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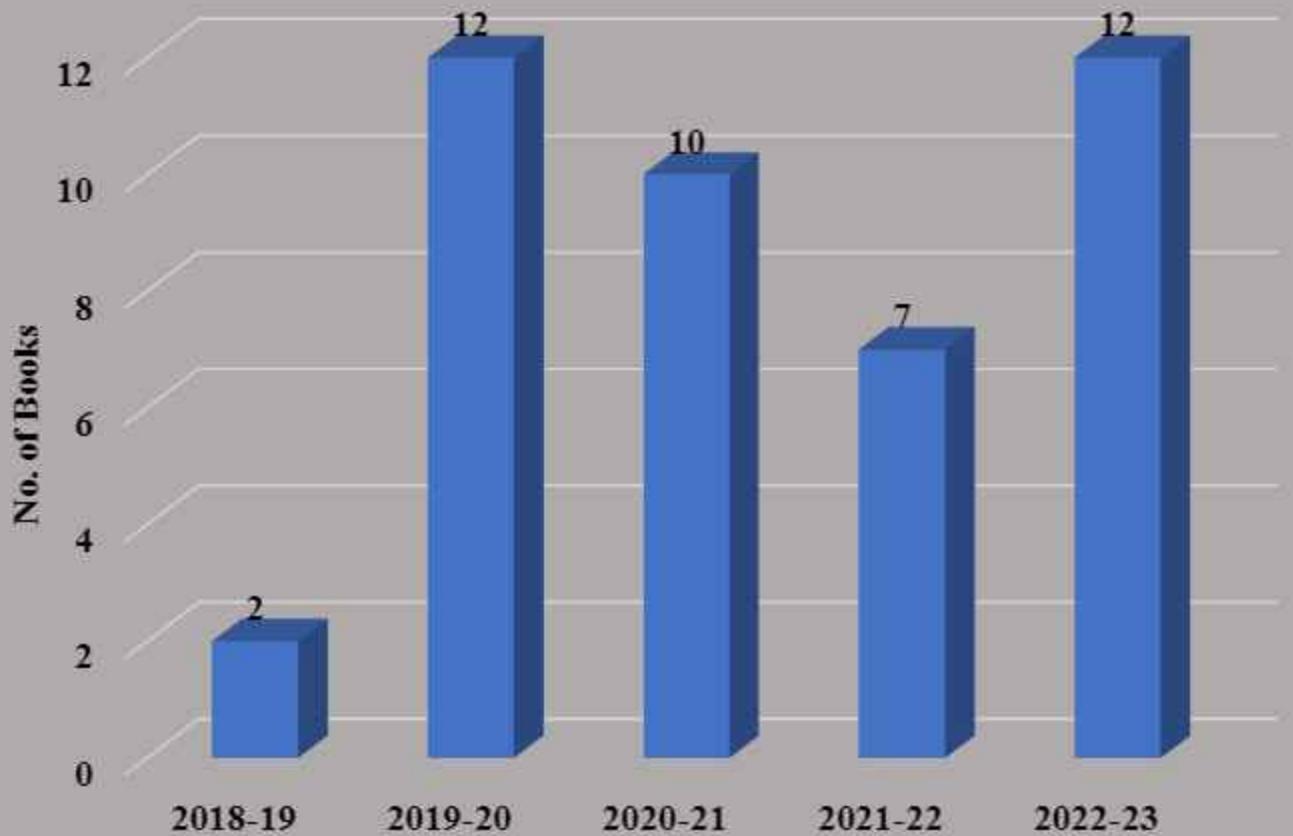
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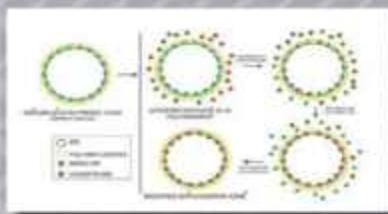
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**Session 2022-2023**



# Ion Exchange Resins

## Biomedical and Environmental Applications



Inamuddin, Maha Khan,  
Mohammad Abu Jafar Mazumder  
and Mohammad Luqman

M.R.F.

# Separation and Purification of Bioactive Molecules by Ion Exchange

Ion Exchange Resins: Biomedical and Environmental Applications  
Materials Research Foundations 137 (2023) 75-82  
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## 1. Introduction

Separation of various substances is achieved by using ion exchange chromatography. Ion exchange chromatography is a technique for separating mixtures of charged compounds such as cations, anions, amino acids, proteins or neutral molecules that can develop a charge in acidic or basic media such as carboxylic acids and amines. Ion exchange chromatographic separation is done by using porous resin beads (granules) to which are bonded acidic groups such as  $-SO_3H$  or  $-COOH$ , or basic groups such as  $-CH_2NR_2$  or  $-CH_2NHR$ . Sorting of cations is done employing cation exchange resins, whereas sorting of anions is done with anion exchange resins.

