

# SCIENCE AND TECHNOLOGY FOR SUSTAINABLE FUTURE

SCIENCE AND TECHNOLOGY FOR SUSTAINABLE FUTURE



Kripa Drishti Publications, Pune.

# **SCIENCE AND TECHNOLOGY FOR SUSTAINABLE FUTURE**



**KRIPA DRISHTI PUBLICATIONS**

**PUNE, INDIA**

.

**Book Title: Science and Technology for Sustainable Future**

**Edited By: Prof. Hilloljyoti Singha, Dr. Biswajit Nath,  
Dr. Gautam Chandra Ray, Dr. Mamoni Dhar,  
Prof. Devendra Mohan, Dr. Mehdi Al Kausor,  
Dr. Femina Brahma, Dr. Sudeep Dey,  
Dr. Jwngma Narzary, Dr. Jahnovi Brahma,  
Dr. Kanchan Kanti Brahma, Dr. Anuradha Singha,  
Mr. Babla Chandra Ghosh**

**Price: ₹699**

**ISBN: 978-93-48091-58-1**



**Published: Feb 2025**

**Publisher:**



**Kripa-Drishti Publications**

A/ 503, Poorva Height, SNO 148/1A/1/1A,

Sus Road, Pashan- 411021, Pune, Maharashtra, India.

Mob: +91-8007068686

Email: [editor@kdpublications.in](mailto:editor@kdpublications.in)

Web: <https://www.kdpublications.in>

© **Copyright Editorial board**

All Rights Reserved. No part of this publication can be stored in any retrieval system or reproduced in any form or by any means without the prior written permission of the publisher. Any person who does any unauthorized act in relation to this publication may be liable to criminal prosecution and civil claims for damages. [The responsibility for the facts stated, conclusions reached, etc., is entirely that of the author. The publisher is not responsible for them, whatsoever.]

## PREFACE

It is with immense satisfaction and pride, I present this edited volume, which brings together a diverse collection of research contributions aimed at advancing Science and Technology for Sustainable Development. The chapters in this book exemplify the interdisciplinary spirit and innovative thinking essential for addressing the challenges of sustainability in the modern era.

This book is organized into twenty-six chapters in five sections - Physical Sciences, Mathematical Sciences, Life Sciences, Health Sciences, and Humanities - each offering unique perspectives on critical aspects of science and technology in the context of sustainability. The topics span a wide array of subjects, from groundbreaking material innovations and computational studies to ecological conservation, genetic diversity, and bibliometric analyses. This multidisciplinary approach highlights the interconnectedness of scientific endeavours and their significance in solving global challenges.

In addition to providing insights into cutting-edge research, this volume underscores the importance of regional studies, such as the exploration of genetic diversity in rice beans and ecological assessments in Northeast India. These contributions emphasize the dual role of science in driving technological progress while fostering environmental and societal well-being.

I extend my heartfelt gratitude to all the contributors, reviewers, and the editorial team for their dedication and collaborative effort in making this book a reality. I hope that the knowledge and ideas presented in these chapters will serve as a source of inspiration, sparking further exploration, innovation, and collaboration in the pursuit of sustainable development.

*Dr. R. N. Sinha*

## EDITORIAL

The scientific community continues to prioritize sustainable science and technology as key drivers for shaping a healthier and more resilient future for global society. In response to the pressing challenges of the modern era, this edited volume, titled “Science and Technology for Sustainable Future,” presents a carefully curated collection of the latest research and advancements in this vital field.

The book embraces an interdisciplinary approach, highlighting the interconnectedness of diverse fields. It spans a wide range of topics, including physical sciences, biological sciences, mathematical sciences, health sciences, social sciences, and humanities. Notably, the inclusion of library and information science emphasizes the pivotal role of knowledge management in fostering sustainable practices and solutions.

As editors of this book, we have sought to bring together findings, reports, and insights that serve as a comprehensive guide for those exploring sustainability-focused science and technology. This volume reflects the depth and breadth of contemporary advancements, offering valuable perspectives for researchers and practitioners alike.

