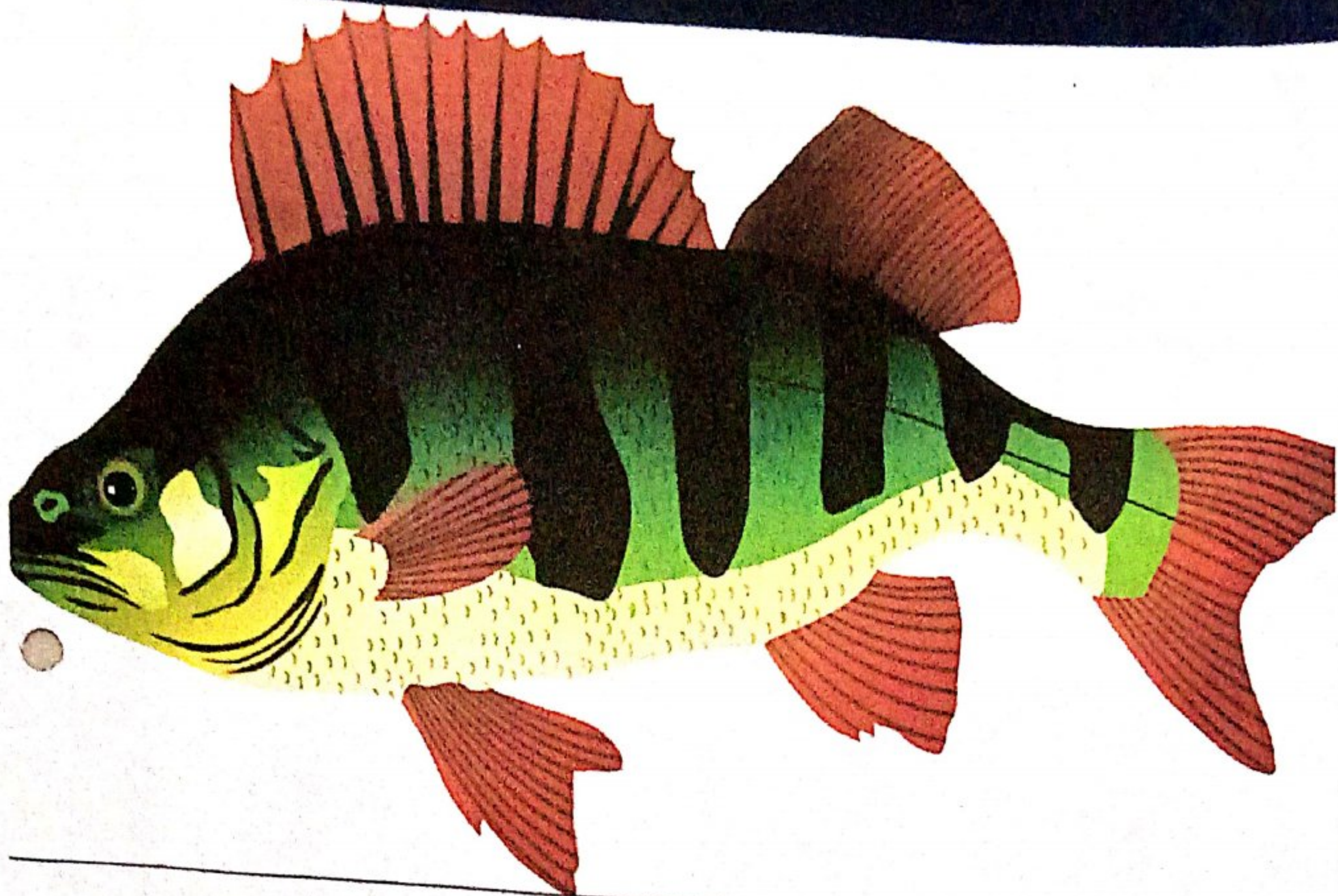
In the present work on the systematic position of *Notopterus notopterus*, the description of the family, genus and the species is based on the account given by pallas (1769), Day (1878), Gunther (1880), Das (1936) and Misra (1976) and the actual observation made during the course of study.

Order; Clupeiformes

Body compressed in most; pectoral fin low on body; pelvic fins abdominal; no dorsal adipose fin; no fin spines; scales cycloid; lateral line absent on body; abdomen often with keeled; no neeth on passap leonid; swim bladder diverticula connected with for in a manner unlike that




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A Text Book of Fish Seed Production



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Fishery Science is one of the important subjects in the curriculum of both under and post graduate students of all Indian Universities. The teachers, scientists and students are also actively engaged in research in fishery science. For this purpose the proper methodology is necessary. The present manual is prepared for students and researches.

Dr. Kiran Shillewar is working as a Head of Dept. in Fishery Science, Science College, Nanded. He is a research Guide in Zoology. He has presented research papers in various National and International conferences held in India. His area of Research is Fisheries, Limnology.



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A Hand Book of AQUARIUM FISHES



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Un libro di testo di scienza della pesca

La scienza della pesca è una delle materie importanti nel curriculum degli studenti sia under che post graduate di tutte le università indiane. L'insegnante, gli scienziati e gli studenti sono anche attivamente impegnati nella ricerca nella scienza della pesca. A questo scopo è necessaria una metodologia adeguata. Essendo un insegnante di scienze della pesca abbiamo sentito le informazioni richieste in particolare la metodologia per studiare la biologia dei pesci e il concetto di base in un consolidato.

Il dottor Kiran Shillewar lavora come capo del dipartimento di Scienze della pesca, Science College, Nanded. È una guida alla ricerca in Scienza della pesca e Zoologia



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La science de la pêche est l'un des sujets importants du programme d'études des étudiants de premier et de deuxième cycle de toutes les universités indiennes. Les enseignants, les scientifiques et les étudiants sont également activement engagés dans la recherche en sciences halieutiques. Pour ce faire, une méthodologie appropriée est nécessaire. En tant qu'enseignant en sciences de la pêche, nous avons ressenti les informations requises, en particulier la méthodologie pour étudier la biologie des poissons et le concept de base dans un cadre consolidé.

Le Dr Kiran Shillewar travaille comme chef du département des sciences de la pêche, Science College, Nanded. Il est guide de recherche en sciences halieutiques et en zoologie.

Kiran Shillewar



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La ciencia de la pesca es una de las asignaturas importantes en el plan de estudios de los estudiantes de grado y postgrado de todas las universidades indias. El profesor, los científicos y los estudiantes también se dedican activamente a la investigación en ciencias de la pesca. Para ello es necesario una metodología adecuada. Siendo un profesor de ciencias de la pesca necesitamos la información requerida particularmente la metodología para estudiar la biología de los peces y el concepto básico en un consolidado.

El Dr. Kiran Shillewar trabaja como jefe del Departamento de Ciencias de la Pesca, en la Facultad de Ciencias, Nanded. Es un guía de investigación en Ciencias de la Pesca y Zoología.



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Ein Lehrbuch der Fischereiwissenschaft

Die Fischereiwissenschaft ist eines der wichtigsten Fächer im Lehrplan der Studenten und Doktoranden aller Indischen Universitäten. Die Lehrer, Wissenschaftler und Studenten sind auch aktiv in der Forschung in der Fischereiwissenschaft tätig. Zu diesem Zweck ist die richtige Methodik notwendig. Als Lehrer der Fischereiwissenschaft fühlten wir die erforderlichen Informationen, insbesondere die Methodik, um die Fischbiologie und das Grundkonzept in einem konsolidierten zu studieren.

Dr. Kiran Shillewar arbeitet als Leiter der Abteilung für Fischereiwissenschaft, Science College, Nanded. Er ist ein Forschungsleiter in Fischereiwissenschaft und Zoologie



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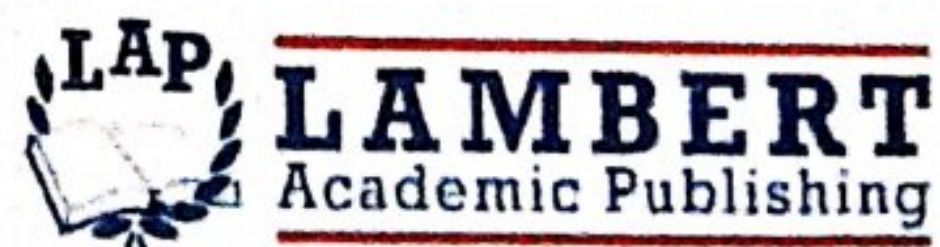
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Fishery Science is one of the important subjects in the curriculum of both under and post graduate students of all Indian Universities. The teacher, scientists and students are also actively engaged in research in fishery science. For this purpose the proper methodology is necessary. Being a fishery science teacher we felt the information required particularly the methodology to study the fish biology and basic concept in a consolidated.

Dr Kiran Shillewar is working as a Head Department Of Fishery Science, Science College, Nanded. He is a Research Guide in Fishery Science and Zoology.



Chapter - 5

Fishing Craft and Gears

Dr. Kiran Shillewar and Dr. Dipti Totawar

Abstract

Study of fishing techniques was carried out in the different place of India. Craft and gears were used in different place of India. The aim of this chapter is to record the fishery related technological knowledge specially fishing craft and gears used in different places of India.

Keywords: fishing, craft, gears.

Introduction


Fishery management requires a good knowledge of fishing gear. There is great divergence in the efficiency of different forms of fishing gear, in their adaptability to certain conditions, and in their desirability. Traditional fishing arts have been developed over the years to adapt to local body conditions, the species of fish desired and targeted size. The most successful fishing methods of an area or a region are those that have stood the test of time.

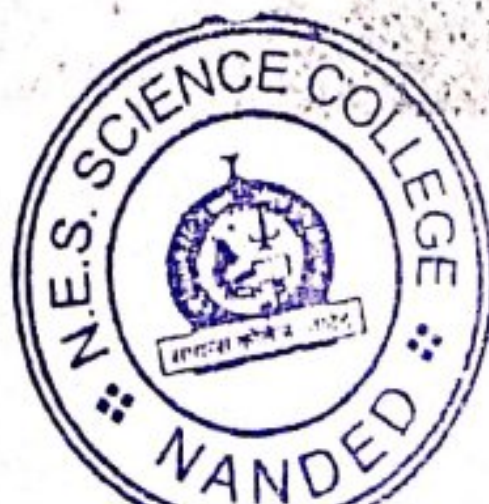
In India details about craft or gears used in fresh water fishery sector was documented by Manna *et al.* (2011), Bhattacharya *et al.* (2005), Sharma (2001), George (1971) they have detailed account of craft and gears. Nets or gear- these are instruments used for catching fish. Crafts or Boats. It provides platform for fishing operations, carrying the crew and fishing gears. There are various type of gears and crafts used in different parts depending upon the nature of water bodies, the age of fish and their species.

Fishing Crafts

Dingi

The crafts are plank built, made up locally using Shisham wood. The dugout canoes were very common in the lake (Suraha Lake, Uttar Pradesh) in earlier days but is rare now. The size of boat varies from 42-45 cm in length and 08-10 cm in width. The boat preservatives i.e. Painting with bitumen, act as water-resistant and protect crafts from decay and destruction.


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Chapter - 1

An Essence of Bastar Folk Art and Culture: A Critical Study of the Significant Tribal Life

Dr. Vibhati Vasantao Kulkarni
Assistant Professor, Department in English,
Science College, Nanded, Maharashtra

Abstract

Indian tribal culture is well-preserved in the traditional and historical Bastar district in Chhattisgarh. The present research paper will attempt to introduce the culture of tribes in Bastar, with critical analysis. It further shows how specific folk art and folk literature are the essence of happiness in life. Folk art in Bastar tribes is a natural reflection of the culture and tradition of the society. Now, these tribes are trying to


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adjust to the changes in their lives by creating their art to fit the shift in purpose. The Intention of art creations in this primitive Bastar tribal culture was to please God but at present, these tribes are utilizing their art for their ultimate goal to survive in the present social and economic changes required in the modern and globalized Indian culture.

Key Words- folk art, culture, folk-literature, ancient, globalization

Introduction

Art and culture are the kernels of contentment in tribal life. The capacity of tribes in Bastar to maintain the balance between the originality in their culture and folk art and rapidly growing demands to transform for global purpose is appreciable. The original inhabitant tribes in Bastar, a district of Chhattisgarh are viz. Abujhmaria, Bhatra, Halba, Dorala and Dhurwa, Bison-Horn-Maria, Muria, Gonds, etc. Terracotta Art, Bamboo Craft, Kosa Silk, Bell- Metal (Dhokra Craft), Wood Craft, Home Décor, Wrought Iron Craft, etc. are art forms of Bastar art. Numerous researchers have traced the evidence of the existence of the Bastar art form during the medieval times of Mohenjodaro and Harappa. This art form is widely practiced in the regions of Tumnar, Balenga, Parchanpal, Kondagaon, Jagdalpur, Narayanpur, Chitrakote (wooden art), Tokapal (Bell Metal/Dhokra art), etc.

Some Prominent and Notable Arts in Bastar are:

***Terracotta Art:** Terracotta art is clay art preserved by Kumhara tribe. The artists in this tribe are skilled to produce handcrafts from terracotta. Terracotta is a clay of the Indravati river which is of the finest quality. The decorative items like elephants, tigers, peacock, square and triangle are used in this art form and manufactured with the clay. In Bastar culture elephant is a symbol of wealth, tiger is a symbol of power, peacock is a symbol of beauty, square and triangle are the symbols of shrine, etc. Artists create art forms depicting their

A Critical Study of India's Technological Advancement in Gurcharan Das' *India Unbound*

Dr. Vibhuti Vasant Rao Kulkarni,

Head, Department of English N. E. S. Science College, Nanded, Maharashtra, India

Abstract: Gurcharan Das (3rd October, 1943) recounts technological history of India in his best seller *India Unbound* (2000). He opines that India has not yet achieved the status of developed nation because in the beginning immediately after India's freedom, Indian business policies did not favoured foreign capital and automatically it has rejected the benefits of technology. Gurcharan Das had written articles in *Times of India* and *Economic Times* on the harmful effects of the Foreign Exchange and Regulation Act of 1974 which denied foreign investments and technology. In *India Unbound*, Gurcharan Das enlists the millions of reforms after liberalization in 1991. He criticizes that technology in the liberal economy has helped to create jobs and new entrepreneurs but this development is not able to eradicate the poverty from India because of the corruption and lack of effective implementation of government policies. This paper has critical analysis of technological advancement of India narrated in *India Unbound*. The research study adopts qualitative research analysis method.

Index Terms - liberalization, technology, industries, entrepreneurship, advancement.

I. INTRODUCTION

Gurcharan Das talks about Indian business which has been growing due to the reforms in economy and technology. He divides India in to two types of major business groups. The newly emerging group is of vibrant world of knowledge-based, globally competitive companies in software, Internet, IT-based industries, generic pharmaceuticals, and entertainment. The second group is of the old family business houses which are sick and dying. It has joint ventures with foreigners. This businesses need protection. The time has come to learn from the foreign partners of Indian companies. Indian Industrialist should adopt and adapt the developed foreign technology and managerial skills.

II. CRITICAL ANALYSIS OF TECHNOLOGICAL ADVANCEMENT OF INDIA IN *INDIA UNBOUND*:

ACCORDING to Das, technology should be taught to a student at school level only. Das shares with readers his own experience when he was in American school he had a class called 'shop' where he availed an opportunity to work with lathes, tools, and machines and learn to handle the technology. Gurcharan Das gives examples of technological development in India like National Institute of Information Technology (NIIT) which is one of the world leaders in catering computer education worldwide. While narrating the technological development, Gurcharan comes to his personal life. He describes his visit to the ashram of guru Radhasoami in 1980. His parents were living near ashram. There the use of technology shocked Das. He found the ashram area as a clean spiritual heaven combined with technology.

2.1 SUCCESS STORIES OF INDUSTRIALISTS:

India has thousands of industrial success due to modern technology. In his narrative *India Unbound*, Gurcharan Das elaborates the success stories of industries in India from cities like Bangalore, Hyderabad, Chennai, Pune, Gurgaon which have software companies earning foreign currency in following lines he writes:
A tiny two year old company in Bangalore called Armedia achieved a breakthrough in designing a chip for digital TV in 1999; America's Broadcom bought it for \$ 67 million and made its forty three employees rich beyond their wildest dreams. Ranbaxy, Dr Reddy's Laboratories, Cipla, and Wockhardt are building successful global business in generic drugs.... and McKinsey projects that this could grow to a million jobs earning \$50 billion in revenues by 2010. (xvii).

Various Industrialists in India has significant role in bringing new technology in the nation. Das tries to motivate readers by describing the role of these business leaders of India.

2.1.1 Contribution of Business Leaders for Technological Advancement in India:

Gurcharan Das depicts the contribution of G. D. Birla as successful businessmen. G. D. Birla was the initiator who had started various industries in India like jute, sugar plants, soaps and chemical productions and paper making company called Orient Paper. India needs such entrepreneurs in bulk. Das comments that the reason of lack of progress in India is India's obtrusive bureaucracy to kill industrial revolution at birth so India has remained in the category of technologically undeveloped. History tells the story of Gujarat why even now Gujarat is at the first rank in industrial development and getting the more foreign currency and technology. Gujarat had developed from Seventeenth century in the business and industrial sector. Kusturbhai Lalbahi is another legendary man from Gujarat who had established textile mills during 1895 to 1905. He tried successfully for dye and synthetic colour factory. He brought the foreign technology for that. Das criticizes the policy of Nehru government of intellectual blueprint of state directed industrialization, based on publically owned industry and insulated from international competition which was basically not favourable for development. Gurcharan Das points out that the manual skills and the Indian artisan could be no substitute for technological progress in India. Before Independence British tried deindustrialization in India as it was the rule for their colony.

How technology can change life. The story of Aditya Birla is significant. He has flourished his business. Gurcharan Das narrates that how Aditya Birla used the technology to expand his business all over the world and how his business skills were suppressed by MRTP Act and Inspector Raj. Aditya Birla's global Industrial world is described by Gurcharan Das in an essay "Marchants of Marwar" in *India Unbound* in following words:

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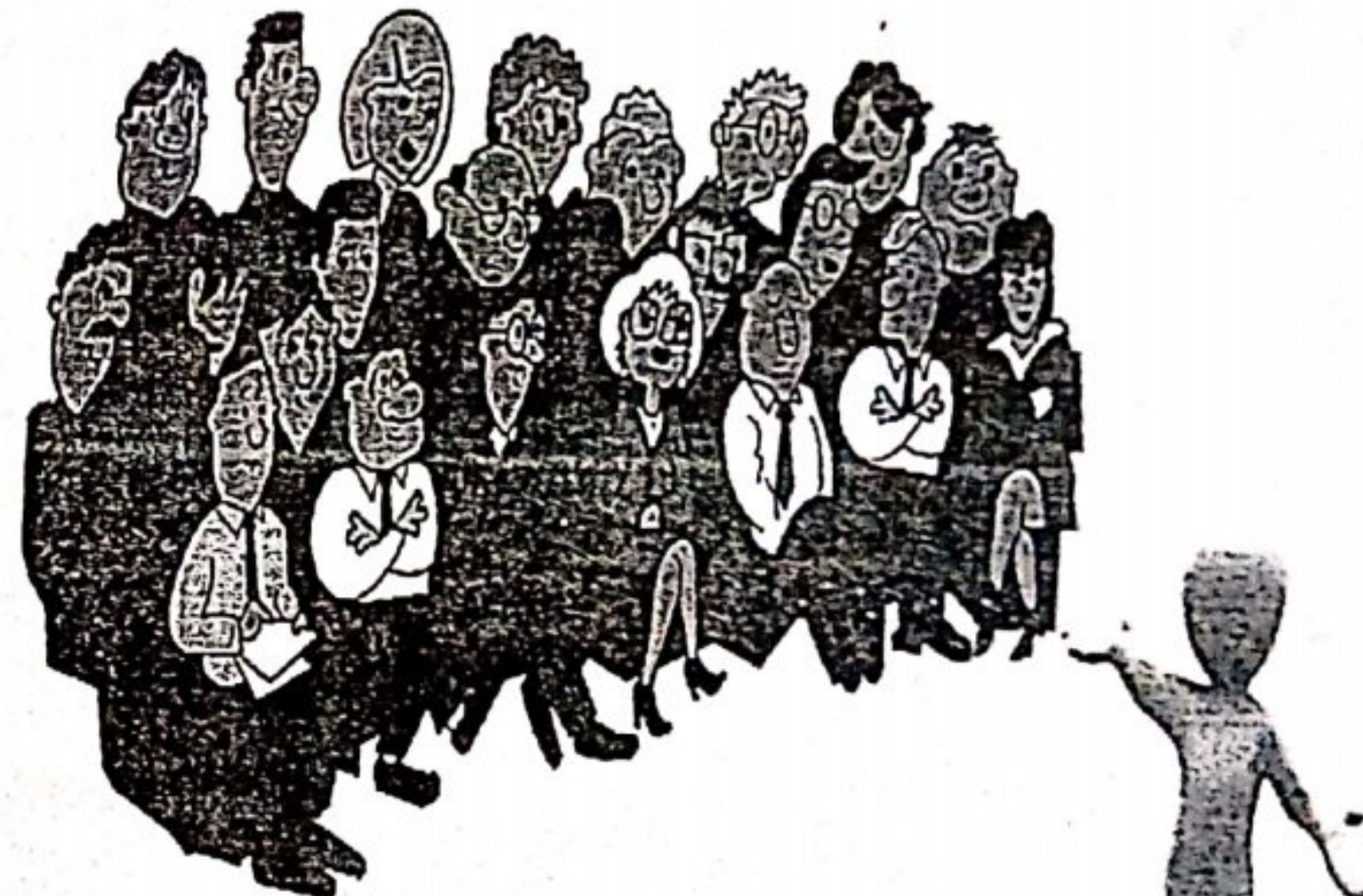
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3. Familial Discourse in *Tamarind Mem* by Anita Rau

Badami

Vibhati Kulkarni

Abstract

Tamarind Mem is the first novel written by Anita Rau Badami. It is originally published in 1997. *Tamarind Mem* earned Anita Rau Badami the fame as the newest writer in the vibrant field of Indian diasporic literature. The novel describes the lives in Canada and India with these nations' cultural, social, political, and economic realities. It reflects themes of diasporic literature like nostalgia, rootlessness, alienation and displacement. The novel reveals the anxiety, anguish and insecurity in the lives of major women characters. Through analysis of these characters, Badami brings out how mother and daughter struggle to maintain their relationship amidst the problems of misunderstanding, loneliness, lack of love, and adjustment. The novel also presents the male-dominated family structure and familial discourse. It picturizes societal organization, and religious influence shaping human relations and interactions. The present book chapter will discuss the major diasporic themes in the Anita Rau Badami's novel *Tamarind Mem*. It will also critically describe the bold women and dominating male characters and their familial discourse in the select novel.