This compilation of 26 research articles showcases the innovative ideas and groundbreaking contributions of authors from across the country. Each chapter enriches ongoing scientific discourse and proposes meaningful pathways toward achieving a sustainable and equitable future.

Section I: Physical Sciences delves into advancements in materials science, environmental technologies, and computational investigations. Highlights include the modelling of steam power plants coupled with water-LiBr absorption refrigeration systems for energy efficiency and cooling, the use of X-ray absorption spectroscopy to evaluate interstellar medium composition, and the synthesis of lanthanum-doped  $\text{BiFeO}_3\text{-BaTiO}_3$  for dielectric and leakage property enhancement. Additionally, the section explores the nutritional value of small indigenous food fish, computational studies on Aminobutyric Acids interactions with  $\text{Mg}^{2+}$ , and innovative methods for phenol removal from wastewater using crushed brick powder.

Section II: This section focuses on theoretical and applied mathematical frameworks. Highlights include the study of neutrosophic  $i$ -open sets, metric spaces, and graph-theoretic approaches in modular metric spaces, demonstrating their utility in solving complex problems.

Section III: Life Sciences explores the biological and ecological dimensions of sustainability. It features studies on genetic diversity in rice beans, vegetable

cultivation in West Bengal, and the biochemical properties of indigenous medicinal plants. Notable contributions include an investigation into the larvicidal efficacy of ornamental fishes, a checklist of amphibian fauna in Chakrashila Wildlife Sanctuary, and an analysis of the length-weight relationship of freshwater fishes. This section underscores the intersection of biodiversity conservation, sustainable agricultural practices, and ecological health.

Section IV: This section bridges health and sustainability, featuring studies on physiotherapy's role in well-being and a detailed analysis of shoulder rotation in junior badminton players, offering insights into sustainable health practices.

Section V: Humanities underscores the importance of knowledge management and bibliometric analyses. These chapters explore research trends, scholarly outputs, and simplified approaches for managing bibliographic data, emphasizing the evolving landscape of academic research.

We, the editors, express our deepest gratitude to all the contributors for their unwavering commitment to advancing science and technology in the service of global sustainability. We believe this volume will inspire researchers, educators, policymakers, and engaged citizens to embrace the transformative potential of science and technology in building a sustainable future.







*Editors*

## EDITORIAL BOARD MEMBERS

---

<b>Chief Editor:</b>	<b>Prof. Hilloljyoti Singha</b> , M.Sc., Ph.D. Designation: Professor Department: Zoology. Affiliation: Bodoland University, Kokrajhar Research area: Wildlife Ecology and Biodiversity Conservation	
	<b>Dr. Biswajit Nath</b> , M.Sc., M.Phil., Ph.D. Designation: Associate Professor Department: Chemistry Affiliation: Science College, Kokrajhar Research area: Catalysis, Biodiesel, Chemical Graph Theory,	
	<b>Dr. Gautam Ch. Ray</b> , M.Sc., M.Phil., Ph.D. Designation: Assistant Professor (Sl. Grade) Department: Mathematics Affiliation: Central Institute of Technology, Kokrajhar Research area: Graph Theory, Fuzzy Mathematics	
	<b>Dr. Mamoni Dhar</b> , M.A., M.Phil., Ph.D. Designation: Associate Professor Department: Mathematics Affiliation: Science College, Kokrajhar Research area: Fuzzy sets, Neutrosophic sets	
<b>Associate Editors:</b>	<b>Prof. Devendra Mohan</b> , M.Tech., Ph.D. Designation: Professor Department: Civil Engineering Affiliation: IIT, BHU Research area: Environmental Engineering, Water and Waste Water Treatment, Climate Change, Environmental Ethics	

---

<b>Section Editor:</b>	<p><b>Dr. Mehdi Al Kausor</b>, M.Sc., M.Phil., Ph.D.            Designation: Associate Professor            Department: Chemistry            Affiliation: Science College, Kokrajhar            Research area: Photocatalysis, Adsorption,            Wastewater Treatment, Analytical Chemistry</p>	
(Physical Sciences)	<p><b>Dr. Femina Brahma</b>, M.Sc., M.Phil., Ph.D.            Designation: Assistant Professor (Selection Grade)            Department: Physics            Affiliation: Science College, Kokrajhar            Research area: Experimental condensed matter physics (Perovskite)</p>	
<b>Section Editor:</b>	<p><b>Dr. Sudeep Dey</b>, M.Sc., M.Phil., Ph.D.            Designation: Associate Professor            Department: Mathematics            Affiliation: Science College, Kokrajhar            Research area: Fuzzy Topology, Neutrosophic Sets, Neutrosophic Topology</p>	
(Mathematical Sciences)	<p><b>Dr. Jwngma Narzary</b>, M.Sc., Ph.D.            Designation: Associate Professor            Department: Zoology            Affiliation: Science College, Kokrajhar            Research area: Batrachology, Aquatic Ecology, Ethnobiology</p>	
(Life Sciences)	<p><b>Dr. Jahnovi Brahma</b>, M.Sc., M.Phil., Ph.D.            Designation: Assistant Professor            Department: Botany            Affiliation: Science College, Kokrajhar            Research area: Ecology, Phytochemicals and Nutritional analysis</p>	
<b>Section Editor:</b>	<p><b>Dr. Kanchan Kanti Brahma</b>, M.P.T., M.I.A.P.            Designation: Assistant Professor            Department: Physiotherapy            Affiliation: Science College, Kokrajhar            Research area: Musculoskeletal Disorders</p>	
(Health Sciences)		



---

**Section Editor:**  
(Humanities)

**Dr. Anuradha Singha, M.L.I.Sc., M.Phil.,  
Ph.D.**  
Designation: Librarian (Associate)  
Affiliation: Science College, Kokrajhar  
Research Area: Virtual Reference services,  
Management,



---

**Handling  
Editor**

**Mr. Babla Ch. Ghosh, M.Sc.**  
Designation: Assistant Professor  
Department: Mathematics  
Affiliation: Science College, Kokrajhar  
Research area: Fixed point Theory