Keywords: diaspora, familial discourse, family, societal organization, interpersonal relationships, etc.


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A Critical Analysis of Vocalized Native Sentiments and Human Values
in M. K. Gandhi's Narrative

An Autobiography: Story of My Experiments with Truth

Dr. Kulkarni Vibhati Vasantrao

Assit. Prof. in English

Science College, Nanded (MH)

Abstract : The Indian freedom struggle had succeeded with a revolutionary brand of writing that vocalised native sentiments against the British Empire. Several political leaders like Bal Gangadhar Tilak, Lala Lajpatrai, Kasturi Ranga Iyengar and Mahatma Gandhi, etc. from different parts of the country emerged as literary figures. M. K. Gandhi edited and wrote for papers like *Young India* (1919-32) and *Harijan* (1933-48). He also penned his autobiography, *My Experiments with Truth* (1925-28). This autobiography is known for its literary style. This research study will focus on the native sentiments strongly appearing in M. K. Gandhi's Narrative, *An Autobiography: Story of My Experiments with Truth*. It will also try to analyse the human values presented by M. K. Gandhi in his autobiography.

Key Words: Narrative, native sentiments, human values, experiments, truth, non-violence, etc.

Introduction:

Meenakshi Mukherjee in her book *The Twice Born Fiction* comments, "Indo-Anglian fiction, which has served for so long as a file of documents of sociology or anthropology or educational theory, must now be regarded as literature, evaluated as such." (169) The growth of Indian English literature has a history going back to nearly a hundred and fifty years. In world literature, Indo-Anglican literature has served as a mirror in presenting day-to-day events of the contemporary society. Noticeable examples of Indian English literature during British India are infrequent and periodic works, such as *A Passage to India* (1924) by E.M. Forster, *The Wonder that was India* (1954) by A.L. Basham, *Autobiography of an Unknown Indian* (1951) by Nirad C. Chaudhari, R. K. Narayan's first novel *Swami and Friends* (1935) and M. K. Gandhi's *My Experiments with Truth* (1925-28).

A narrative is usually thought of author in terms of 'story' and 'discourse'. These two are the core elements in narratives. The story materials that usually comprise events, characters, actions, speech, space, place and time, etc. are given meaning and mobility in course of a narration. M.H. Abrams defines narrative in his *A Glossary of Literary Terms* (2000):

A narrative is a story, whether told in prose or verse, involving events, characters, and what the characters say and do. Some literary forms such as novel and short story in prose, and the epic and romance in verse, are explicit narratives that are told by a narrator. In drama, the narrative is not told, but evolves by means of direct presentation on stage of actions and speeches of the characters. It should be noted that there is an implicit narrative element in many lyric

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The Theme of Charity and Christmas in Charles Dickens' *A Christmas Carol*

Dr. Vibhati Vasantryao Kulkarni
Head, Department of English,
N.E.S. Science College, Nanded

Abstract: Charles Dickens (1812-1870) is a British writer and social critic. *A Christmas Carol* (1843), written by Charles Dickens, is one of the most recognizable novellas in English literature. *A Christmas Carol* has been adopted for numerous literary, stage, television, radio, and cinematic presentations. It has become a famous holiday classic. *A Christmas Carol* gained immediate critical and commercial attention. It retained the stimulating awareness of the people in charitable activities. It also highlighted the possible dangers of economic success due to which man is going away from religion, God, humanity and goodness. It has presented the festive traditions of the Christmas season. It is the most popular and enduring work in Dickens' series of Christmas stories collectively known as the *Christmas Books*. This research paper will focus on the theme of the charity and Christmas reflected in Charles Dickens' *A Christmas Carol*.
Key Words: Christmas, charity, transformation, economic success, etc.

Introduction: *A Christmas Carol* is the most remarkable example of the Victorian "Christmas book," a type of short, charmingly designed to be given as a Christmas gift and usually representing the themes of charity and joy associated with the season. Christmas tree, Christmas gifts and Christmas carol, etc. are the religious traditions. The carol means a religious song. There are five staves in *A Christmas Carol* where the theme of Christmas is celebrated. Dickens presents several memorable characters through his fictions. The central character Ebenezer Scrooge in *A Christmas Carol* has become a cultural icon. Dickens takes delight in his satirical portrait of Scrooge as a greedy businessman. A comically grotesque and tight fisted

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Chapter - 8

Dynamical Systems and Some Results

Dr. Kulkarni Pramod Ramakant

Abstract

In this chapter, a general dynamical system is defined and on the basis of the time interval, we have classified it as a discrete and a continuous dynamical system. Mathematical modeling of some of the phenomenon in terms of dynamical systems is explained by means of illustrative examples. Later, we have stated some of the important results stating the behavior of some simple and complex one dimensional and multidimensional dynamical systems. Important results stating the conditions under which the solution of multidimensional linear as well as non-linear systems are proved with the help of Lipschitz conditions. Existence and uniqueness theorem for non-linear systems is proved following some important consequences.

Keywords: Dynamical systems, discrete and continuous systems, linear and non-linear systems, existence theorems, Lipschitz function

1. Introduction

In this chapter, we will introduce the concept of a dynamical system ^[1] and prove some results associated with a dynamical system. There are many physical systems that can be modeled in terms of a dynamical system. Roughly, a dynamical system consists of two parts: a state vector ^[2] which is state of some physical or hypothetical system and a function which is a rule which tells us what will be the state in the next instant of time depending upon the current state. Many authors including have defined the notion of a dynamical system, however, we give general definition of a dynamical system

1.1 Dynamical system ^[3]

A *dynamical system* is specified by a state vector $X \in R^n$, which is a list of numbers which may change as time progresses and a function $f : R^n \rightarrow R^n$ which describes how the system evolves over time.


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Chapter - 3

Chaotic Dynamical Systems

Dr. Kulkarni Pramod Ramakant

Abstract

In this chapter, we study an important and strange characteristic of a dynamical system known as *chaos*. It is the phenomenon observed in most of the natural processes where the happening of a particular thing depends very sensitively upon a number of parameters that change during the process. Before defining chaos, we will take a review of some of the basic concepts required like orbit of a fixed and periodic point of a mapping, the orbit diagram, etc. We also present a detailed classification of fixed and periodic points of a mapping in reference to their stability by means of some theorems.

Keywords: Dynamical systems orbit and seed, Stability theorems, Logistic family of mappings, Bifurcation diagram, chaos

1. Introduction

In this chapter, we will study the *chaotic* behavior of the family of quadratic mappings $f_c(x) = x^2 - x + c$ through its dynamics. In first few sections, we will take a review of some basic definitions and examples including a dynamical system, orbit, fixed and periodic point, iterations of a function etc. Later, we will prove some results that analyze the nature and the stability of the fixed and periodic points of a dynamical system. Using these results, we will study the dynamics of the family of mappings

$f_c(x) = x^2 - x + c$ for various values of the real constant c .

Recall that a dynamical system ^[1] is a function $f : R^n \rightarrow R^n$, where the set R^n is called as the set of states or the state space. Given a state vector $x \in R^n$, the function f describes the rule by means of which the state vector x changes with time. In this chapter, we will consider only one dimensional discrete dynamical system ^[2] $f_c(x) = x^2 - x + c$.

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Chapter - 4

Properties of Topologically Conjugate Mappings

Dr. Kulkarni Pramod Ramakant

P. G. Department of Mathematics, N. E. S. Science College, Nanded, M. S., India.

Abstract:

In this chapter, we have defined a dynamical system by means of the concepts sensitive dependence on initial conditions, topological transitivity and existence of dense orbit. We have defined topological conjugacy using the concept of homomorphism and proved that the mapping $f_c(x) = x^2 - x + c$ is chaotic.

Keywords: chaos, dense orbits, dynamical systems, topological conjugacy, shift mapping, topological transitivity,

1. Introduction

The word conjugacy as referred to dynamical systems ^[1] means the similarity between the dynamical behavior of two mappings. We know that the concept of isomorphism between two rings indicates the similarity of the algebraic properties of the two rings. Also, the homeomorphism between two topological spaces refers to the similarity of topological properties of the two spaces. Likewise, whenever we say that there is a conjugacy between two dynamical systems, then it implies that their dynamical properties related to the number and nature of the periodic and fixed points, dependency on the initial conditions and the overall long term behavior is exactly the same. In this chapter, the topological conjugacy of the family of mappings $f_c(x) = x^2 - x + c$ with the shift mapping σ has been established and thereby, the chaotic nature of $f_c(x) = x^2 - x + c$ in the sense of Devaney R. L. ^[2] has been proved.

2. Homomorphism

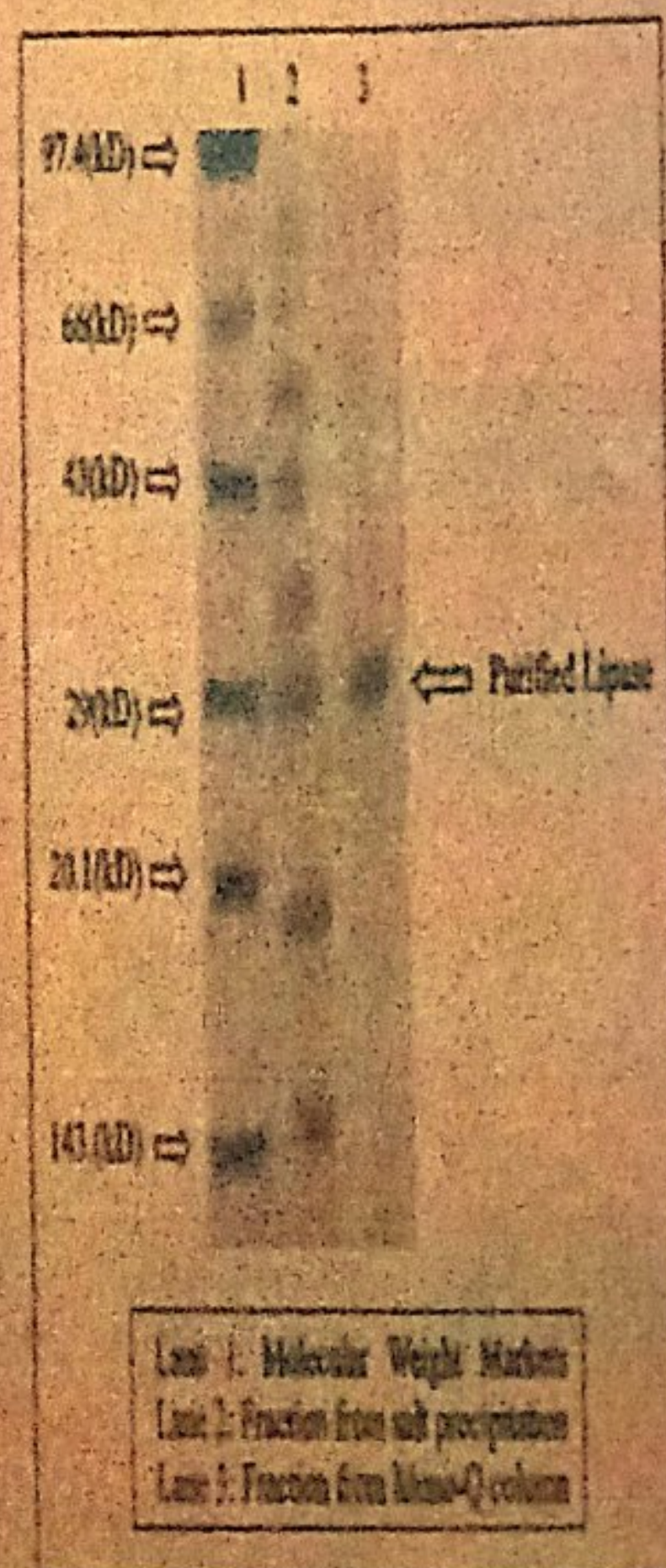
A function $f: I \rightarrow I$, where I is an interval in R , is defined as homomorphism ^[3] if f and f^{-1} are both one-one, onto and continuous.

In the definition of *chaos* ^[4], there are three concepts involved viz. sensitive dependence on initial conditions, topological transitivity ^[5] and


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LIPASE: ITS CHARACTERIZATION, PRODUCTION AND IMMOBILIZATION ON MODIFIED ORGANIC SUPPORT



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Lipase purification steps



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Dr. Prita Shamrao Borkar

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About the Book

Enzymes are the important tools of Molecular Biology. Enzyme technology is an ever evolving branch of "Science and Technology" and with the intervention and Influence of Molecular Biology, Biotechnology and Bioinformatics, continuously novel or improved applications of enzymes are emerging. Therefore, the need for enzymes with improved properties are also emerging simultaneously. The pace of Lipase research has been accelerating with increasing knowledge in individual enzymes being studied over decades. The enzyme Lipases have increasing demand and applications in many industries like pharmaceutical, food and dairy, textile, leather, detergent, paper, pesticide and in cosmetics. Researchers are not only involved in production and purification methodologies but are also developing new techniques and methods of immobilizing enzymes on different support matrices for enzyme operational stability and reusability and to effectively harness their catalytic prowess.

This book is solely devoted to lipases from *Pseudomonas aeruginosa* SRT 9, its purification, characterization and kinetic studies. The recent explosion of interest in Lipases led me to synthesize a novel organic support matrix tri (4-formyl phenoxy) cyanurate for immobilization of lipase and study its kinetics as well for operational stability and reusability. This book is a reference book for post graduate students and young researchers who want to pursue their interest in 'enzymology'.


About the Author



Dr. Prita Shamrao Borkar (Chaware) is Associate Professor in Agricultural Microbiology, Department of Botany, Microbiology and Biotechnology, Science College, Nanded; affiliated to Swami Ramanand Teerth Marathwada University, Nanded. She has 18 years of Teaching and Research experience and has published 21 research articles in the Journals of national and international repute.

Her Google Scholar citation is 287 with H-index 6 and i10-6 index. She is a recognized research guide in the subjects Microbiology and Biotechnology in Swami Ramanand Teerth Marathwada University, Nanded. She is the principal investigator of a minor research project funded by Rajiv Gandhi Science and Technology Commission (RGSTC) and is presently working on bioremediation of pesticides in soil. Her field of interest is Microbial diversity, Molecular Biology, Medical Microbiology, Microbial pesticides, Industrial Microbiology.

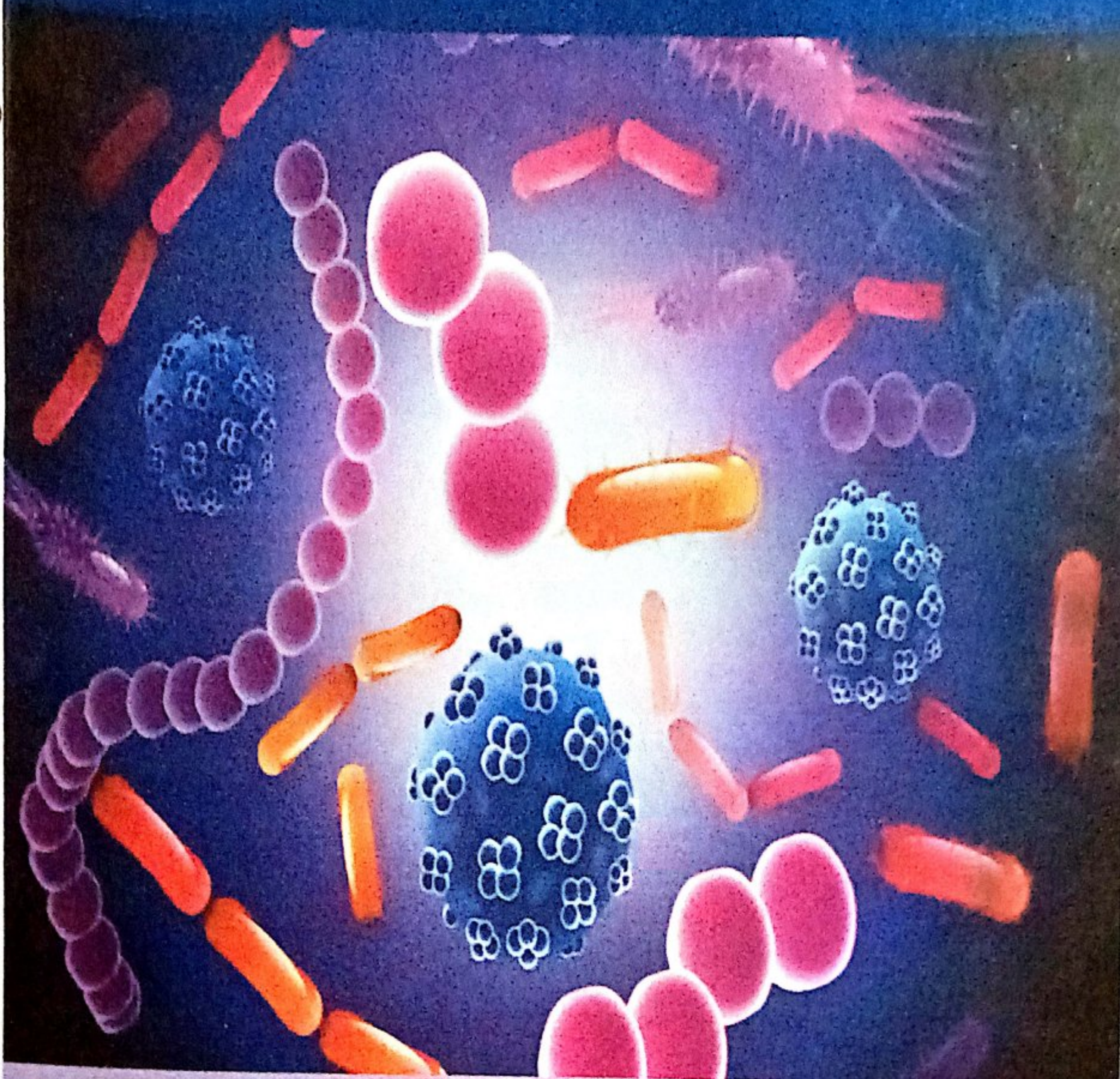
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About the Book

This book is primarily meant for students appearing for PG. In IAM, GATE, AIIMS and other Medical, Paramedical entrance examinations for admissions to PG Programme, in which Microbiology and Biotechnology are one of the important topics of the syllabus. The main objective of this book is to help students to review their knowledge of Microbiology and Biotechnology acquired through standard textbooks. A sound knowledge of Microbiology is essential for students of Medicine, Pharmacy, Agricultural Science and Industries for understanding the subject with logical reasoning. This book is specially designed to complement any standard Microbiology and Biotechnology Objective type question Bank and to provide the students with a feedback on their progress and an opportunity to improve. Thus, the book can serve as a self-assessment guide. With the explosion of knowledge in medical sciences, examinations in all faculties (Medicine, Pharmacy, Agricultural Science and other Industries) is completely becoming MCQ oriented because this system of assessment is more accurate, reliable and quicker. The key features of this book are: easy to understand, precise questions in simple and lucid language, self-explanatory and relevant objective questions in the field of Microbiology and Biotechnology.

About the Author



Dr. Prita Shamrao Borkar (Chaware) is Associate Professor in Agricultural Microbiology, Department of Botany, Microbiology and Biotechnology, Science College, Nanded; affiliated to Swami Ramanand Teerth Marathwada University, Nanded. She has 18 years of Teaching and Research experience and has published 19 research articles in the Journals of national and international repute.