## LIST OF REVIEWERS

**Prof. Sanjay Basumatary**

Professor & Head, Department of Chemistry, Bodoland University

**Prof. Devendra Mohan**

Professor, Dept of Civil Engineering, IIT, Banaras Hindu University

**Dr. Prince Kumar Mochahary**

Associate Professor, Department of Physics, Bodoland University

**Dr. Paragmoni Kalita**

Associate Professor & Head, Department of Mechanical Eng., Tezpur University

**Dr. Pranjal Kalita**

Associate Professor, Department of Chemistry, CIT Kokrajhar

**Dr. Manashi Buzarbaruah**

Assistant Professor & Head, Department of Physics, CIT Kokrajhar

**Dr. Vivek Mandal**

Professor, Dept. of Physics, VKB Govt. Girls' College, Dungarpur

**Dr. Dipak Mitra**

Assistant Professor, Department of Mathematical Sciences, Bodoland University

**Dr. Gautam Chandra Ray**

Assistant Professor, Department of Mathematics, CIT Kokrajhar

**Dr. Surajit Kumar Nath**

Assistant Professor, Department of Mathematical Sciences, Bodoland University

**Dr. Bula Choudhury**

Senior Scientist, Bitech Park, IIT Guwahati

**Dr. Rajib Kumar Das**

Librarian, Girls' College, Kokrajhar

**Dr. Kishor Sarma**

Librarian, Dakshin Kamrup Girls' College, Kamrup

**Dr. Anuradha Singha**

Librarian, Science College, Kokrajhar

**Dr. Apurba Jyoti Majumdar**

Librarian, Cotton University, Assam

**Dr. Jahnovi Brahma**

Assistant Professor, Department of Botany, Science College, Kokrajhar

**Dr. Jwngma Narzary**

Associate Professor, Department of Zoology, Science College, Kokrajhar

**Dr. Biswajit Nath**

Associate Professor, Department of Chemistry, Science College, Kokrajhar

**Dr. Mehdi Al Kausor**

Associate Professor, Department of Chemistry, Science College, Kokrajhar

**Dr. Femina Brahma,**

Assistant Professor, Department of Physics, Science College, Kokrajhar

**Dr. Mohesh Gogoi**

Associate Professor, Department of Botany, Science College, Kokrajhar

**Dr. Kanchan Kanti Brahma**

Asst. Professor & Head, Dept. of Physiotherapy, Science College, Kokrajhar

# CONTENT

<b>SECTION-I: PHYSICAL SCIENCES</b> .....	<b>1</b>
<b>Chapter-1: Modeling of Combined Steam Power Plant and Water-LiBr Absorption Refrigeration Systems for Both Electric Power and Cooling - Kamaljyoti Talukdar</b> .....	<b>2</b>
1.1 Introduction: .....	2
1.2 System Layout:.....	3
1.3 Modeling of Combined Steam Power Plant and Absorption Refrigeration Plant: .....	6
1.4 Results And Discussions: .....	8
1.5 Conclusions: .....	11
1.6 References: .....	12
<b>Chapter-2. X-Ray Absorption Spectroscopy of NSSXT and Its Role in The Evaluation of ISM Composition Using XMM-Newton Data - Rabindra Mahato, Monmoyuri Baruah</b> .....	<b>14</b>
2.1 Introduction: .....	14
2.2 Probable Sources of Origin of Absorption Features: .....	15
2.2.1 Absorption Line Due to an Instrumental Effect: .....	16
2.2.2 Absorption Line Associated with The Source:.....	16
2.2.3 Absorption Line Associated with X-Ray Dipping Sources: .....	17
2.2.4 Absorption Line Associated with Ism: .....	19
2.3 Conclusion:.....	21
2.4 Acknowledgment: .....	22
2.5 Reference:.....	22
<b>Chapter-3. Dielectric and Leakage Property Investigation in Lanthanum Doped BiFeO<sub>3</sub>-BaTiO<sub>3</sub> - Femina Brahma, S. Bhattacharjee, Santanu Sen, R. L. Hota, B. N. Parida</b> .....	<b>26</b>
3.1 Introduction: .....	26
3.2 Sample Preparation By The Solid Solution Synthesis Method:.....	27
3.3 Results and Discussions: .....	27
3.3.1 Structure and Microstructure Study: .....	27
3.3.2 Frequency Dependent Dielectric Properties:.....	28
3.3.3 Complex Impedance and Modulus Studies: .....	29
3.3.4 Leakage Property Studies:.....	30
3.4 Conclusion:.....	31
3.5 References: .....	31

**Chapter-4. Influence of Ag Doping on Crystal Structure and Dielectric Properties of ZnO Compound - Bikash Dey..... 33**

4.1 Introduction: ..... 33  
4.1 Experimental Techniques: ..... 34  
4.2 Results and Discussion: ..... 34  
    4.2.1 Structure and Phase Analysis: ..... 34  
    4.2.2 Dielectric Analysis: ..... 37  
    4.2.3 Dielectric Constant: ..... 37  
    4.2.4 Dielectric Loss: ..... 38  
    4.2.5 Impedance Spectroscopy: ..... 38  
4.2.6 AC Conductivity: ..... 40  
4.3 Conclusion: ..... 40  
4.4 References: ..... 41

**Chapter-5. Some Trace Toxins in Environment: Sources, Health Effects and Treatment Technologies - Devendra Mohan, Rohit Kushwaha, Sonam Tiwari.. 42**

5.1 Introduction: ..... 42  
5.2 Sources: ..... 43  
5.3 Environmental Health Impacts: ..... 45  
5.4 Treatment Technologies: ..... 48  
5.5 Concluding Remarks: ..... 53  
5.6 References: ..... 54

**Chapter-6. Nutritional Status of Small Indigenous Food Fish in Terms of Their Proximate Composition, Amino Acid, Fatty Acid, Vitamin and Mineral Contents - Sharmistha Chakraborty..... 58**

6.1 Introduction: ..... 58  
6.2 Methodology: ..... 60  
    6.2.1 Biochemical Analysis: ..... 60  
6.3 Results and Discussion: ..... 60  
    6.3.1 Proximate Composition: ..... 60  
    6.3.2 Amino Acid Profile: ..... 62  
    6.3.3 Fatty Acid Profile: ..... 65  
    6.3.4 Mineral & Vitamin Profile: ..... 68  
6.4 Conclusion: ..... 69  
6.5 References: ..... 69