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**A LABORATORY MANUAL FOR UNDERGRADUATES
IN
AGRICULTURAL MICROBIOLOGY,
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AND
BIOTECHNOLOGY**



Dr. Prita Shamrao Borkar


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First Edition: 2022

Some Special Methods to Solve Fractional Differential Equations with Applications

Arun Digambar Nagargoje

Dr. V. C. Borkar

Dr. R. A. Muneshwar

Ramanshil Publication



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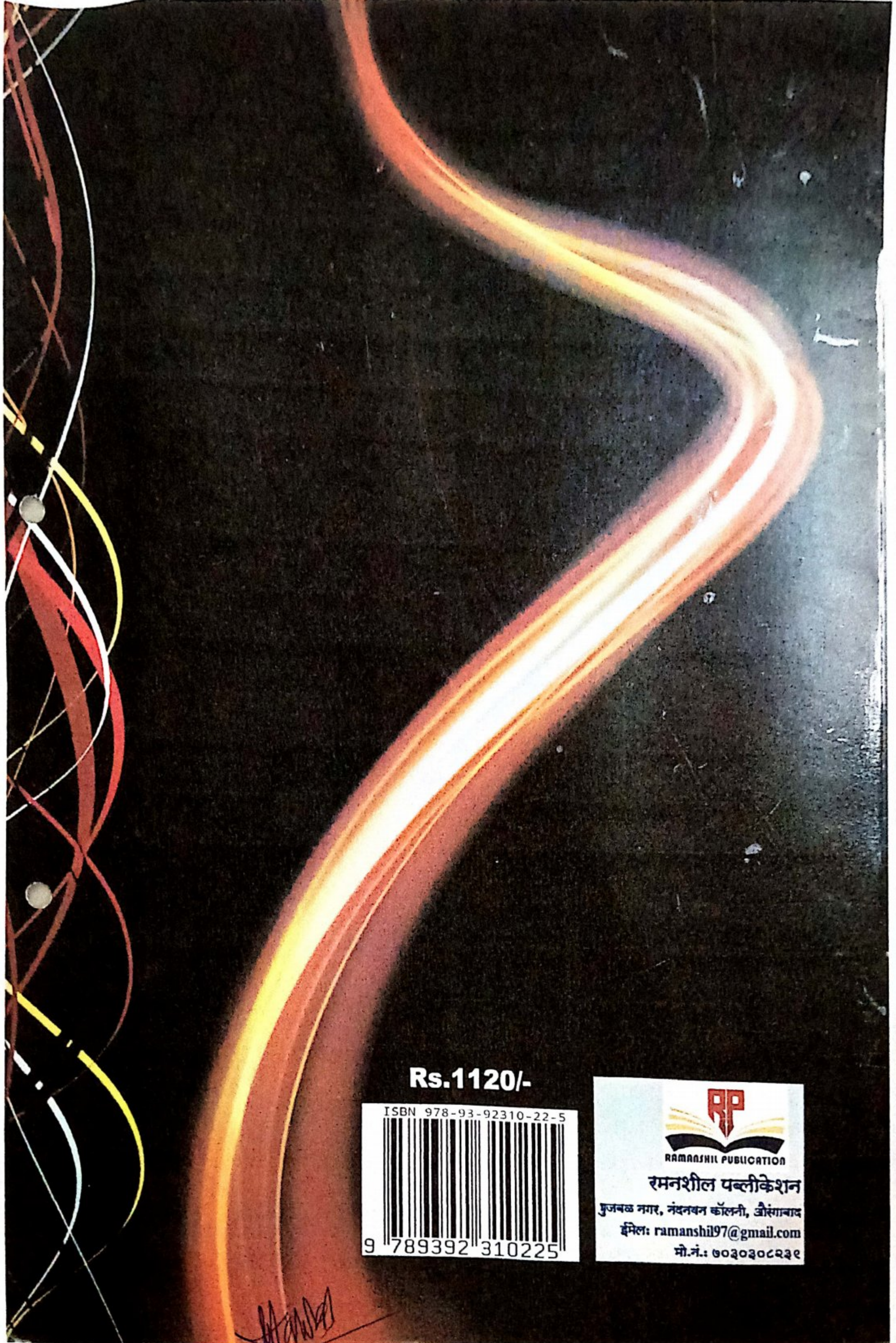
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✓ Food safety concern related to aflatoxins and control

Roopa Vishwanath Sangvikar*

Department of Botany, N.E.S. Science College, Nanded, India

*Corresponding author. Email: dr.roopasangvikar@gmail.com

Background

Aflatoxins were discovered in the early 1960s in England when a significant number of turkey poults died. The fluorescent compounds detected in thin-layer chromatography (TLC) exposed the cause of disease to be consumption of peanut feed of livestock contaminated with the toxin produced by a filamentous fungus *Aspergillus flavus*, later termed aflatoxins. They were identified as carcinogenic in rainbow trout. The cause of epizootic hepatitis in dogs and moldy corn poisoning in pigs in the United States was attributed to aflatoxins (Newberne and Butler, 1969). A major outbreak of hepatitis which lasted for 2 months in 1974 confined to tribal people situated at the western end of India who had maize as their dietary staple, resulted in an estimated 106 deaths, which was later confirmed to be due to aflatoxin (Krishnamachari et al., 1975a). In 1981 Kenya reported a major aflatoxin exposure outbreak (Ngindu et al., 1982). Most outbreaks were reported from the rural area of Kenya. One of the most severe outbreaks due to the ingestion of maize infected with molds was reported in 2004 in Kenya with a fatality rate of 39%. The preliminary analysis confirmed it to be *A. flavus* fungus (Krishnamachari et al., 1975a; Bhatt and Krishnamachari, 1978). Nationwide adulteration of milk with aflatoxins was reported in Southeast Europe.

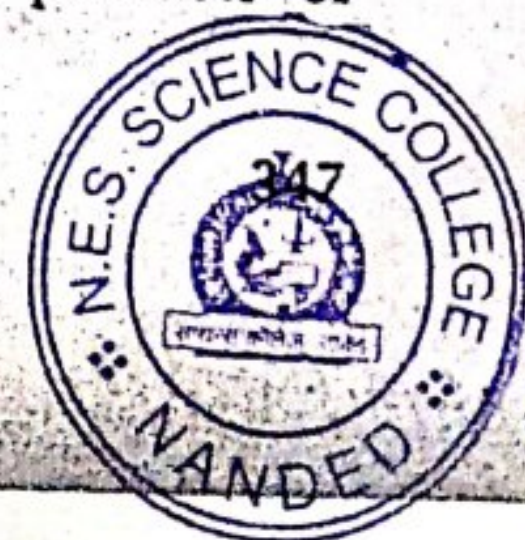
The word aflatoxin is derived from the first letter "A" for the genus *Aspergillus*, "FLA" for the species *flavus*, and "TOXIN" meaning poison (Rustom, 1997).

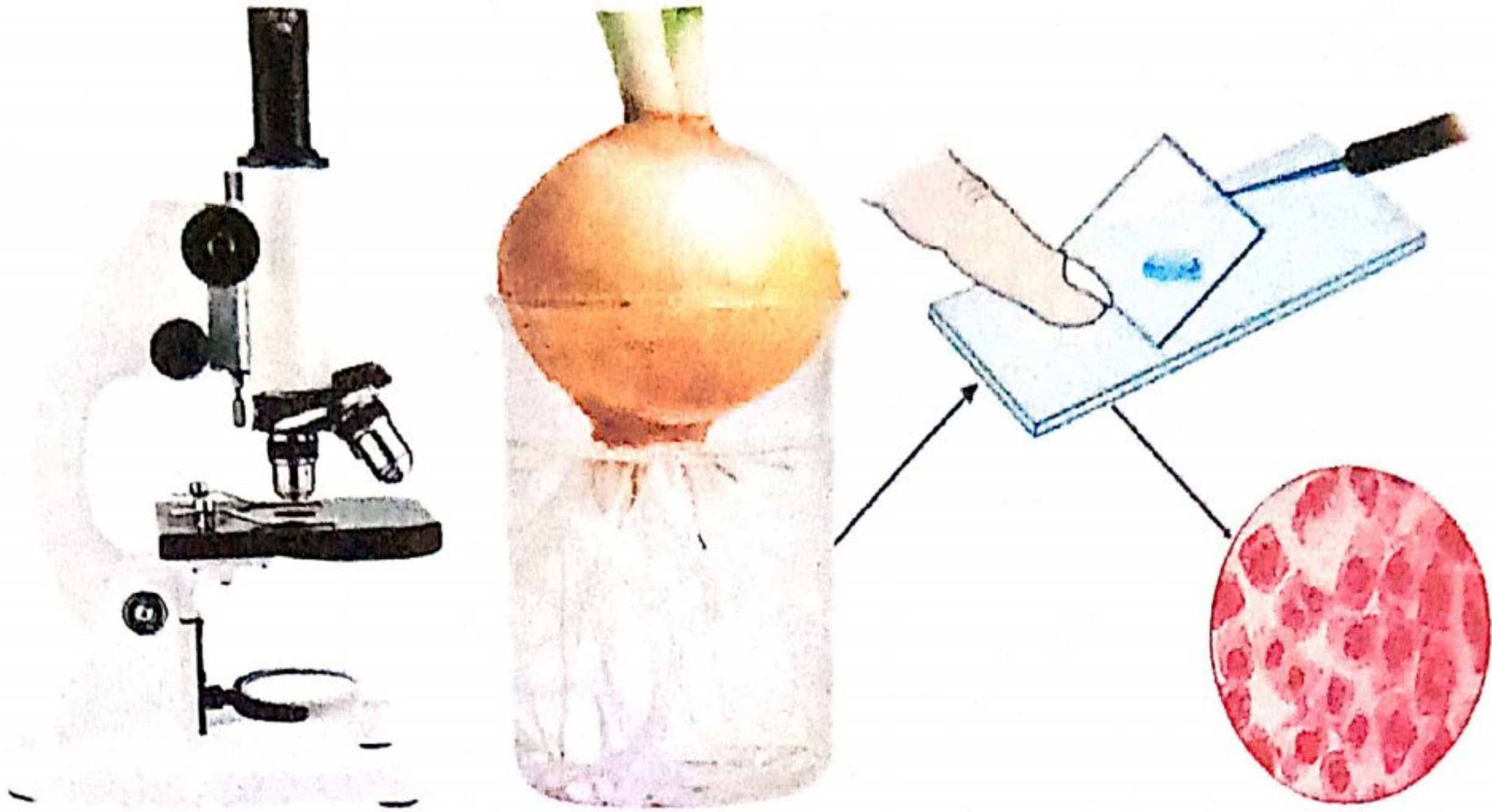
Introduction

Aflatoxins (AFs) are mycotoxins produced by naturally occurring fungi of *Aspergillus* species. They are low-molecular-weight toxic by-products of

Fungi Bio-prospects in Sustainable Agriculture, Environment and Nano-technology.
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Cell, Molecular Biology, Genetics and Plant Breeding

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(एम.लिब. सायन्स, पीएच.डी)




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BIRD EYE VIEW ON USE OF ICT IN LIBRARIES

(An Information Consolidation Package)

Dr. S. L. Jadhav



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Dr. S. L. Jadhav has obtained his Master Degree in Library and Information Science from Dr. BAMU, Aurangabad and Ph.D. from SRTMU, Nanded. He has been a practicing librarian of long experience 28 years and also teaches to LTC run by Directorate of Public Libraries Govt of Maharashtra and B. Lib. Sci. of YCMOU, Nashik since last 14 years. So far he has published more than 25 research papers and a book in Marathi 'Granthalayin Talkikaran'.

He had organized a national seminar on 'Building of e-Resources and e-Services in Academic libraries. He has also started a monthly magazine 'Akshata Digital Library in PPT form.

About the Book :

Our generation is the witness of ICT development and how it is growing continuously. Academicians, technocrats, also children's, young ones, old people all have become follower and fond of this technology. Increasing advancement, its applications, facility and then unexpected entry COVID-19 has made us to realize role and ultimate final and that too the only solution to share ideas, learn new things, complete assignment, teaching plan, video, , editing make wise and scientific use ICT and after this save it in most appropriate device drive or in clouds. .

Contents :

- Introduction : An overview of ICT
- Library Automation
- IT based Stock Verification
- WWW Web Developments
- Google Tools the Most useful application for library professionals
- E-Resources needs careful consideration
- Maintenance of computer system : Antivirus software's
- Cloud storage and libraries : Opportunities and challenges
- DELNET – Developing Library Network
- National Library & Information Services Infrastructure for Scholarly Content (NLIST)
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E-Resources & E-Services in Academic Libraries



S. L. Jadhav
Principal
NES Science College,
Nanded

Dr. S. L. Jadhav

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Dr. S. L. Jadhav has obtained his Master Degree in Library and Information Science from Dr. B.A.M.U., Aurangabad and Ph.D. from SRTMU, Nanded. He has been a practicing librarian of long experience 28 years and also teaches to ITC run by Directorate of Public Libraries Govt of Maharashtra and B. Lib. Sci. of YCMOU, Nashik since last 14 years. So far he has published more than 25 research papers and a book in Marathi 'Granthalayin Talikikaran'. He had organized a national seminar on 'Building of e-Resources and e Services in Academic libraries. He has also started a monthly magazine 'Akshata Digital Library' in PPT form.

Contents

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- Research Methodology
- Demystify of Data (Analysis and Interpretation)
- Recapitulation and Recommendations
- Difficulties Faced While Gathering Data
- Library Computerization : Some Tips for Library Staff
- Selected Bibliography

About the Book

This book deals about status of computerization and use ICT in academic libraries affiliated to SRTM University Nanded. The content of the book is based on the data collected through a survey from the librarians of various college of this university. So the content has a research base and scientific view. The author has also included a separate chapter 'Library Computerization : Some Tips for Library Staff'. Hence this has become one of the feature of the book. After going through the book in detail I feel this is an important document useful for the library staff working in academic libraries and also gives an idea of current status regarding computerization, e-resources, e-services etc. Lastly, I would like to recommend all library staff and professionals of the region to go through this book which will help one to understand the position of library and take future steps accordingly.

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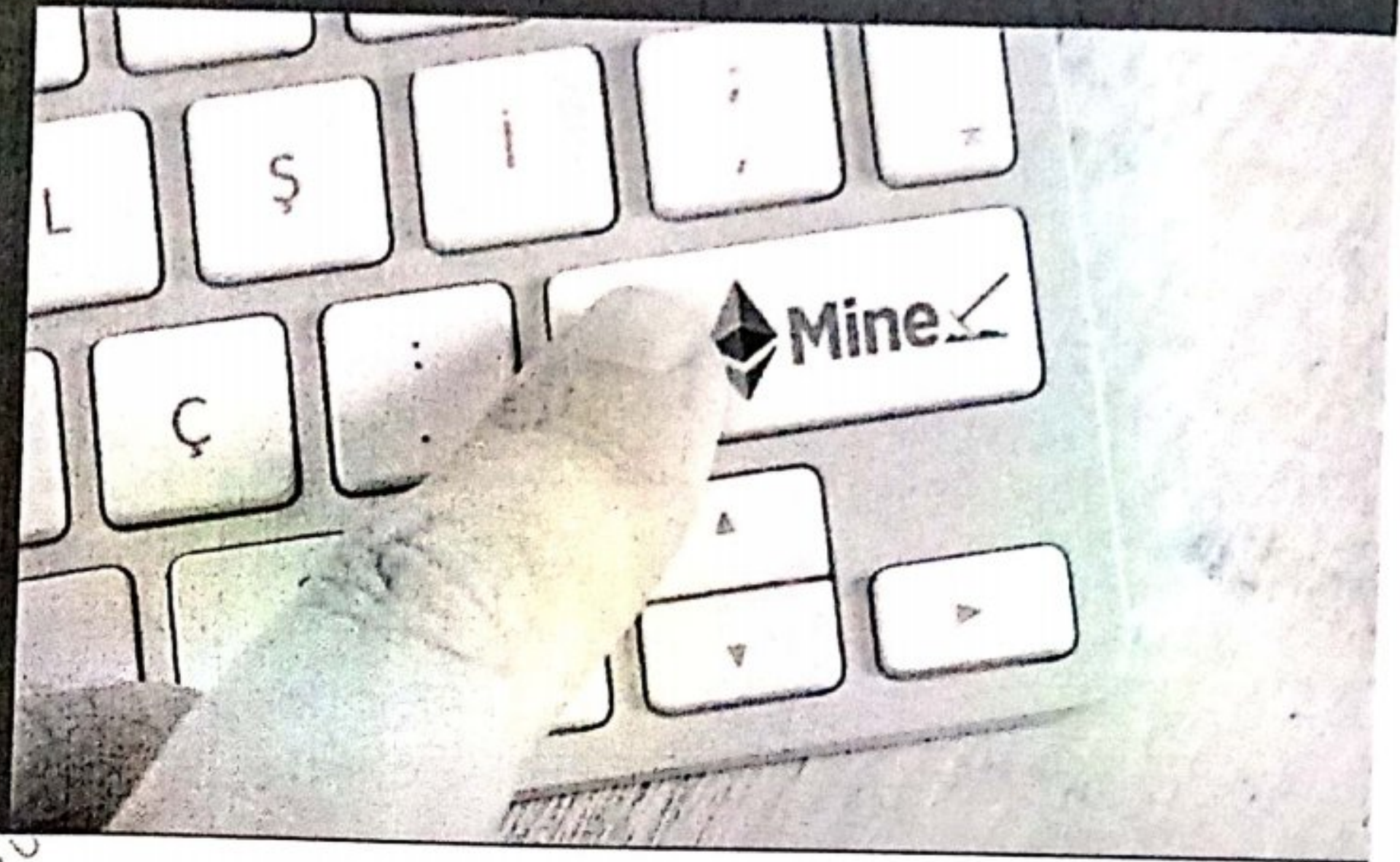
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The online content screening tool is one of the most significant tools for restricting user access to both hostile and undesired websites. To use them, however, the user must first subscribe. All of the technologies work by extracting and processing web content, which is a time-consuming and challenging operation. The tools employ three different filtering approaches. 1) Use a browser-based filter. 2) Client-side application-based filtering 3) A filter that uses a search engine as a basis.



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Sudhir Jagtap



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FOR AUTHOR U

Designing of ICT tool using web mining techniques



Sudhir Jagtap
PRINCIPAL
Science College, Nanded



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About the Book :

Web development is a broad term for the work involved in developing a web site for the Internet (World Wide Web) or an intranet (a private network). Web development can range from developing the simplest static single page of plain text to the most complex web-based internet applications, electronic businesses, and social network services. A more comprehensive list of tasks to which web development commonly refers, may include web design, web content development, client liaison, client-side/server-side scripting, web server and network security configuration, and e-commerce development. Among web professionals, "web development" usually refers to the main non-design aspects of building web sites: writing markup and coding.

Contents :

- Web Designing and Development
- Process of Web Development
- Practical Web Development and HTML
- Web Graphics Designing
- WWW (World Wide Web) and Multimedia
- HTML and Web Page
- DHTML
- CSS and Web Page Layout
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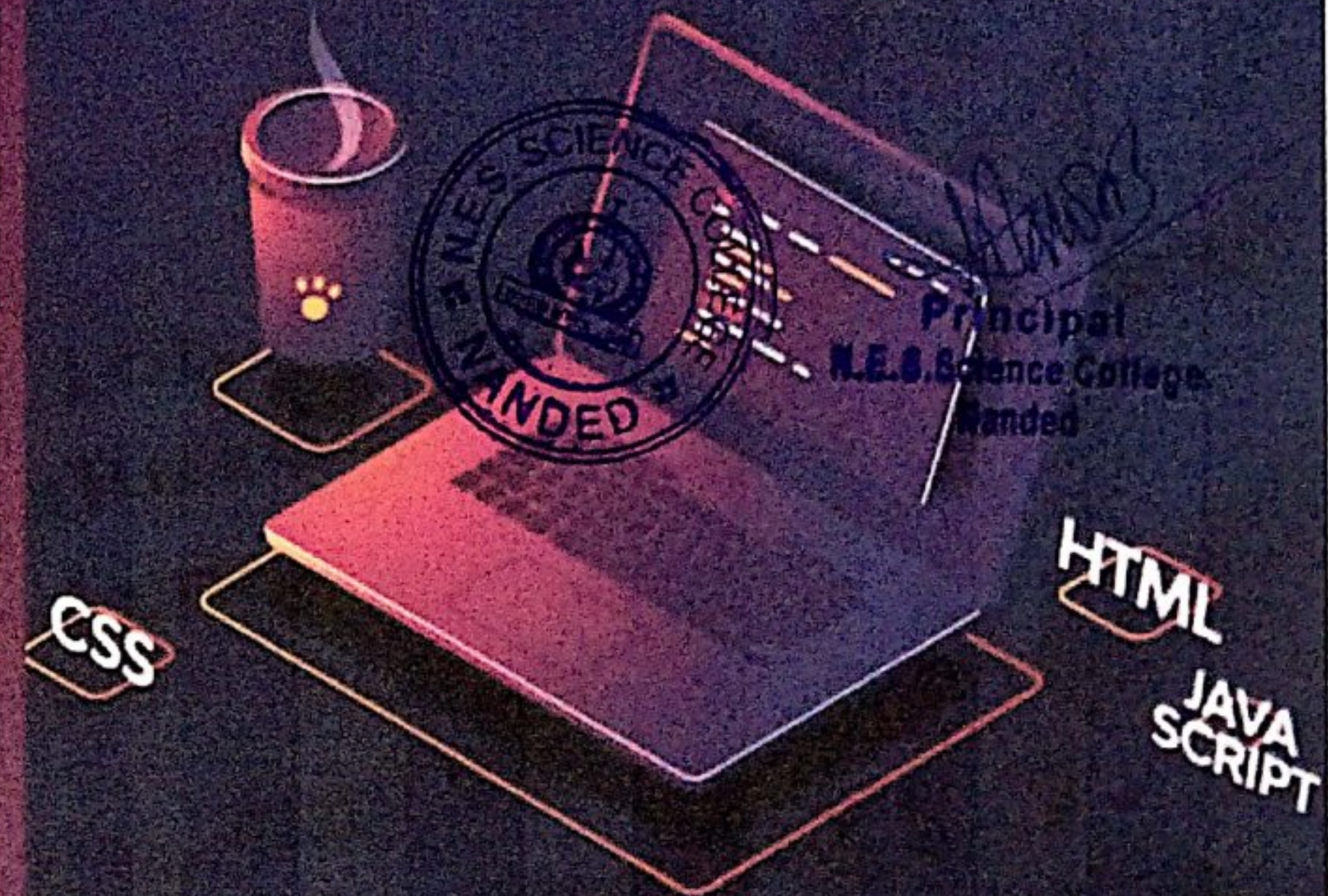


WEB DEVELOPMENT USING HTML CSS AND JAVA SCRIPT

Dr. SUDHIR JAGTAP
Dr. SANGITA S. MODI

WEB DEVELOPMENT

USING HTML CSS AND JAVA SCRIPT



Dr. SUDHIR JAGTAP
Dr. SANGITA S. MODI

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This book provides a thorough overview of the document clustering techniques used in Text mining. It focuses on the different phases of document clustering: Pre-processing, Feature extraction, Feature selection and Clustering. It narrates the different methodologies applied in clustering process. The book acquaints the research students with the different soft and hard computing approaches that are most commonly used while carrying out their researches in various areas. The text book also contains the data flow diagrams for document clustering, recall precision rates and inter-relationship between Research Papers. It also includes Matlab code for document clustering process. This book clears the ideas about the fuzzy clustering technique and its applicability in the document clustering process.



U. S. Patki has obtained his Masters degree in Computer Science from Dr. B.A.M.U. Aurangabad (MS) India. He received M. Phil Degree from Y.C.M.D.U. Nashik (MS) India. He has sound knowledge in document clustering with soft skills and he is awarded with Doctorate by Gondwana University Gadchiroli (MS) India.



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Text Document Clustering

A Hard and Soft Computing Approach


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Science College, Nanded

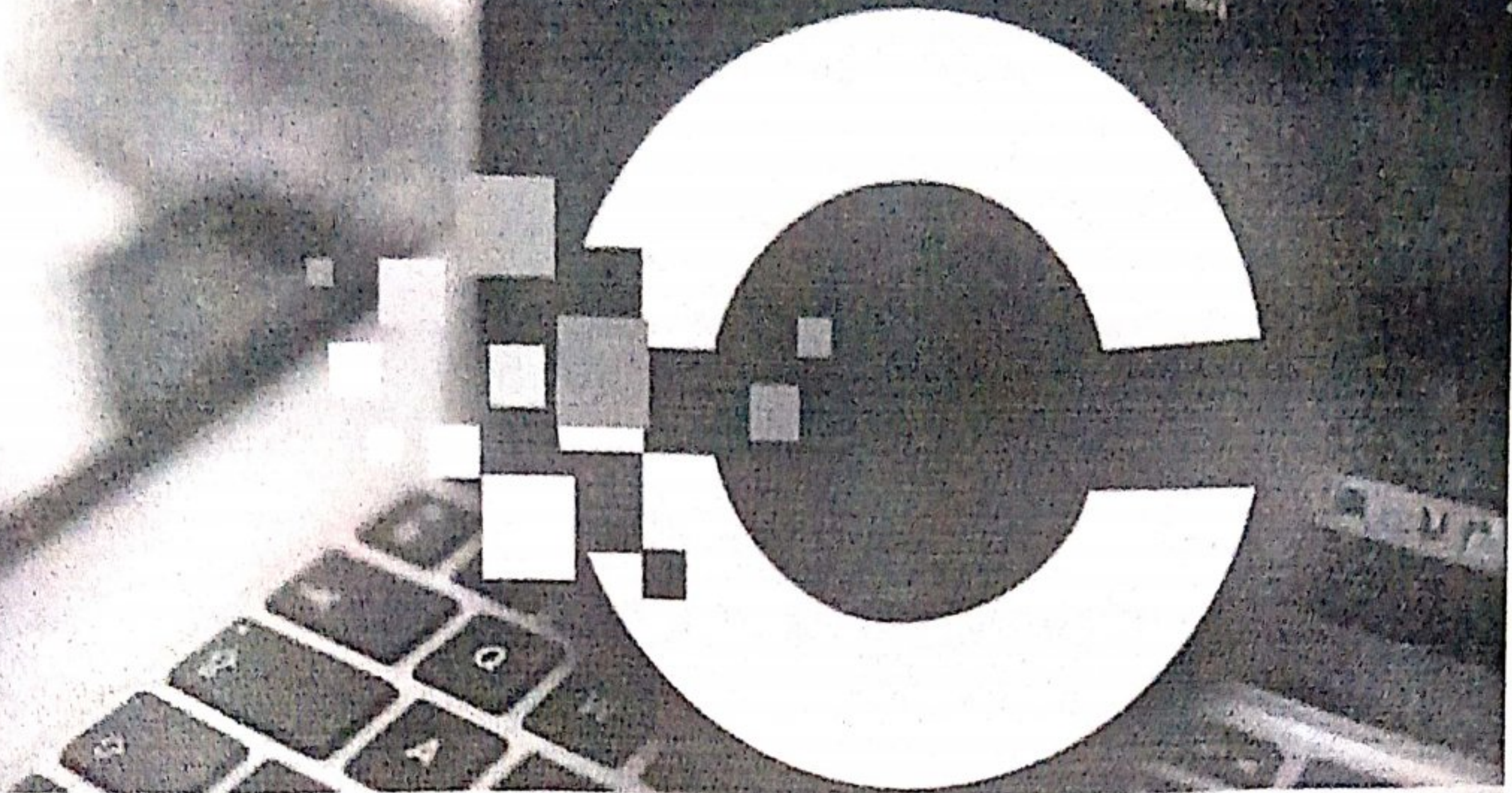


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PROGRAMMING IN



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CHAPTER - 6

Role of IoT in COVID-19 Pandemic

Dr. U.S. Patki*Asst. Professor**Dept of Computer Science and IT**NES. Science College Nanded***Dr. Ajay B. Kurhe***Asst. Professor**Dept of Computer Science**SGBS College Purna (Jn)***Abstract:**

The Internet of Things (IoT) has been utilized in various ways to aid in the response to the COVID-19 pandemic. These include: contact tracing through the use of IoT devices such as smartphones and smartwatches; remote monitoring of individuals through wearable devices; supply chain management through the use of IoT sensors; public health messaging through the use of digital signage and public address systems; and facilitating remote work through videoconferencing software and remote access tools.

Keywords: Contact tracing. Remote monitoring. Supply chain management, Public health messaging. Remote work.

Introduction:

The Internet of Things (IoT) has been used in a variety of ways to help respond to the COVID-19 pandemic. Here are a few examples:

1. Contact tracing: IoT devices, such as smartphones and smartwatches, can be used to track and trace the movement and interactions of individuals, which can help authorities identify and contain outbreaks.
2. Remote monitoring: IoT devices can be used to remotely monitor the health of individuals who are self-isolating or who have been diagnosed with COVID-19. For example, wearable devices can track vital signs such as heart rate and respiratory rate, and alert healthcare providers if there are any concerning changes.
3. Supply chain management: IoT sensors can be used to track the movement of goods and materials through the supply chain, helping to ensure that essential products and equipment reach their destination efficiently and on time.
4. Public health messaging: IoT devices, such as digital signage and public address systems, can be used to deliver public health messages and updates to a wide audience in a timely and efficient manner.



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CHAPTER - 5

THE KEY TAKEAWAYS TO DATE AND ACTIONS STILL
NEED TO BE TAKEN FOR COVID-19

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Abstract:

The pandemic has had a significant impact on society and the global economy, with many countries implementing lockdowns and travel restrictions to slow the spread of the virus, leading to widespread job losses and economic downturns. Healthcare systems around the world have also been strained as they try to provide adequate testing, treatment, and support for those affected by the virus.

Introduction:

COVID-19, also known as the novel corona virus, is a highly infectious disease caused by a newly discovered virus. It first emerged in Wuhan, China in late 2019 and has since become a global pandemic.

The virus is primarily spread through respiratory droplets when an infected person talks, coughs, or sneezes, but it can also be transmitted by touching contaminated surfaces and then touching one's mouth, nose, or eyes. The most common symptoms of COVID-19 include fever, cough, and difficulty breathing, but some people may be asymptomatic or have mild symptoms.

There is currently no specific treatment or vaccine for COVID-19, so the best way to prevent infection is through proper hygiene and social distancing measures. This includes washing hands frequently with soap and water, wearing a mask in public, and avoiding close contact with sick individuals.

The COVID-19 pandemic has had a significant impact on society and the global economy. Many countries have implemented lockdowns and travel restrictions to slow the spread of the virus, leading to widespread job losses and economic downturn. Governments and healthcare systems around the world have also been strained as they try to provide adequate testing, treatment, and support for those affected by the virus.



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Chapter 9

A PROSPECTUS OF MICROBIAL METABOLITES AS INGREDIENTS IN COMMERCIAL SUNSCREENS

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ABSTRACT

Ultraviolet (UV) radiation is responsible for different skin diseases and allergic reactions. Synthetic sunscreens are widely used to protect the skin in the intense UV environments. Different synthetic molecules are being used as active ingredients in the commercial sunscreens, however, few of them are reported to cause toxicity to humans and ecosystems. Regulatory bodies like USFDA and European Commission have issued a guideline for the safe use of active chemical ingredients in the commercial sunscreens. Therefore, there is an increasing interest in the screening of safe and efficacious natural

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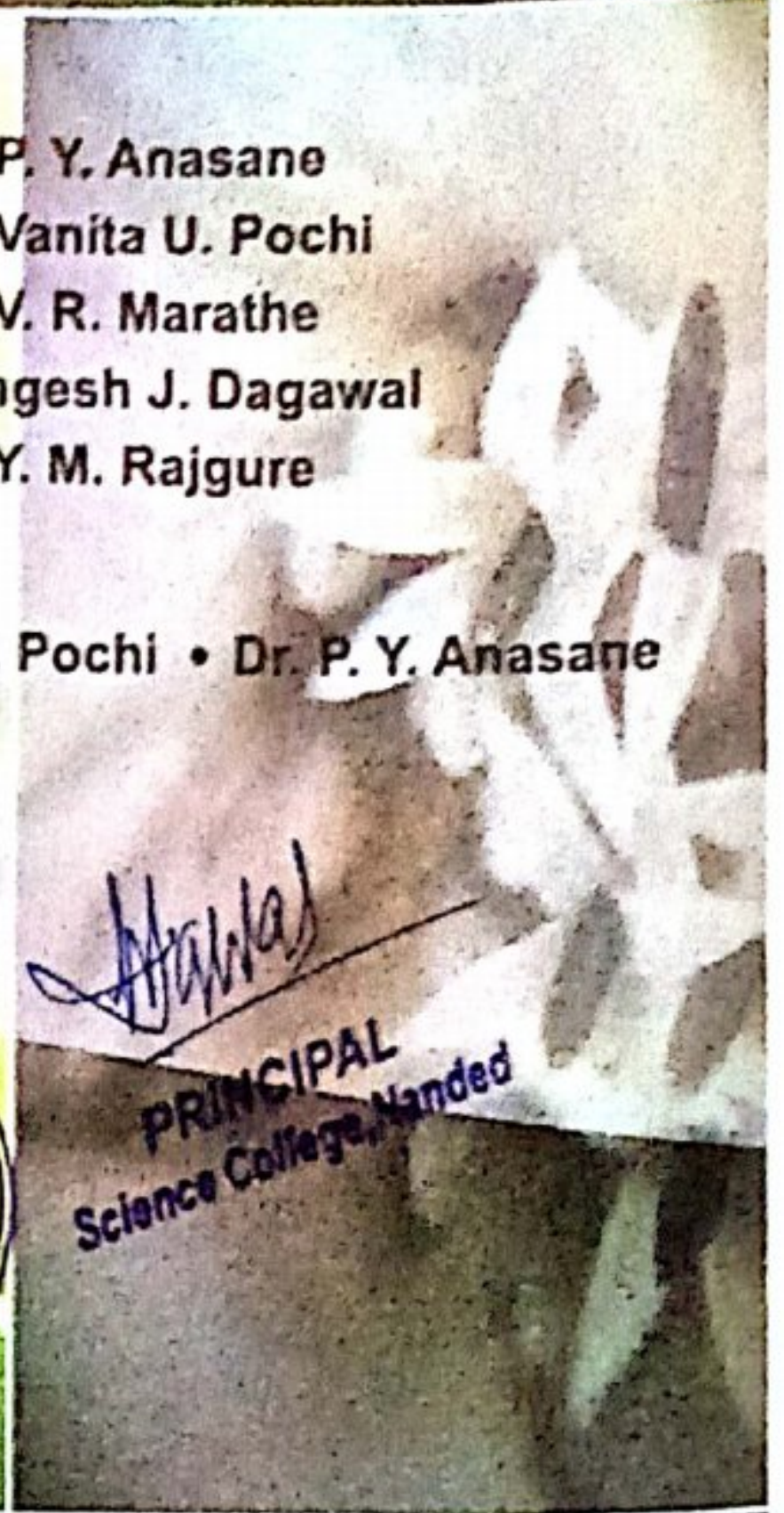
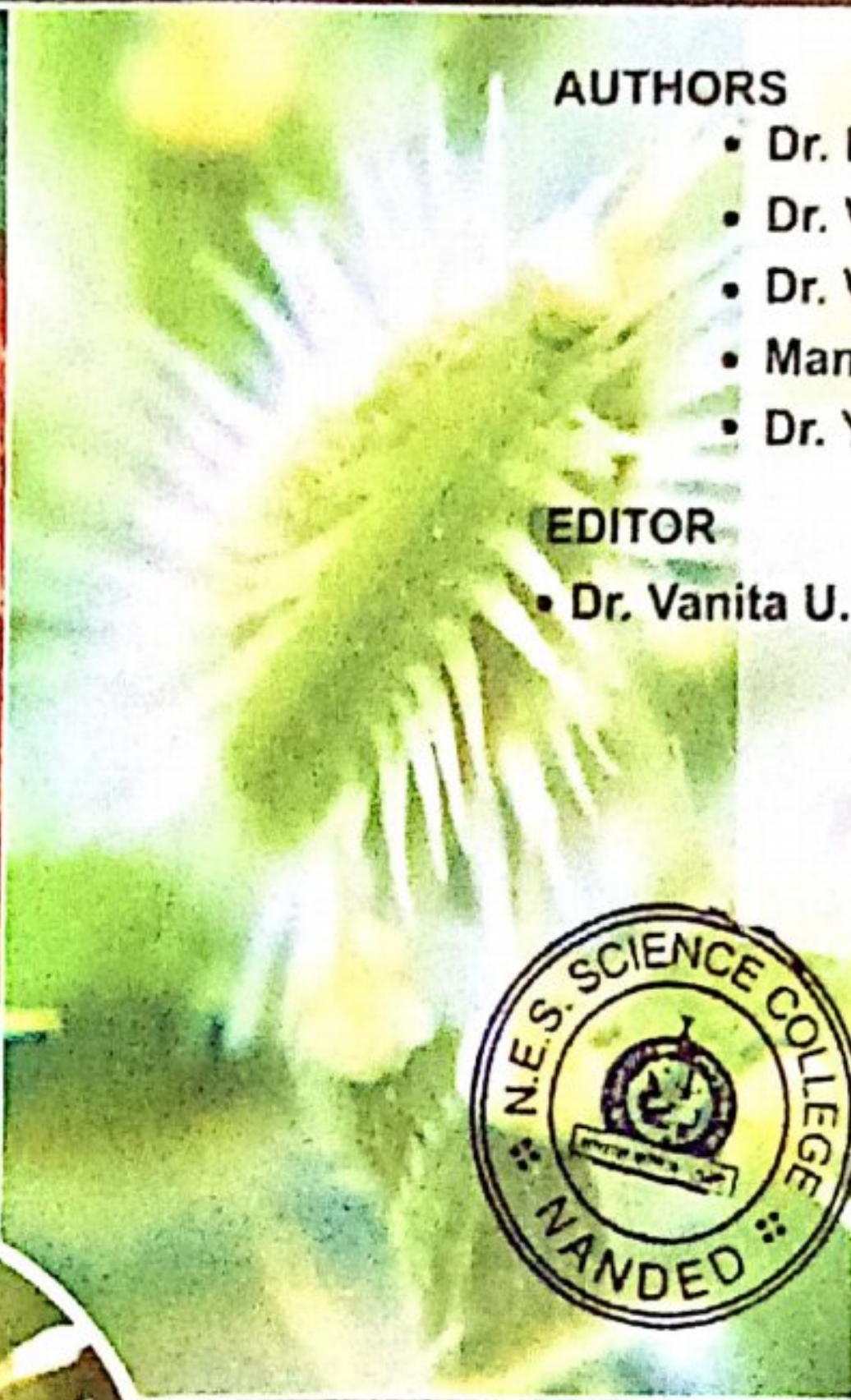

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A TEXT BOOK OF
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B.Sc., THIRD SEMESTER

ANGIOSPERM SYSTEMATICS, ANATOMY & EMBRYOLOGY



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CHAPTER 9

Eleusine coracana (L.) Gaertn (Finger Millet): An Important Sustainable Food Supplement

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Received: 20 January, 2024; Accepted: 29 January, 2024

Abstract

One of the oldest millets grown in India since 2300 BC is *Eleusine coracana* (L.) Gaertn referred to as finger millet. This review focuses on the applications, nutritive makeup, processing, and health benefits of this ancient grain. Of the various millets and grains, finger millet possesses the highest amount of calcium. In comparison with wheat, rice, which is currently India's main staple grain, it includes more nutritional fiber, minerals, and amino acids that contain sulfur. Even though finger millet has a high nutritional profile, recent studies reveal that urban Indians eat less millets overall. The purpose of this study is to increase awareness of finger millet, its health benefits, and how it may continue to be a sustainable food supply in the context of population growth and declining water supplies.

Keywords: Finger millet, health benefits, sustainable food supplement

Introduction

Among the underused varieties of cereal grains are millets. Even with their high nutritional value and nutraceutical content, they are still regarded as poor people's diet. Finger millet is oldest millets grown in India since 2300 BC and is a gluten-free cereal grain belonging to the Poaceae family (Gebre, 2019). In terms of ranking behind other millet varieties worldwide, finger millet is placed fourth. The nutritional qualities of food have an impact on the elements that support human health. The scientific community has expertise in the word "nutraceutical" and after being developed by Stephen DeFelice in 1989 (Stephen, 2000), the term "nutritional and pharmaceutical food" was only briefly available to the general people. A material that is categorized as food or a component that provides extra health advantages is called a nutraceutical, such as boosting wellness and preventing conditions including diabetes, cancer, heart disease, and hypertension, in addition to possessing an average dietary value (Rajasekaran et. al., 2008).

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Chapter 44

Isolation and Screening of Naringinase Producing Microbes: As Industrial Inputs for Agro Waste Base Enzyme Industry

Satish V. Patil, Jitendra D. Salunkhe, and Vishal Marathe

Abstract

Naringinase is an industrially important enzyme having wide applications in pharma and food industry. The enzyme is having a wide range of substrate, i.e., all natural glycosides containing α -L-rhamnose and β -D-glucose including quercitrin, rutin, naringin, hesperidin diosmin, etc. The enzyme majorly used for hydrolysis of glycosides. They are majorly used for biotransformation of steroid and antibiotics. Peels of all citrus fruits such as lime, lemon, grape fruit, and oranges are the major source of substrates of naringinase. This makes naringinase more attractive for cheap and ecofriendly production. The enzyme produced by various microorganisms like, fungi, bacteria, yeast, and actinomycetes.

The screening of potent enzyme producer with various qualities like alkaliphilic, acidophilic, and thermophilic is the need of current food industry. The proposed method of isolation and screening is based on selective medium for naringinase producer and detection by exposure to iodine vapor. The potent producer is screened by zone of clearance on purple brown background.

Key words Naringinase, Rhamnosidase, Glycosidase, Bitterness, Citrus peels

1 Introduction

Citrus fruits industry is one of the huge and important fruit industries. Besides the use of citric acid in food industry as acidulant, beverages and food preservative, its content are widely applicable in medicinal purposes such as kidney stone, gall action and anti-genotoxic effects [1].

Out of global production of citrus fruit, 34% was used for juice industry leading to production of about 44% peel waste [2]. Hence large amount of waste is produced. This citrus peel waste is the significant source of, pectin, lomonene and remaining as cattle field [3]. These peels also contain well-known flavanone glycoside "Naringin," which is a major component contributing for bitterness in citrus juice. The debittering of citrus juice is managed by one of

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Chapter 31

Isolation of Selenium Biotransforming Microbes as New Age Bioinputs

Pradnya B. Nikam, Narendra Salunkhe, Vishal Marathe,
Bhavana V. Mohite, Satish V. Patil, and Vikas S. Patil

Abstract

Selenium (Se) has a very narrow gap between its toxicity and benefits to the different forms of life which makes it as an essential micronutrient for living creatures including its importance in plant growth. It is highly soluble having toxic form in the environment such as the oxyanions; selenate and selenite needed to be transformed to the less toxic elemental selenium which has wide number of benefits to the ecosystem, if provided in appropriate required amount. Till now most of the microorganisms have been studied for biotransformation of selenite by using them as electron acceptor in the respiratory mechanism and ultimately reduced to elemental selenium in the form of nanoparticles. Despite of this, many of the microbes are unexplored and the Se-nanoparticles still less studied for their applications. This chapter explains a simple method for isolating the selenium biotransforming microorganisms from nearby soil sample into the red elemental Se in its nano form.