**Chapter-7. Understanding the Interactions of  $\alpha$ -,  $\beta$ - and  $\gamma$ -Aminobutyric Acids with  $Mg^{+2}$  Through Computational Investigations - Satyajit Barman, Shilpi Mandal Das, Mwikwm Basumatary Phulung Basumatary, Gunajyoti Das. 72**

7.1 Introduction: ..... 72  
7.2 Computational Methodologies: ..... 74

7.3 Results and Discussion:.....	75
7.3.1 Stability and Structural Features: .....	76
7.3.2 Intramolecular H-Bond Interactions:.....	78
7.3.3 Predicted Harmonic Frequencies: .....	79
7.4 Conclusions: .....	80
7.5 References: .....	80

**Chapter-8. Adsorptive Removal of Phenol from Wastewater by Crushed Brick Powder: Influence of System Parameters - Pradyumna Ghosal, Sujata Brahma, Mehdi Al Kausor ..... 83**

8.1 Introduction: .....	84
8.2 Experimental Section: .....	87
8.3 Adsorption Study:.....	88
8.4 Result and Discussion: .....	90
8.4.1 Influence of Catalyst Load on Adsorption of Phenol:.....	90
8.4.2 Influence of Initial Concentration on Adsorption of Phenol:.....	91
8.4.3 Adsorption Kinetics:.....	93
8.5 Conclusion:.....	96
8.6 References: .....	96

**SECTION-II: MATHEMATICAL SCIENCES ..... 98**

**Chapter-9. On Neutrosophic  $i$ -Open Set - Sudeep Dey, Gautam Chandra Ray, Babla Chandra Ghosh..... 99**

9.1 Introduction: .....	99
9.2 Preliminaries: .....	100
9.3 Main Results: .....	102
9.4 Conclusion:.....	106
9.5 References: .....	107

**Chapter-10. Metric Spaces: A Brief Introduction - Sanjay Kumar Thakur, Priyanka Paul, Gautam Chandra Ray, Pinkimani Goswami ..... 109**

10.1 Introduction: .....	109
10.1.1 Origin of Metric Spaces: .....	109
10.1.2 Metric Spaces: .....	110
10.1.3 Notion of Metric Space: .....	111
10.1.4 Examples of Metric Space: .....	113
10.2 Application of Metric Spaces:.....	115
10.2.1 Navigation of Flights (Singh and Aggarwal, 2016): .....	115
10.2.2 Information Theory: .....	117
10.3 Conclusion:.....	119
10.4 References: .....	119

<b>Chapter-11. Dislocated-Quasi-Modular Metric Space Endowed with Graph and Some Fixed-Point Results Under Quasi-Weak Contraction -</b> <i>Babla Chandra Ghosh</i> .....	<b>120</b>
11.1 Introduction: .....	120
11.2 Preliminaries: .....	121
11.3 Main Result: .....	123
11.4 Fixed Point Theorem Endowed with Graph Theory: .....	133
11.5 References: .....	135
<b>SECTION-III: LIFE SCIENCES</b> .....	<b>137</b>
<b>Chapter-12. Genetic Diversity Assessment in Rice Bean (<i>Vigna umbellate</i>) (Thumb.) Ohwi &amp; Ohashi of Northeast, India -</b> <i>Trisha Sonowal, N. Sathyanarayana</i> .....	<b>138</b>
12.1 Introduction: .....	138
12.2 Material and Methods: .....	139
12.3 Results: .....	140
12.4 Discussion: .....	144
12.5 Conclusion:.....	146
12.6 References: .....	146
<b>Chapter-13. Prospects and Problems of Vegetable Cultivation in Murshidabad District, West Bengal, India -</b> <i>Jyotirekha Chakravarty, Adani Lokho</i> .....	<b>149</b>
13.1 Introduction: .....	149
13.2 Materials and Methods: .....	150
13.3 Results and Observation:.....	154
13.4 Discussion: .....	158
13.5 Conclusion:.....	159
13.6 Acknowledgements: .....	160
13.7 References: .....	160
<b>Chapter-14. Burden of Glucose-6-Phosphate Dehydrogenase Deficiency- A Lesser-Known Asymptomatic Genetic Disorder: A Pilot Study from Bodoland Territorial Region (BTR), Assam -</b> <i>Noymi Basumatary, Dipankar Baruah, Paresh Kumar Sarma, Jatin Sarmah</i> .....	<b>162</b>
14.1 Introduction: .....	163
14.2 Materials and Method: .....	164
14.3 Results: .....	164
14.4 Discussion: .....	165
14.5 Conclusion:.....	166
14.6 Acknowledgement:.....	167
14.6 References: .....	167