Key words Selenium, Selenite, Thioredoxin reductase, Selenobacter, Antioxidant

1 Introduction


Selenium (Se) has been proven as an essential micronutrient for almost all living organisms, which is also found important for plants in various aspects. Its presence in the environment ranges from inorganic oxyanions to organic selenium containing amino acids. In human beings, various enzymes such as glutathione peroxidase, thioredoxin reductase, iodothyronine deiodinase, and formate dehydrogenase have selenium as their important component and thus function as an antioxidant, preventing tumors, metabolism, other therapeutic uses and even in reproduction [1, 2]. In the environment, Se exists as highly soluble oxyanions such as Selenate (SeO_4^{-2}) and Selenite (SeO_3^{-2}) which are toxic for humans, hence

Satish V. Patil and Vikas S. Patil contributed equally to this work.

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Dr. Dayanand M. Jadhav born in 1981 maintained excellence throughout his academic career. Currently working in Department of Botany at NES Science College, Nanded (Maharashtra). He has obtained B.Sc. and M.Sc. degree with Late Prof. D. L. Reddy and Dr. K. S. Deshpande memorial Gold Medals respectively from Swami RamanandTeerthMarathwada University, Nanded. He has awarded with Ph.D. in 2013 and presently guiding Ph.D. students for their Doctoral degree in Botany. He is also recognized Post Graduate teacher by the University and has over Sixteen years of teaching experience to UG and PG students of Botany in N.E.S. Science College Nanded. He is actively involved in research and published over 16 research papers in various peer reviewed journals of National and International repute. Organized and attended different conferences, seminars, workshops and Guest lectures in Botany. He is life member of Marathwada Botanical Society. He is invitee member of Board of Studies in Botany of this University. He has completed over Seven Research Projects in the capacity of Principal / Co-Investigator funded by different funding agencies.



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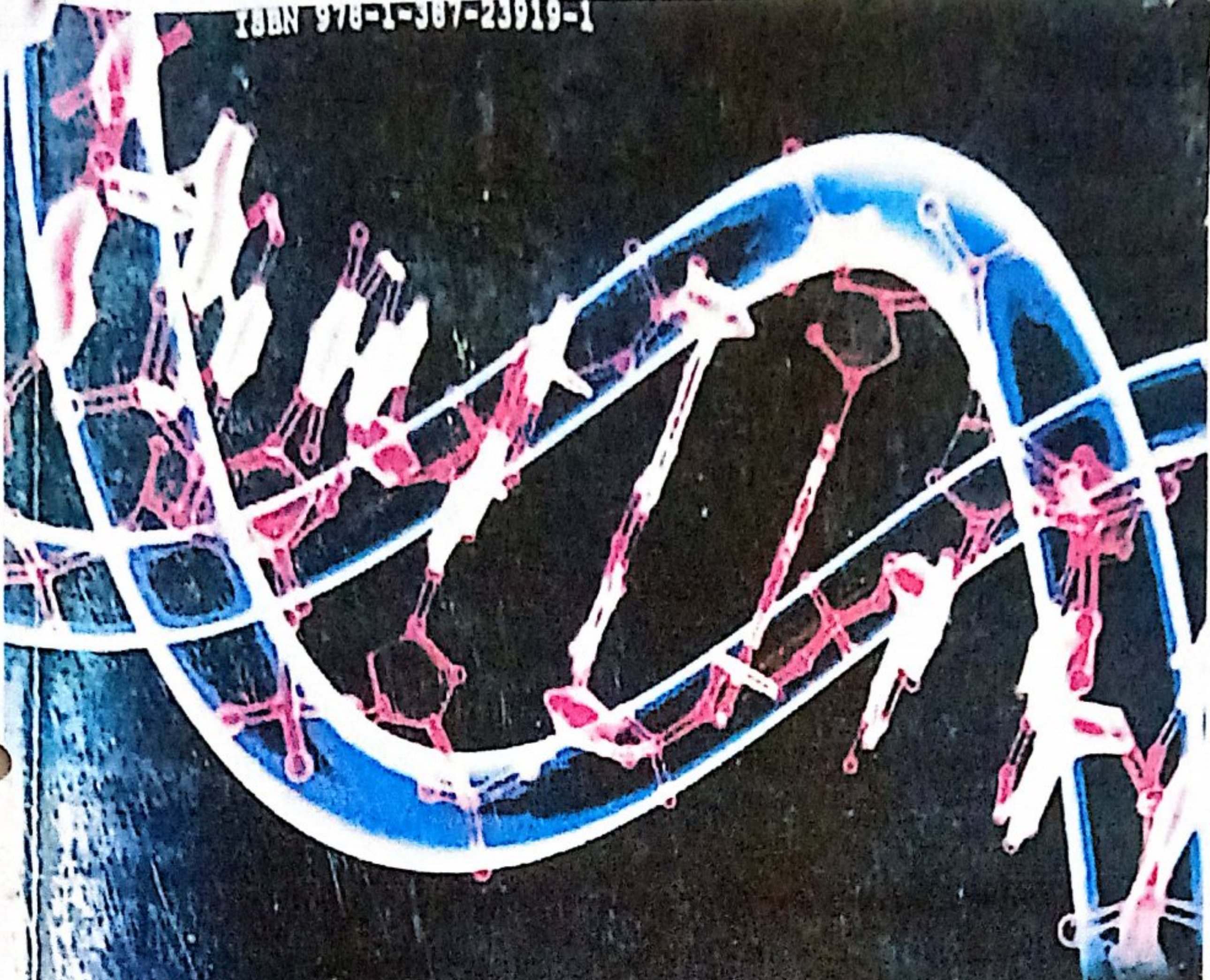


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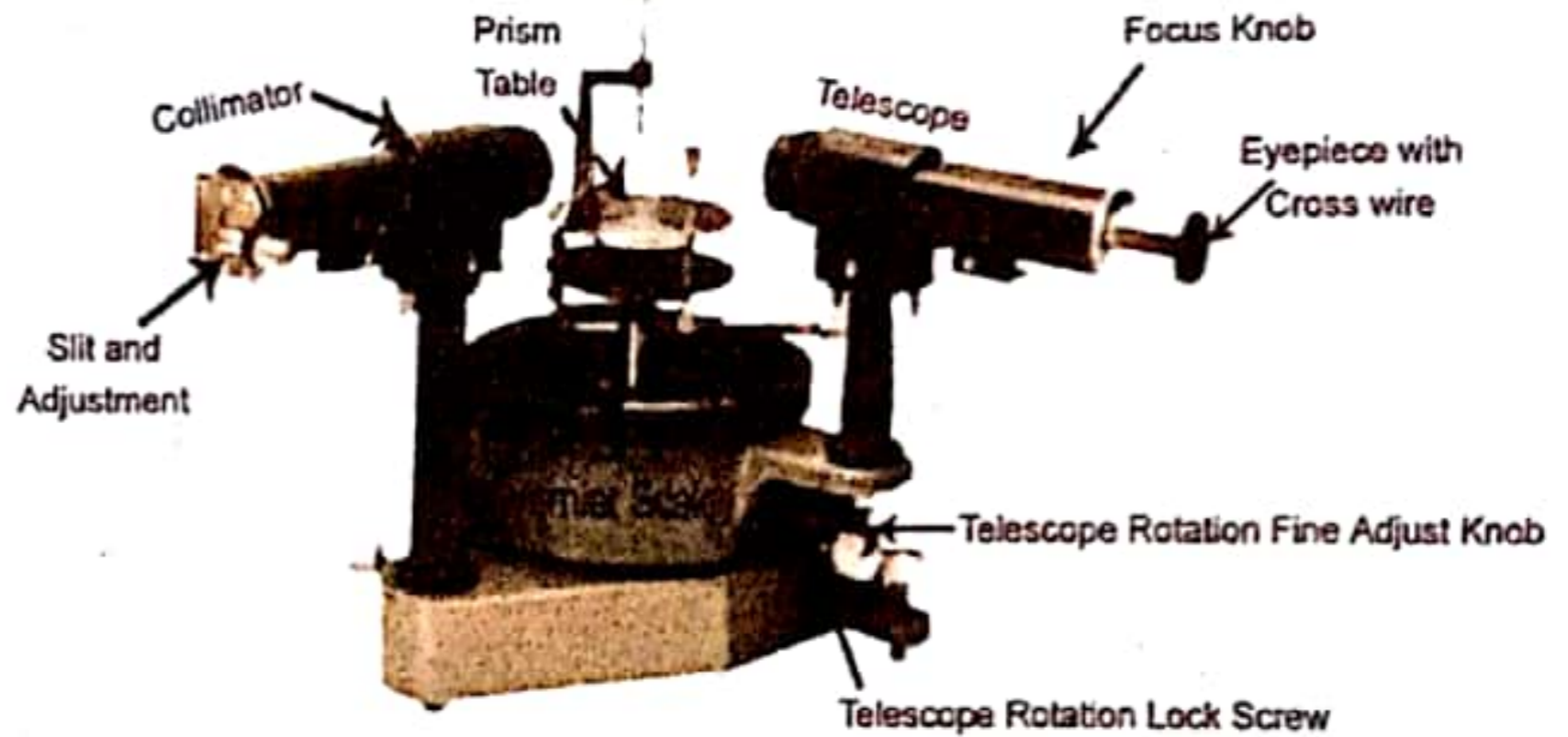
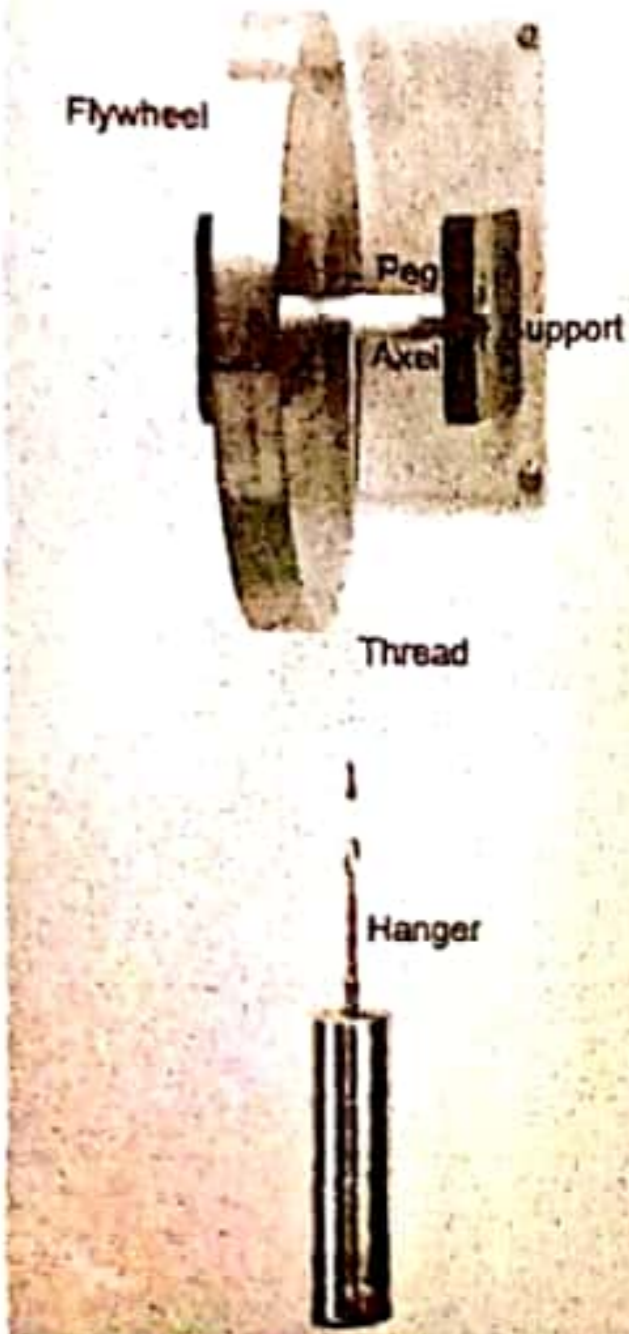
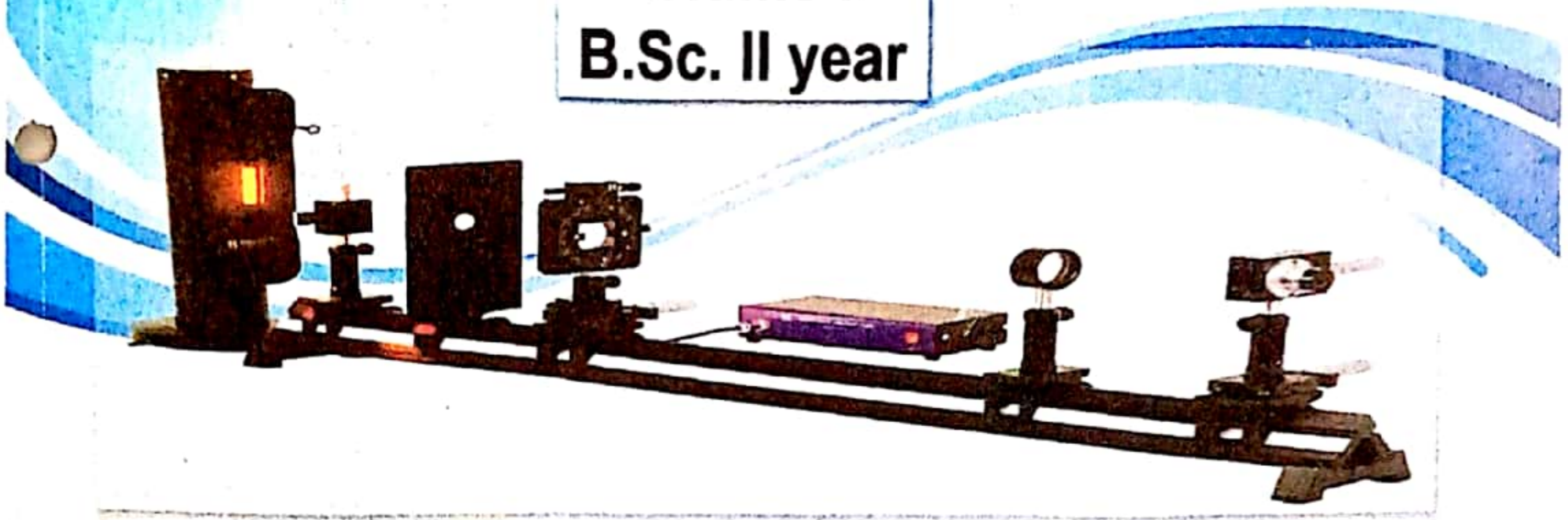
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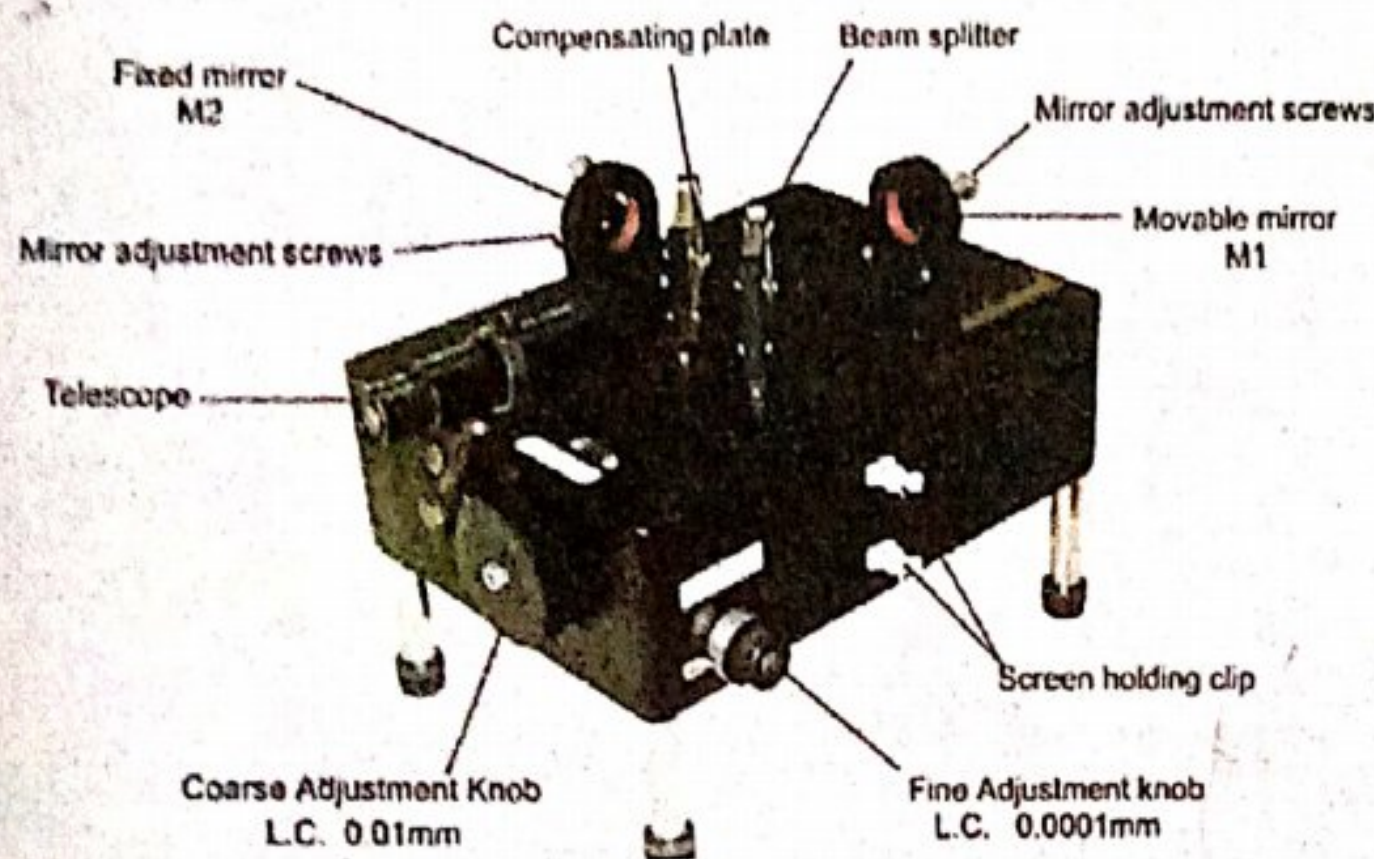
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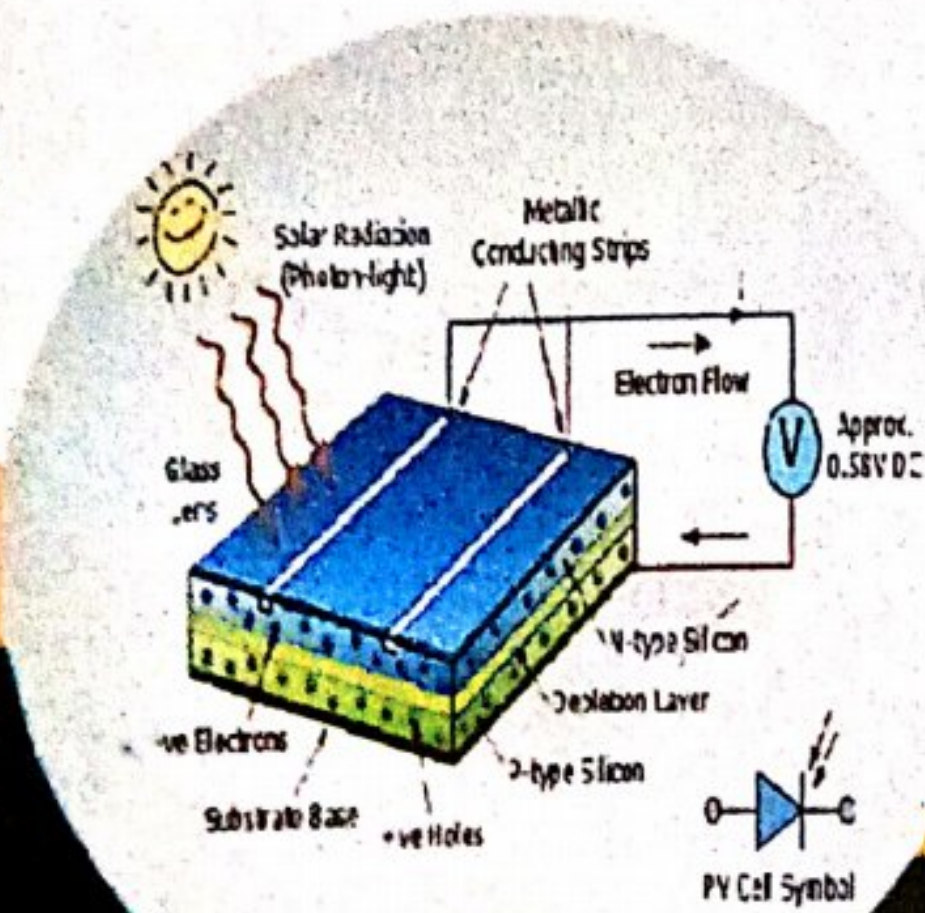
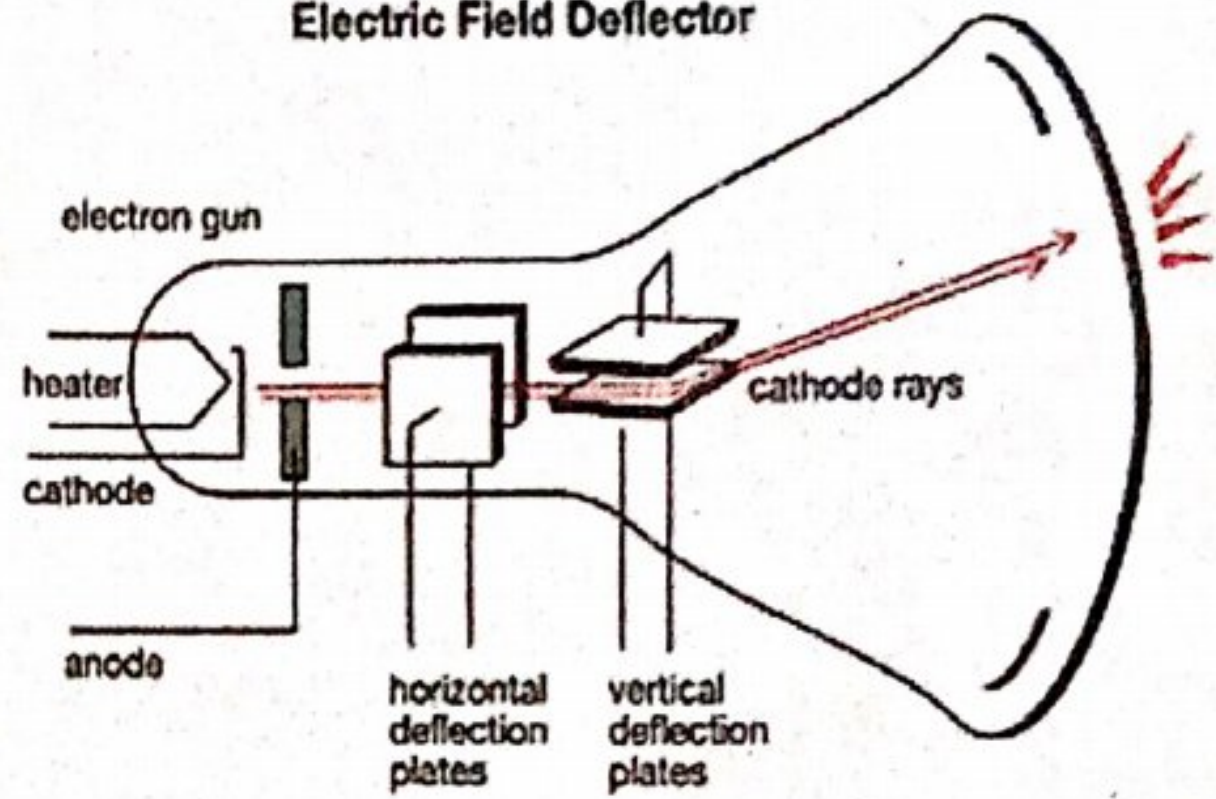
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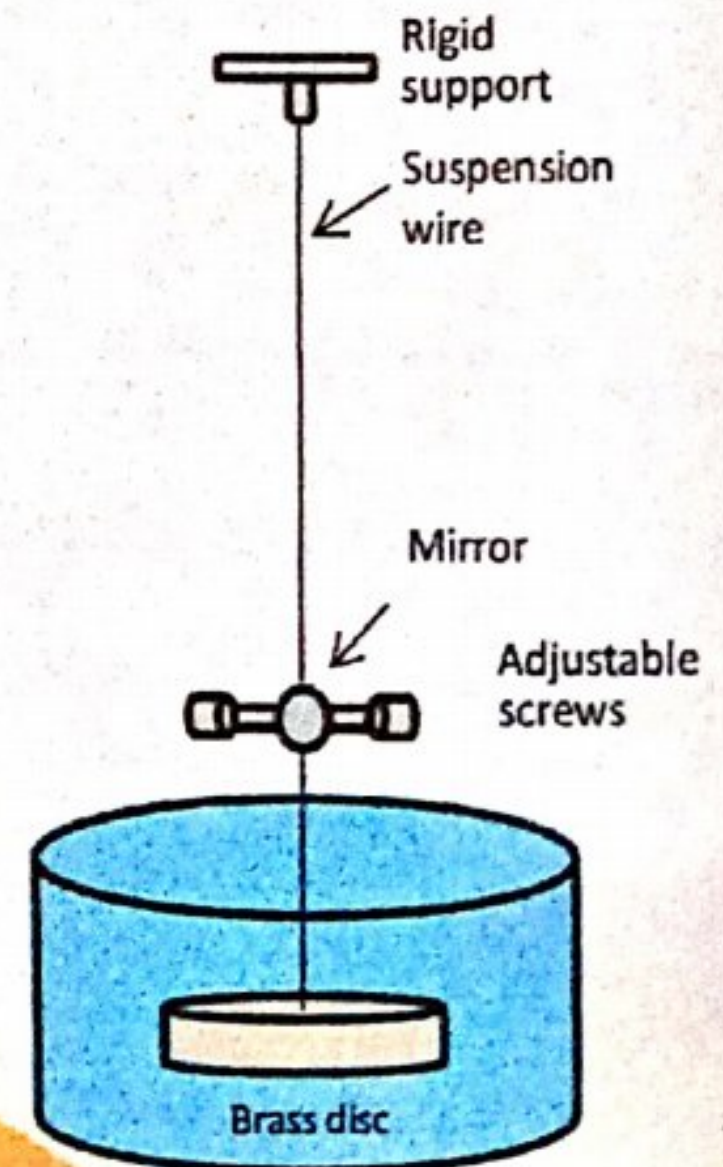