**Chapter-15. Phytochemical Analysis, Antioxidant Activity and Trace Element Analysis of *Phlogacanthus thyriformis* Nees - Manita Daimari, Ananta Swargiary..... 170**

15.1 Introduction: .....	170
15.2 Materials and Methods: .....	171
15.2.1 Collection and Identification of Plant: .....	171
15.2.2 Quantitative Phytochemical Analysis: .....	171
15.2.3 Antioxidant study: .....	172
15.2.4 Trace element analysis: .....	173
15.2.5 GC-MS analysis: .....	173
15.2.6 Statistical Analysis: .....	173
15.3 Results and Discussion: .....	174
15.4 Conclusion:.....	178
15.5 Acknowledgement:.....	179
15.6 References: .....	179

**Chapter-16. Phytochemical Analysis of Food Plants Adopted by Rearers for Ericulture in Kokrajhar District, BTR, Assam - Dulur Brahma, Rajib Ratan Kashyap..... 182**

16.1 Introduction: .....	182
16.2 Materials and Methods: .....	183
16.3 Results and Discussion:.....	184
16.4 Conclusion:.....	189
16.5 Acknowledgement:.....	189
16.5 References: .....	189

**Chapter-17. Investigation on Larvicidal Efficacy of Two Native Indigenous Ornamental Fishes Under Laboratory Condition - Bandita Talukdar, Mallika Gogoi, Anandita Buragohain, Gargee Kashyap..... 192**

17.1 Introduction: .....	192
17.2 Material and Method: .....	193
17.3 References: .....	194

**Chapter-18. Checklist of Amphibian Fauna of the Chakrashila Wildlife Sanctuary of Kokrajhar District, Assam, India - Kundan Rabi Das, Jwngma Narzary..... 196**

18.1 Introduction: .....	196
18.2 Materials & Methods:.....	197
18.2.1 Study Area:.....	197
18.2.2 Collection & Identification:.....	197
18.3 Result & Discussion: .....	197
18.4 References: .....	199



**Chapter-19. Length-Weight Relationship and Relative Condition Factor of *Ompok pabda* (Hamilton, 1822) And *Barilius barila* (Hamilton, 1822) Collected from Hel River, Kokrajhar, Assam, India - Fariha Jabeen, Subungsha Basumatary ..... 201**

19.1 Introduction: ..... 201  
19.2 Materials and Methods: ..... 203  
    19.2.1 Length Weight Relationship (LWR): ..... 203  
    19.2.2 Relative Condition Factor (Kn): ..... 204  
    19.2.3 Data Analysis: ..... 204  
19.3 Result:..... 204  
19.4 Conclusion:..... 207  
19.5 Acknowledgements: ..... 207  
19.6 References: ..... 207

**Chapter-20. Quantitative Biochemical Analysis of Protein and Carbohydrate of *Litsea salicifolia*, *Centella asiatica*, *Ocimum sanctum* and *Azadirachta indica* - Sukanya Chakrabarty, Shashi Prabha Rabha ..... 209**

20.1 Introduction: ..... 209  
20.2 Materials and Methods: ..... 210  
    20.2.1 Collection and Preparation of Plant Samples: ..... 210  
    20.2.2 Protein Analysis (Kjeldahl method, 1883): ..... 210  
    20.2.3 Carbohydrate Analysis (Anthrone method, 1952): ..... 211  
20.3 Result and Discussion: ..... 211  
20.4 Conclusion:..... 212  
20.5 References: ..... 212

**SECTION-IV: HEALTH SCIENCES..... 214**

**Chapter-21. Sustainable Wellbeing and Its Correlation to Physiotherapy - Mantu Paul ..... 215**

21.1 Introduction: ..... 215  
21.2 Objective and Discussion: ..... 216  
21.3 Conclusion:..... 218  
21.4 Reference:..... 218

**SECTION-V: HUMANITIES ..... 220**

**Chapter-22. Bibliometric Study: Its Relevance and Approaches to Analyse Publications in Sciences - Maya Moyee Narzary ..... 221**

22.1 Introduction: ..... 221  
22.2 Purpose of the Paper:..... 223  
22.3 Significance of the Study: ..... 223

22.4 Review of Literature:.....	223
22.5 Methodology/Material Used: .....	224
22.6 Need /Significance of Bibliometric Study: .....	224
22.7 Bibliometric Approaches/Indicators: .....	225
22.8 Bibliometric Tools and Software: .....	227
22.9 Article-Level Metrics: .....	229
22.10 Scopus verses Web of Science verses Google Scholar: .....	231
22.11 Scopus Verses Web of Science: .....	231
22.12 Flowchart of Bibliometric Study:.....	232
22.13 Conclusion:.....	232
22.14 References: .....	233

**Chapter-23. Scholarly Research Trend of Assam Agricultural University, Jorhat indexed in Scopus: A Bibliometric Study - *Dhan Maya Chetry, Nabin Chandra Dey*..... 236**

23.1 Introduction: .....	236
23.2 Review of Literature:.....	236
23.3 Objectives of The Study:.....	237
23.4 Methodology: .....	237
23.5 Results and Discussion:.....	238
23.5.1 Chronological Growth of Research Output:.....	238
23.5.2 Document-Wise Distribution of Research Output: .....	239
23.6 Journal Wise Distribution of Publications: .....	240
23.7 Co-authorship Analysis:.....	241
23.8 Co-occurrence of All Keywords (Authors Keywords + Index Keywords):. 242	
23.9 Conclusion:.....	243
23.10 References: .....	243

**Chapter-24. Implementation of A Simplified Way for Submission and Analysis of Bibliographic Details at CIT Kokrajhar - *Biswajit Paul, Didwmtha Boro*. 245**

24.1 Introduction: .....	245
24.2 About the Idea: .....	245
24.3 Implementation and Solution: .....	246
24.3.1 Detailed Solution and How Implemented: .....	247
24.4 Results After Implementation: .....	248
24.5 References: .....	249

**Chapter-25. Bibliometric Analysis of Radiochemistry Research Output During 1989- 2021 - *Dejee Kalita, Banasri Deka*..... 251**

25.1 Introduction: .....	251
25.2 Review of the Literature:.....	252
25.3 Objectives of The Study:.....	252
25.4 Methodology: .....	253

25.5 Data Analysis: .....	254
25.5.1 Distribution of Document Type: .....	254
25.5.2 Growth Rate of Literature: .....	254
25.5.3 Core Journals in The Discipline: .....	255
25.6 Bradford’s Law: .....	256
25.7 Degree of Collaboration: .....	257
25.8 Top Five Highly Cited Papers:.....	258
25.9 Conclusion:.....	259
25.10 Reference:.....	259

**Chapter-26. A Bibliometric Study on Resonance Journal from 2013 to 2022:  
Trends, Evolution, and Future Directions - *Rajib Kumar Das, Anuradha Singha*  
..... 261**

26.1 Introduction: .....	261
26.2 Methodology: .....	262
26.3 Review of Related Literature: .....	262
26.4 Results and Discussion:.....	262
26.5 Conclusion:.....	265
26.6 References: .....	265



**Kripa-Drishti Publications**

A-503 Poorva Heights, Pashan-Sus Road, Near Sai Chowk,  
Pune – 411021, Maharashtra, India.

Mob: +91 8007068686

Email: [editor@kdpublications.in](mailto:editor@kdpublications.in)

Web: <https://www.kdpublications.in>

Price: ₹ 699

ISBN: 978-93-48091-58-1



9 789348 091581