Electric Field Deflector



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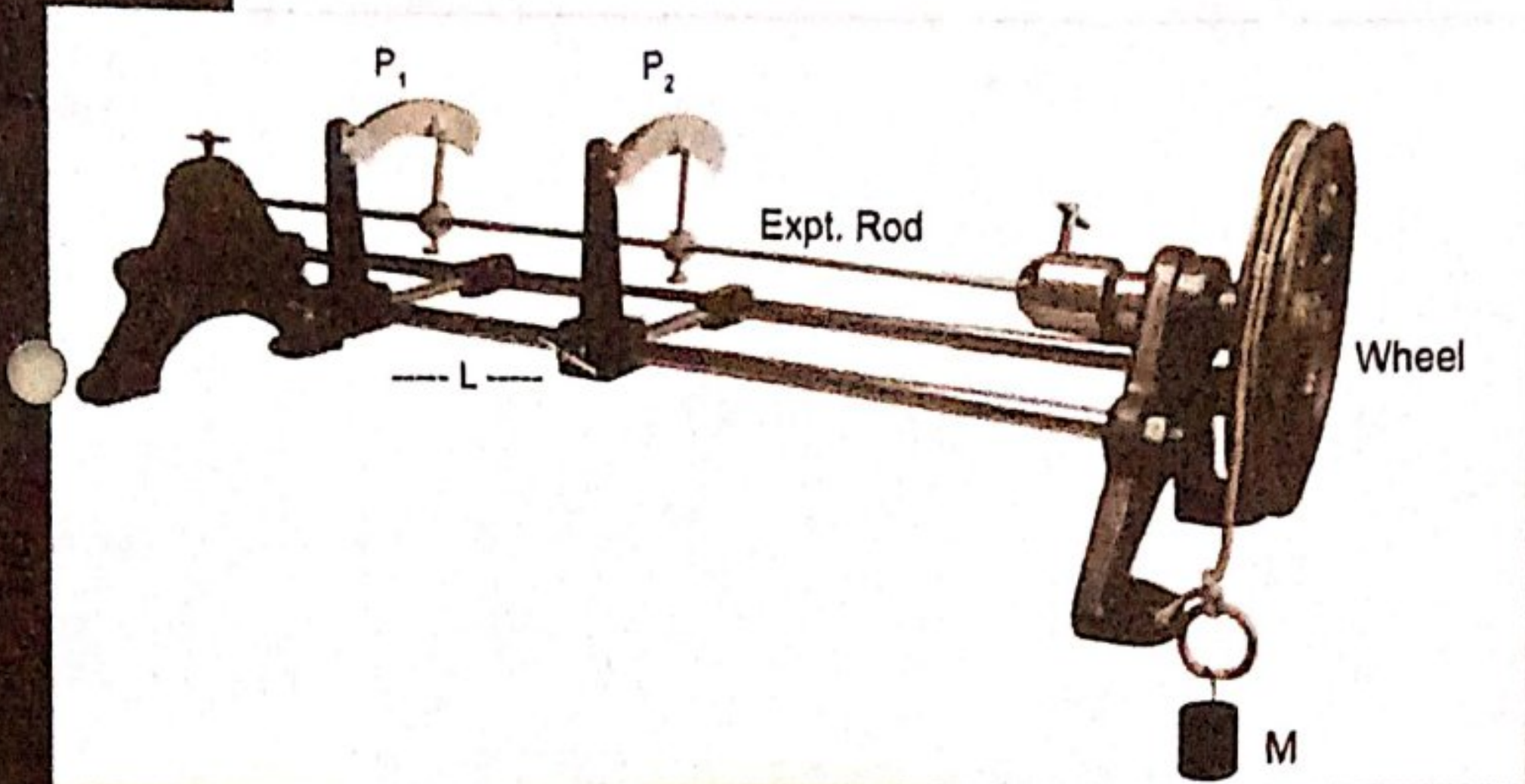
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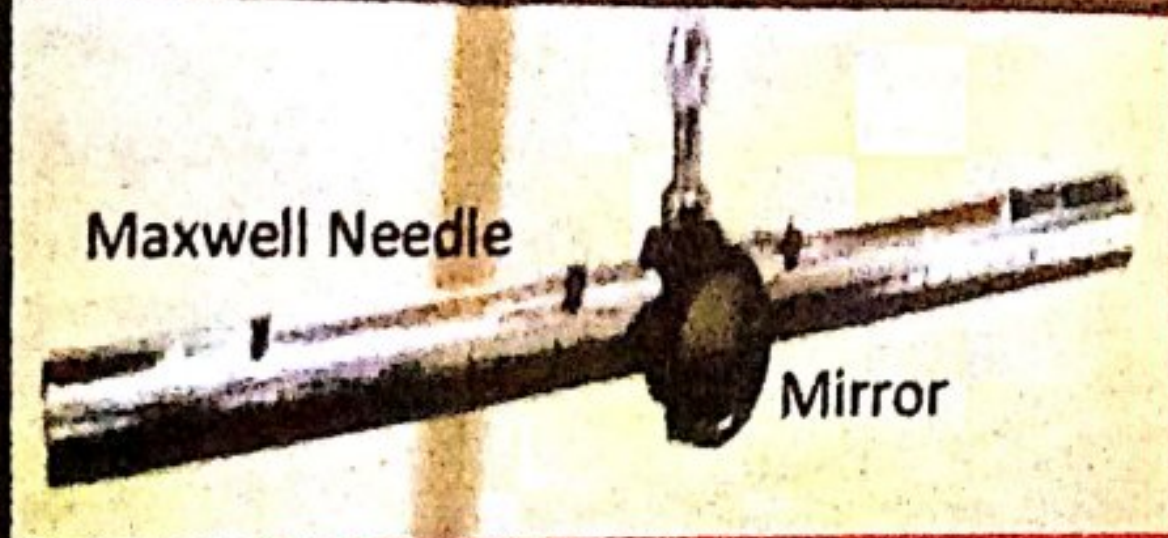
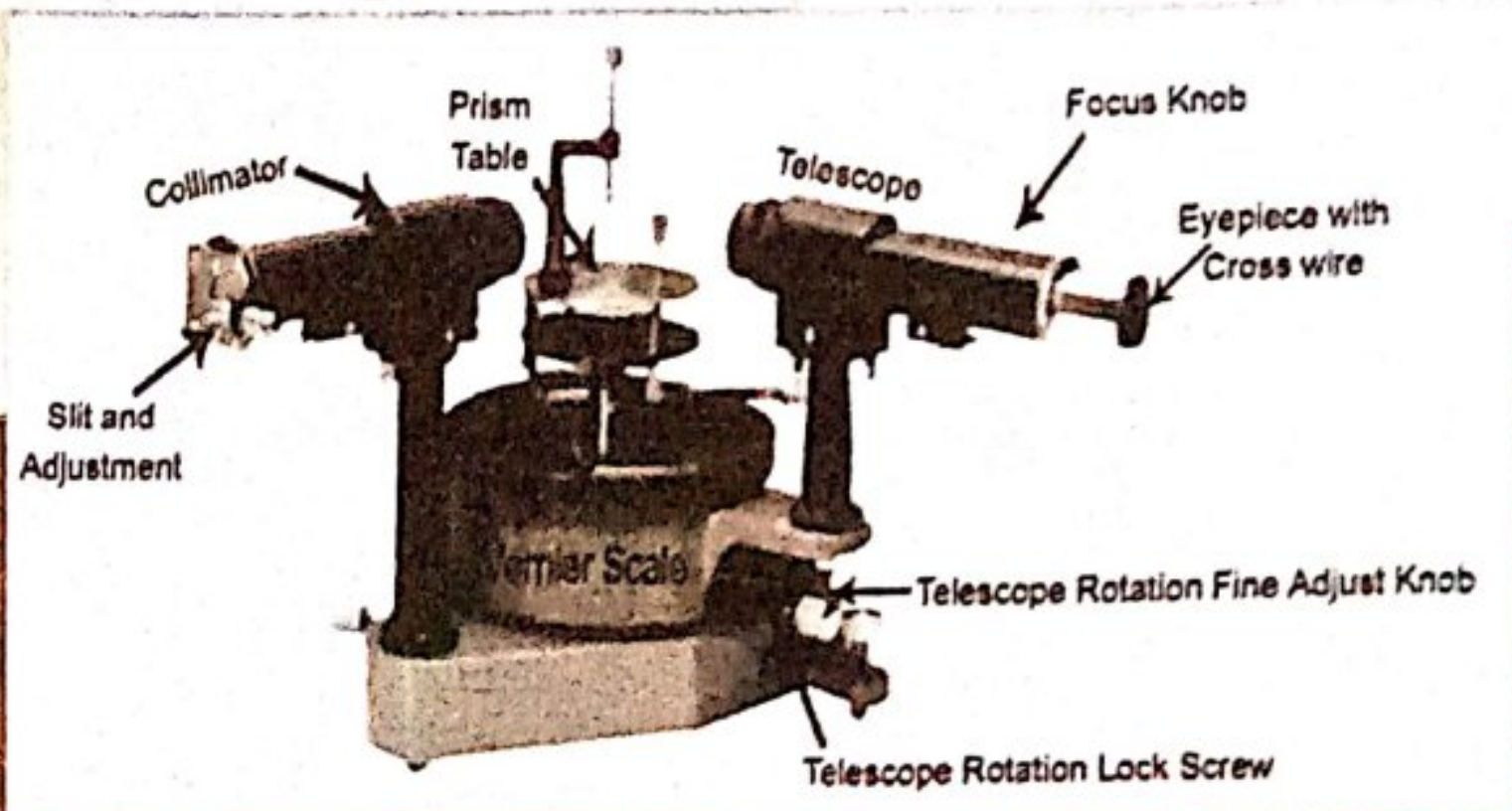
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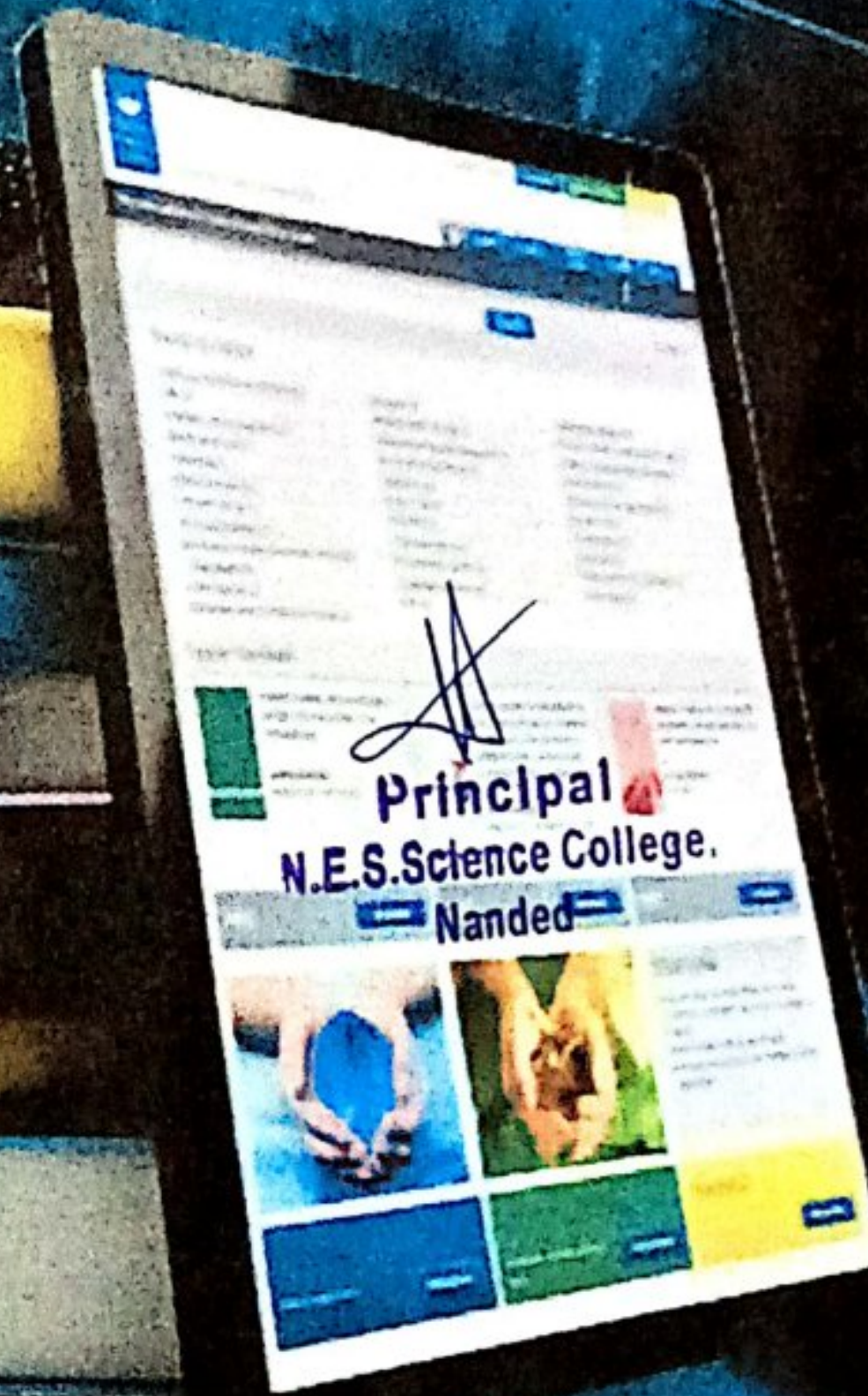
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- Library Computerization: Some Tips for Library Staff
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About the Book

This book deals about status of computerization and use ICT in academic libraries affiliated to SRTM University Nanded. The content of the book is based on the data collected through a survey from the librarians of various college of this university. So the content has a research base and scientific view. The author has also included a separate chapter 'Library Computerization: Some Tips for Library Staff'. Hence this has become one of the feature of the book. After going through the book in detail I feel this is an important document useful for the library staff working in academic libraries and also gives an idea of current status regarding computerization, e-resources, e-services etc. Lastly, I would like to recommend all library staff and professionals of the region to go through this book which will help one to understand the position of library and take future steps accordingly.



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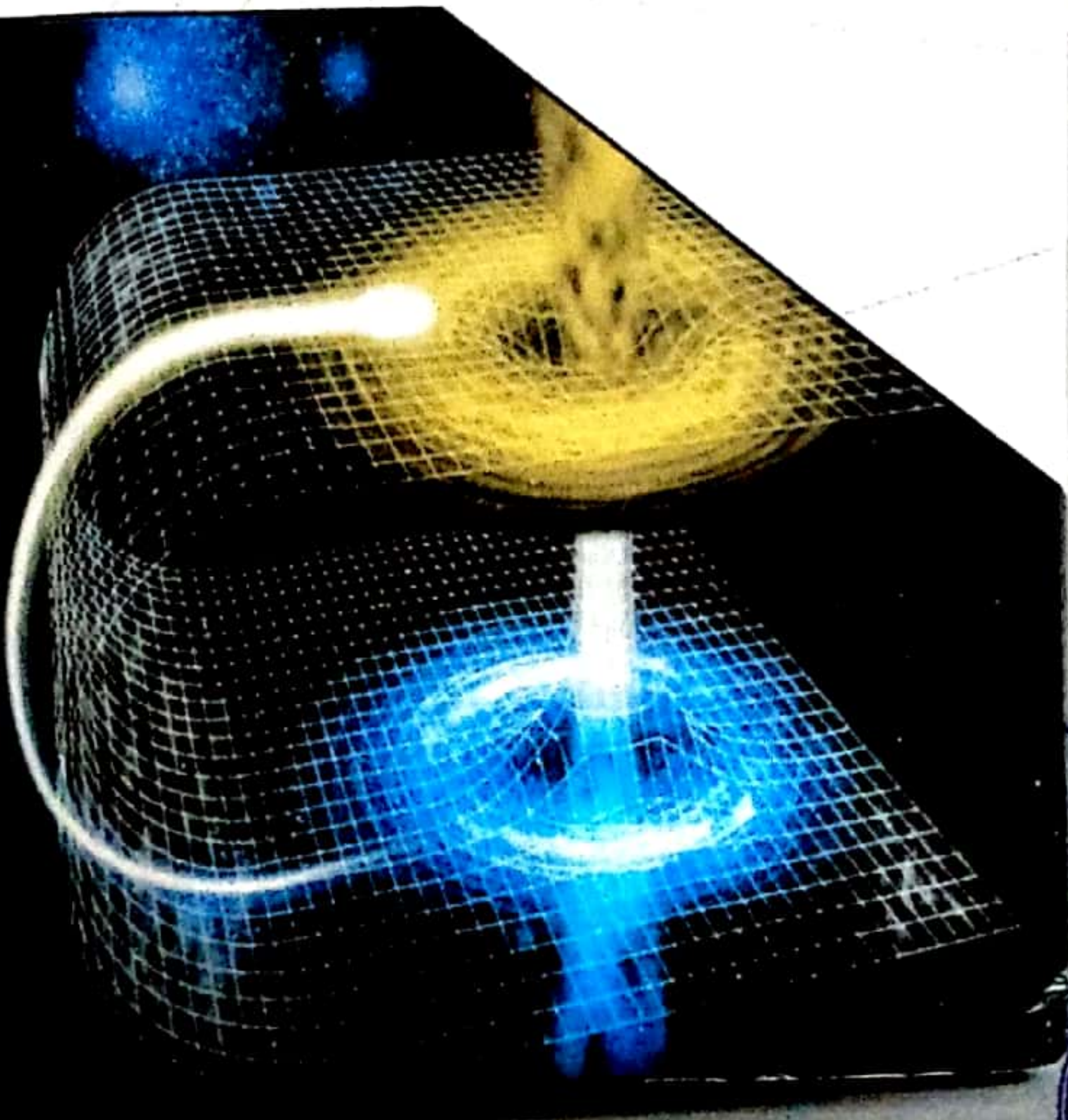
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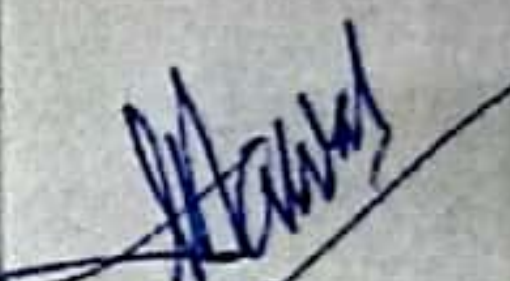
LECTURE NOTES

IN

FUNCTIONAL ANALYSIS

Mrs. Varsha D. Borgaonkar
Dr. Satish G. Khavale




Principal
N.E.S. Science College,
Nanded



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Lecture Notes in Functional Analysis

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Studies on Fixed Point Theorems for the Families of Selfmaps on Rings

D. Borgaonkar Varsha ^{n*}

DOI: 10.9734/bpi/nrames/v5/16096D

Abstract

The families of self-maps $\{f_i : R \rightarrow R : i \in N\}$ on a Ring $(R, +, \cdot)$, for each x in R are under consideration. We will prove fixed point theorems for these mappings in this work. We'll show that the collection of fixed points for these mappings forms a ring, an Ideal, and a variety of Algebraic structures.

Keywords: Fixed point; ring; field; integral domain; nilpotent element; ideal; nil ideal.

1 Introduction

Herstein I. N. in [1] and J. A. Gallian in [2] developed the theory of groups. J. Achari and Neeraj A. Pande in [3] has defined the self-map $f_i : R \rightarrow R$ on the group $(G, *)$ as, $f_i(x) = x^i, \forall i \in I$ and by finding the fixed points of each f_i he obtained some interesting results of group theory in terms of fixed points of selfmaps.

In this chapter we consider families of self- maps $\{f_i : R \rightarrow R : i \in N\}$ on ring. Also, we will generalize the results for the self-maps f_i defined on ring R . Let F_{f_i} denotes the set of fixed points of f_i . In this chapter, the certain conditions under which the sets F_{f_i} forms different algebraic structures are discussed. Here, we discuss some basic definitions. Some updates in this area are available elsewhere and may find attention of the readers [4-8].

2 Some Basic Definitions

Definition 2.1: A non-empty set G together with a binary operation $*$ is said to be a group if the following conditions are satisfied:

1. **Associativity:** $\forall a, b \in G$ we have $(a * b) * c = a * (b * c)$
2. **Existence of an identity element:** there exists an element $e \in G$ such that $a * e = e * a = a, \forall a \in G$
3. **Existence of inverse element:** for each $a \in G$, there exists an element $a^{-1} \in G$ such that, $a * a^{-1} = a^{-1} * a = e, \forall a \in G$

We usually denote the group G as $(G, *)$.

Definition 2.2: A group G is said to be an abelian group if $a * b = b * a \forall a, b \in G$

Definition 2.3: Let A be any set and $f : A \rightarrow A$ be a self-map defined on A , then an element a in A is said to be fixed point of A if $f(a) = a$.

Definition 2.4: Let $(R, +, \cdot)$ be a commutative ring with unity then an element x in R is said to be unit in R if there exist an element y in R such that, $x \cdot y = y \cdot x = 1$. In short, units in the ring R are the invertible elements of R .

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Some Contractive Type Mappings in b-metric Space

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Abstract

In this paper we prove that, the unique fixed point exists for a mapping satisfying the generalized contractive type conditions in b-metric space. Here the b-metric under consideration need not be continuous function whereas the metric is a continuous function. An example is also given for the verification of the result.

Keywords: b-metric space, completeness in b-metric space, Cauchy sequence, fixed point.

1 Introduction

The Banach contraction Principle is very useful theorem in Mathematics. It is very popular tool in solving existence problems in many branches of Mathematical Analysis [1-3]. Banach fixed point theorem has many applications inside and outside Mathematics [4-9]. In 1989, an interesting concept of generalized b metric space was introduced by Bakhtin [10]. In 1993 Czerwik [11] extended the results of b-metric spaces. Many researchers generalize the Banach fixed point theorem in b-metric space. Czerwik [12] in 1998 presented the generalization of Banach fixed point theorem in b-metric spaces. The existence and uniqueness theorems in b-metric space was presented by Agrawal [13]. Suzuki [14] obtained some basic inequalities in a b-metric space and its applications. Boriceanu [15], Mehmet Kir [16] extended the fixed point theorem in b-metric space. Borkar [17] obtained the common fixed point theorem for non-expansive type mapping.

Chopade [18] given common fixed point theorems for contractive type mapping in metric space. Roshan [19] obtained common fixed point of four mappings in b-metric space.

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Chapter 16: The Concepts of Machine Learning Algorithms

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Introduction:

Machine Learning (ML) has emerged as a transformative technology in the field of artificial intelligence, enabling computers to learn from data and improve their performance on specific tasks without being explicitly programmed. This chapter explores the fundamental concepts of machine learning, delves into various algorithms with accompanying diagrams and equations, and showcases real-world applications with hyperlinks to relevant diagrams.

Fundamental Concepts of Machine Learning:

Types of Machine Learning:

Machine Learning can be broadly categorized into three types:

- a. **Supervised Learning:** In supervised learning, the algorithm is trained on labeled data, where input-output pairs are provided for training. It learns to map inputs to the correct outputs, enabling it to make predictions on unseen data. One of the fundamental algorithms used in supervised learning is Linear Regression.
- b. **Unsupervised Learning:** Unsupervised learning algorithms are trained on unlabeled data, aiming to identify patterns and structures within the data without explicit guidance. Common tasks include clustering and dimensionality reduction. A popular unsupervised learning algorithm is K-Means Clustering.
- c. **Reinforcement Learning:** Reinforcement learning involves an agent learning to interact with an environment to achieve specific goals. It receives feedback in the form of rewards or penalties, optimizing its actions to maximize rewards over time. Reinforcement learning algorithms have seen significant applications in robotics and gaming.

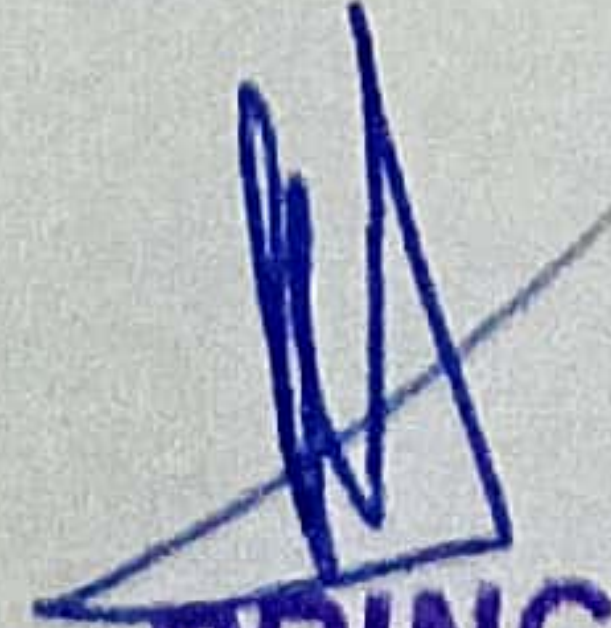
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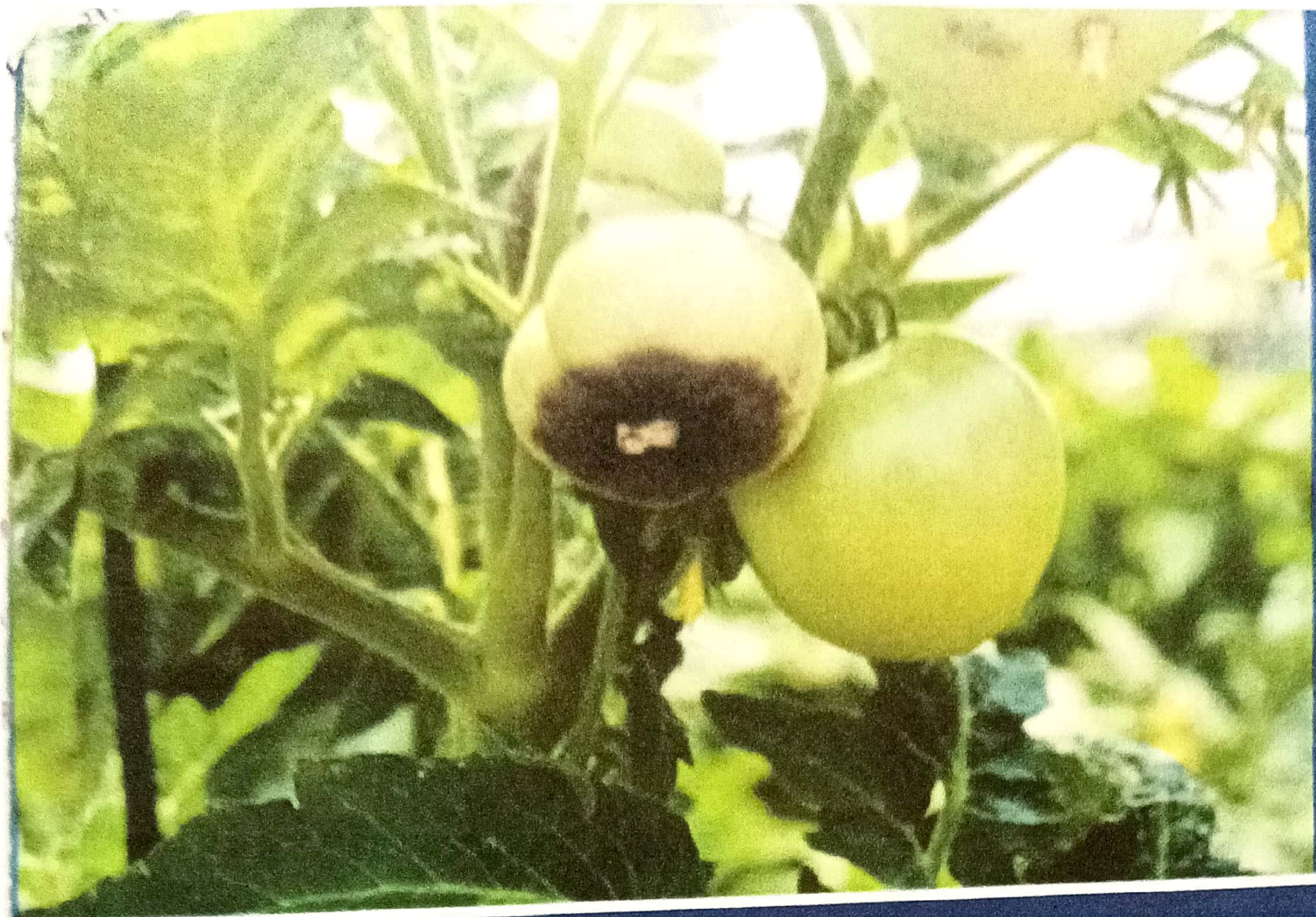
Feature engineering is a crucial step in ML, where relevant features are selected or engineered from raw data to improve model performance. It involves transforming and selecting the most informative features to represent the data effectively. Techniques like Principal Component

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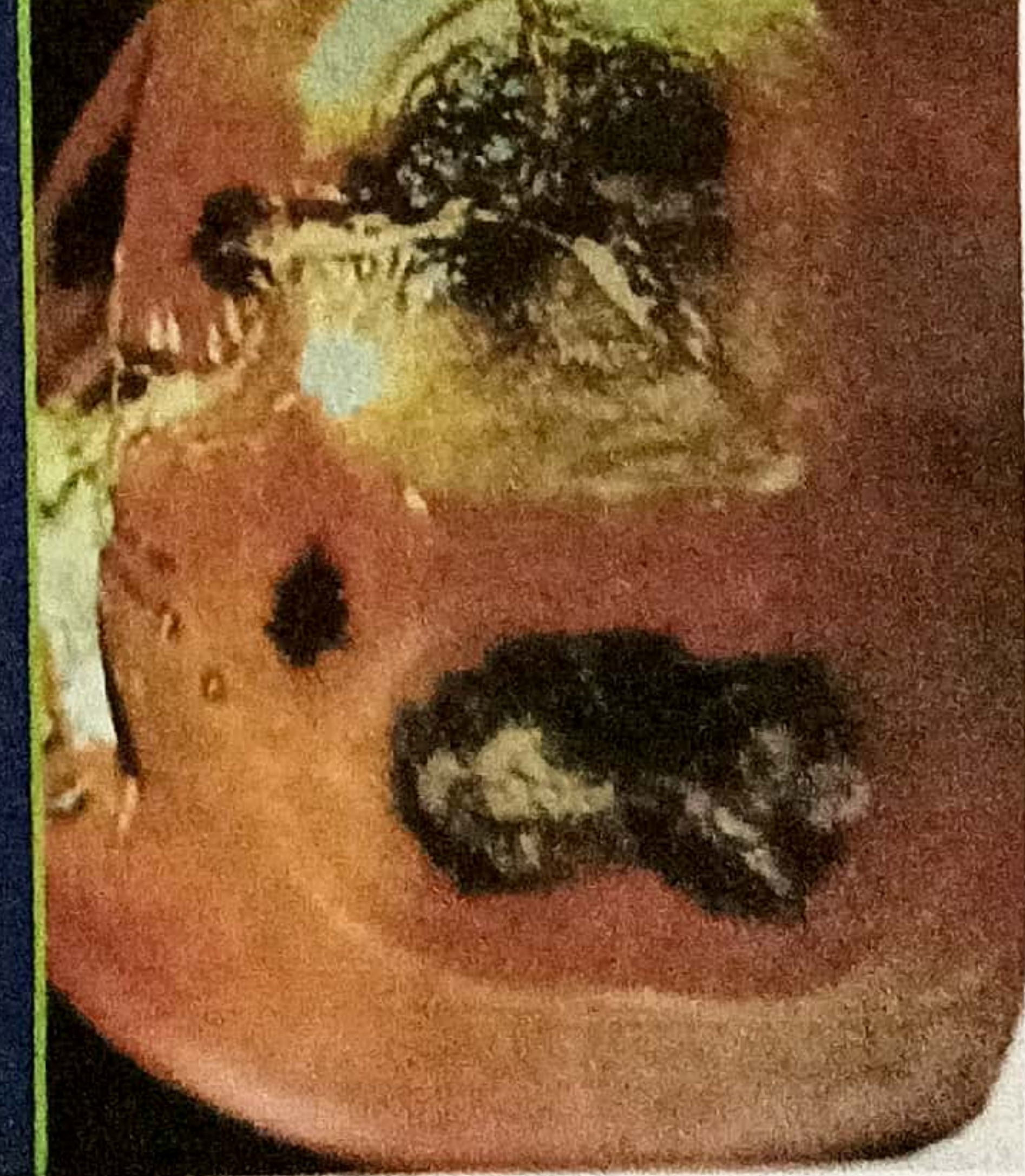
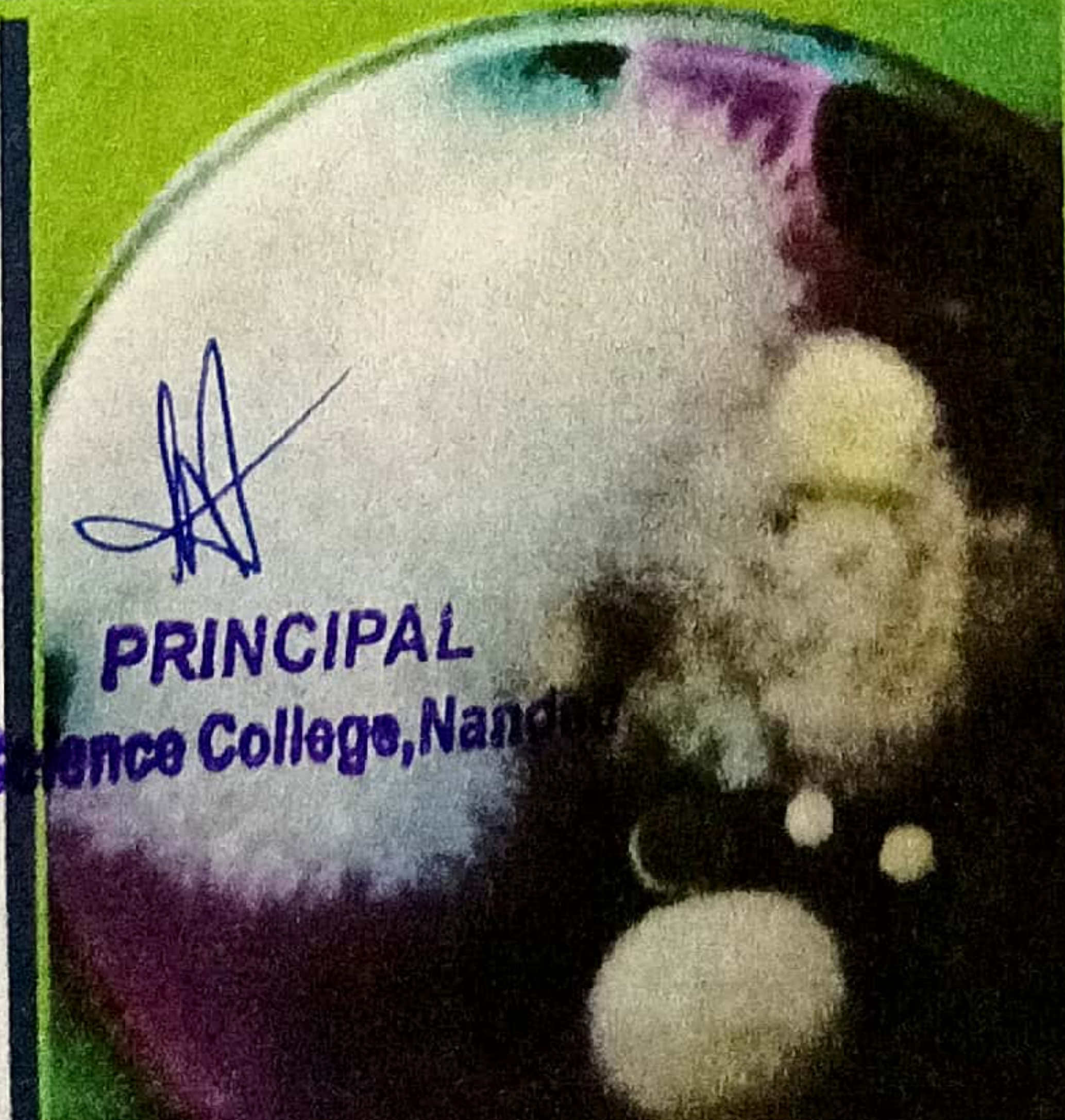
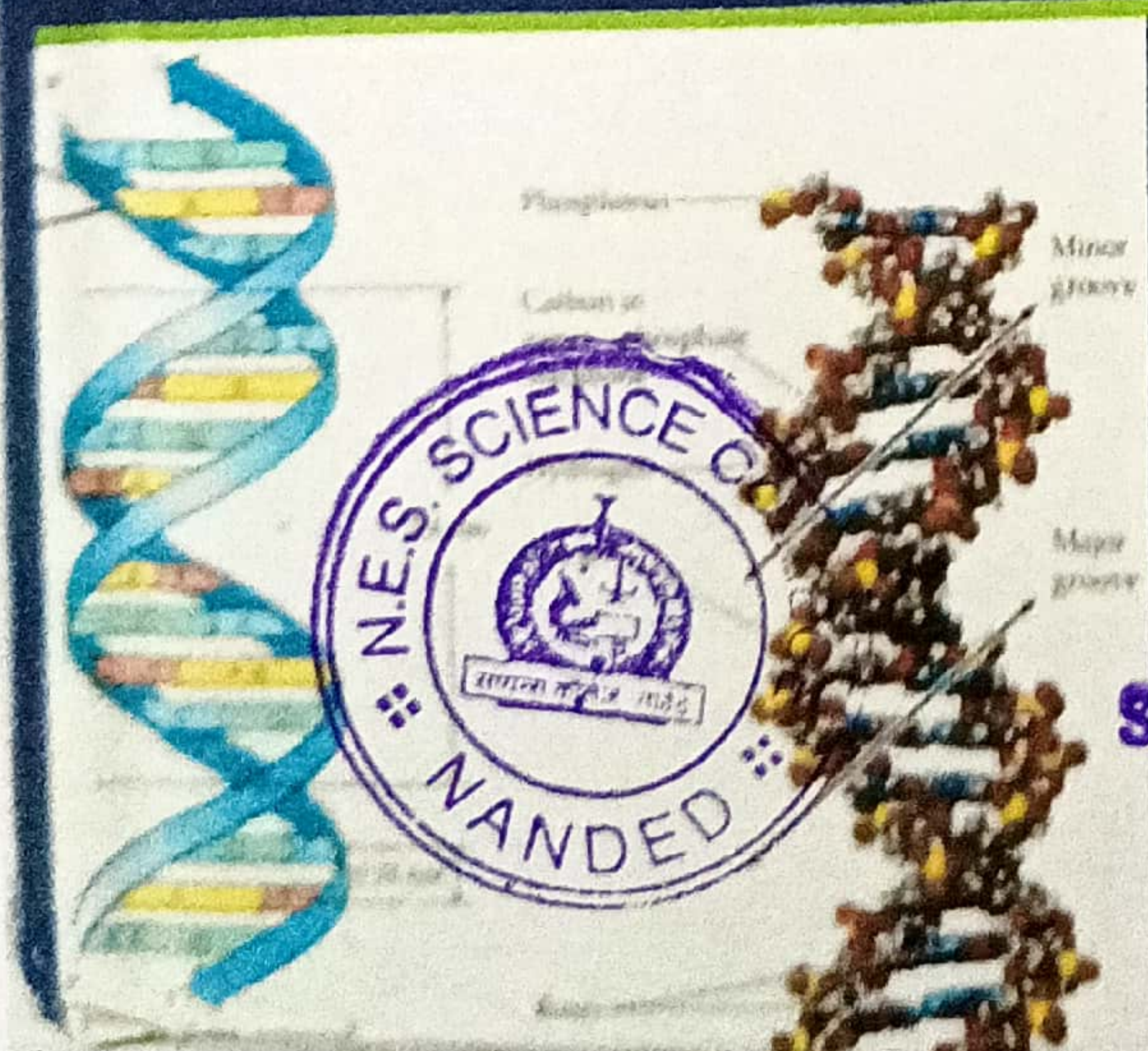



PRINCIPAL
Science College, Nanded



PHYSIOLOGICAL AND MOLECULAR PLANT PATHOLOGY

Dr D.U. Gawai



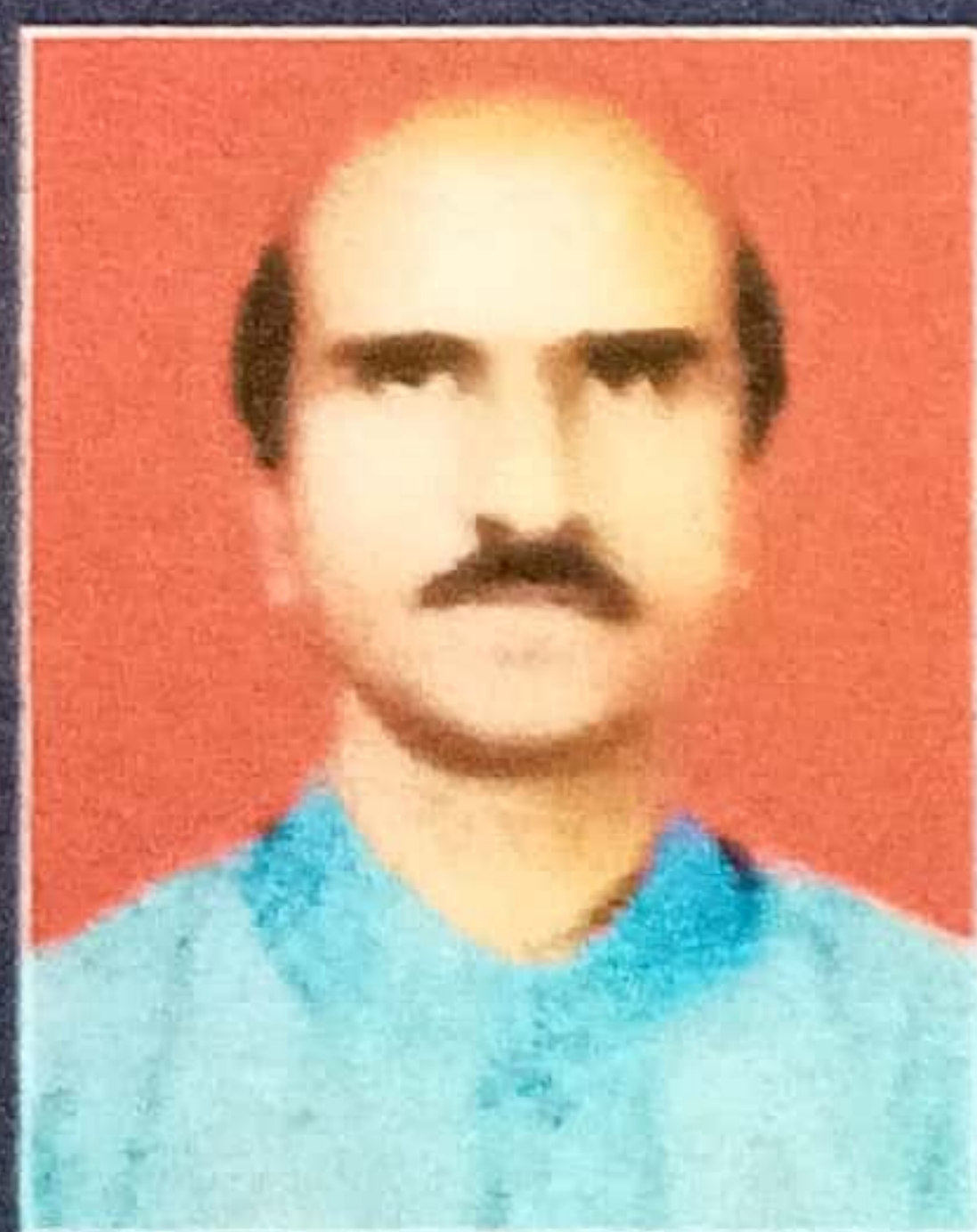
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PHYSIOLOGICAL AND MOLECULAR PLANT PATHOLOGY

Plant pathology embraces all aspects of biological and scientific activity which are concerned with understanding the complex phenomena of diseases in plants. Physiological plant pathology represents those specialities within plant pathology which focus on the physiological and biochemical activities of pathogens and on the response of host plant tissues. Today there is an increasing recognition on the part of the scientific agricultural community that only through a deeper and more fundamental understanding of all the interacting components of the agricultural biota can we expect to improve our capabilities of feeding an expanding world population. It is in this context that physiological plant pathology has assumed new significance within the broader field of plant pathology. No longer are studies on the biochemistry and physiology of pathogens and pathogenesis merely isolated academic exercises; rather, a substantial coherent body of knowledge is accumulating upon which our understanding of the process of disease development and host resistance is being founded. It is from these foundations of knowledge that ultimately new insights into the control of plant diseases may be expected to grow. It seems appropriate, therefore, that at regular intervals those involved in the various subspecialities encompassing the broadest aspects of physiological plant pathology reassess the contributions within the particular specialities in the light of new knowledge and technologies for the purpose of articulating new and productive directions for the future.

Contents: History of Physiological and Molecular Plant Pathology • Physiological and Molecular Changes in Diseased Plants • Host-pathogen Interactions • Defence Mechanism in Plants • Genetics of Pathogenesis • Biotechnological Approaches in Plant Pathology • Molecular Plant Pathology • Physiological and Molecular Basis of Plant Disease Control

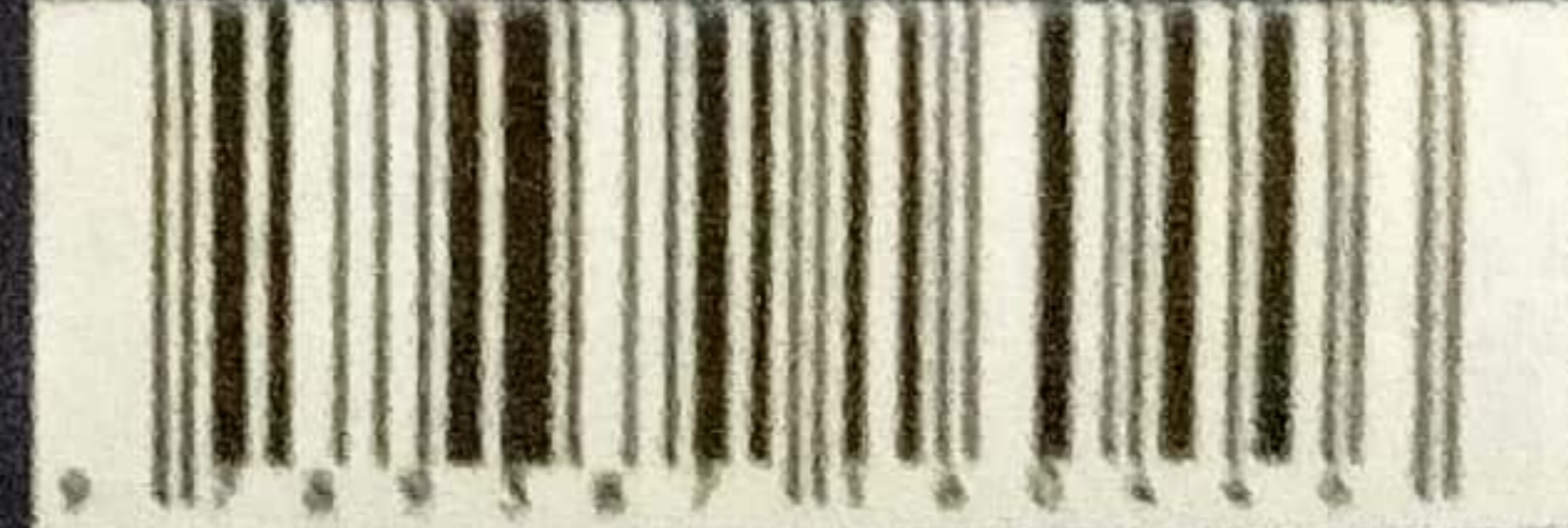


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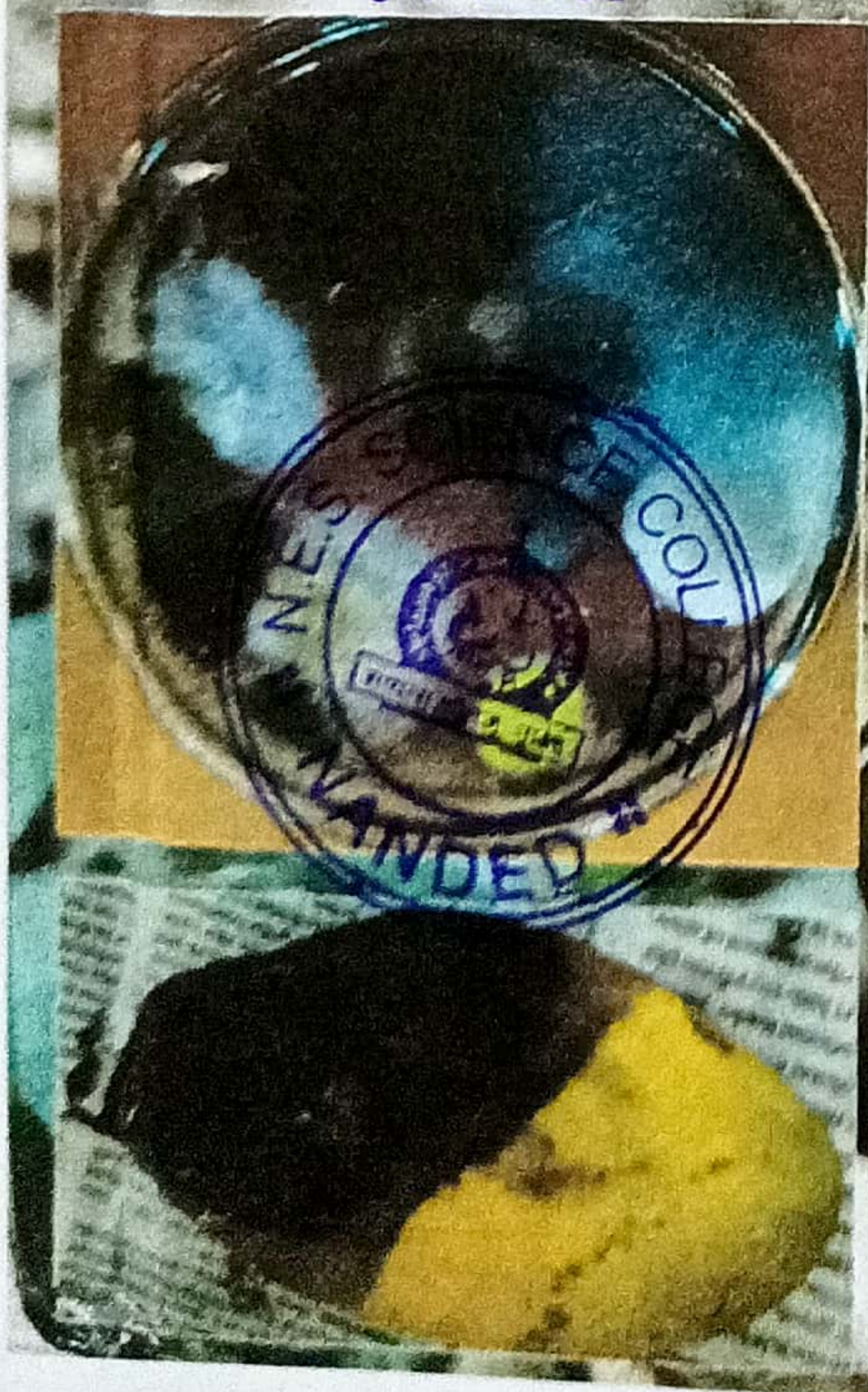


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DISEASES OF CROP PLANTS

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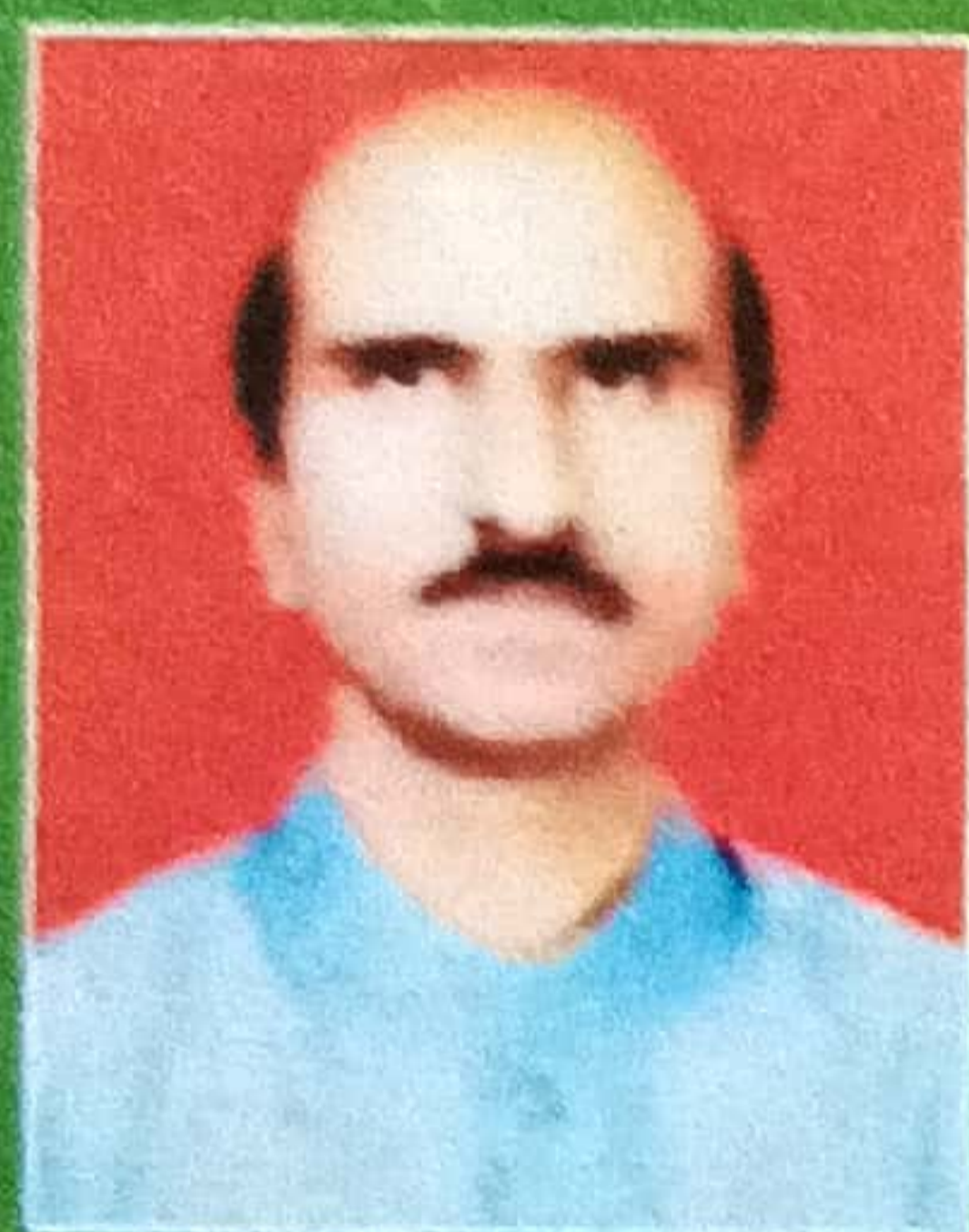
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DISEASES OF CROP PLANTS

Plants are a big and essential part of our life for so many reasons. One of the reasons are plants produce Oxygen which is needed for respiration. Another reason is plants have an unique quality of producing food through photosynthesis, for which we, humans and animals are dependant on plants for consumption. Besides our economy is also dependant on plants as various chemicals and products such as paper, fibres, rubbers etc are produced from plants. Plants also provide us with shelter and medicine. Plants play a vital role in maintaining our environment too. They prevent soil erosion, reduce heat by pulling Carbon dioxide off from atmosphere and regulate water cycle. So essentiality of plants for our survival cannot be denied. A disease may affect whole or parts of the plant body. The visible effects of disease such as discoloration, change in shape, reduced yield etc are called Symptoms. Different diseases show different symptoms depending on which a disease can be identified. This new comprehensive book will introduce the students to the basic and applied aspects of plant pathology and to the major diseases of crops and fruit trees.

Contents: Development of Plant Pathology • Symptoms of Plant Diseases
• Classification of Plant Diseases • Crop Plant Diseases



Dr D.U. Gawai, is Professor in Botany Post Graduate Department of Botany Science College Nanded. Presently he is working as Principal of this college. He obtained his M.Sc. Botany degree with specialization in Plant Pathology from Dr Babasaheb Ambedkar Marathwada University Aurangabad and Ph.D. Botany degree from Swami Ramanand Teerth University Nanded. He is engaged teaching, Research and extension activities. He has 27 years of teaching experience at undergraduate and post graduate level. He has published 53 research papers in national and international journals of repute. He is research guide in Botany and Biotechnology 05 students awarded Ph.D and 08 students working under his able guidance. His field of research area is Mycology, Plant Pathology and Fungal biotechnology. He has participated in more than 85 conferences/seminars and workshops. He is life member of several professional bodies including Indian Phytopathology, Seed research, Indian Botanical Society, Mycology and Plant Pathology, Microbiological Society of India etc. He has completed 07 research projects as Principle investigator and Co-investigator. He has organized National conferences and workshops. He is referee for Assessment of Ph.D. thesis of various Universities. He is working on various committees of University. He was a member of Board of Study in Botany and Presently he is Academic council member of SRTM University Nanded.

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