After settling the column with resin, a buffer is pushed through the column to equilibrate the charge. Solute molecules and buffer ions will interchange after the sample is injected. The species (ions or molecules) with low charges elute first, followed by those with increasingly higher charges. The factors such as pH, buffer and temperature, play essential roles in determining the separation.

Fig.1 shows a cation exchange column, which is a form of ion exchange column. The support in this example is made up of small beads to which charged chemicals are bonded. A counter-ion exists for each charged molecule, which is  $Na^+$  in this case.

## Chapter 5

### Separation and Purification of Bioactive Molecules by Ion Exchange

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#### Abstract

Bioactive molecules (or signaling molecules) are involved in tissue regeneration and have an important role in modulating the microenvironment *in vivo*. Bioactive chemicals have the ability to govern host cell motility, proliferation, and differentiation, as well as enabling cells to interact with their surrounding microenvironment via particular receptors for chemical recognition. This chapter introduces ion-exchange chromatography (IEC) as a method for separating and purifying bioactive compounds such as polyphenols, catechin derivatives from complicated plant mixtures, proteins, minor whey protein, peptides, human C-peptide, alkaloids from Chinese medicines, plasmid DNA and carbohydrates.

#### Keywords

Ion-Exchange Chromatography, Biochemical Purification, Bioactive Molecules, Polyphenols, Catechin, Proteins, Peptides, Human C-Peptide, Alkaloids, Plasmid DNA, Carbohydrates

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# RECENT TRENDS AND THE FUTURE OF ANTIMICROBIAL AGENTS PART 2

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Recent Trends and The Future of Antimicrobial Agents - Part I

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## Therapeutic Efficacy of Natural Products Towards Protozoan Diseases

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## CHAPTER 6

### Therapeutic Efficacy of Natural Products Towards Protozoan Diseases

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**Abstract:** The different infections caused by protozoan parasites, such as malaria, leishmaniasis, toxoplasmosis, balantidiasis, trichomoniasis, giardiasis, Chagas disease, amoebic dysentery, are responsible for considerable morbidity and mortality worldwide with devastating social and economic consequences. These protozoan diseases occur all over the world. For the treatment of these diseases, there is a lack of effective, safe, and affordable therapies. Due to the lack of vaccines in most instances and the development of resistant strains to the available synthetic therapeutics, it is important to search for alternative sources of anti-parasitic drugs. Since ancient times, natural products have been used as sources of potential drugs in cure diseases. It has been reported that 10% of drug molecules are natural products. The diversity of natural products can vary, i.e., it may be found in plants, fungi, algae and marine organisms. The plant-based natural products (secondary metabolites), i.e., alkaloids, phenolics, terpenes, and lipids, are potent anti-protozoal molecules. The natural products (secondary metabolites) obtained from microbial origin showed promising anti-protozoal activity. These bio-active molecules 2-(hept-1-enyl)-5-(hydroxymethyl)-5-(3-methyl-but-2-enyl)benzene-4-diol, flavoglaucin, tetrahydronaeglaucin, arieglaucin, 2-(20,3-epoxy-10,10-heptadienyl)-6-hydroxy-5-(3-methyl-2-butenoyl)benzaldehyde, obtained from the fungus *Eurasmaria repens*, showed anti-malarial activities even chloroquine-sensitive and chloroquine-resistant strains of *Plasmodium falciparum*. Some of the flavonoid compounds, i.e., epicatechin, kaempferol, and nepeolin, isolated from the plant *Eugenia aromatica*, showed the highest activity against Chagas disease. The three most important flavonoids, namely kaempferol, (-)-epicatechin and tiliroside showed promising activity against *Entamoeba histolytica*. The isoquinoline alkaloid berberine is found in several medicinal plants. Berberine salts have profound inhibitory activity against *Giardia* trophozoites. Two flavonoids, i.e., hirsutin and querectatin, isolated from *Fiber seguinii* and *Fagopyrum esculentum*, showed anti-leishmanial activity. An aceridine diterpene isolated from an ethanolic extract of *Polygonia longifolia* displayed anti-leishmanial activity against *Leishmania donovani*. A novel triptenone, Astrakurone isolated from the wild edible mushroom, *Tarzetta hygrophorina*, has a definite effect on promastigote and amastigote form both *in vitro* and *in vivo* against *L. donovani*. Natural products have displayed promising activity against different

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# CLIMATE CHANGE, COMMUNITY RESPONSE, AND RESILIENCE

**Insight for Socio-Ecological Sustainability**

EDITED BY

UDAY CHATTERJEE, RAJIB SHAW, GOURI SANKAR BHUNIA,  
MARTIWI DIAH SETIAWATI, AND SOUMITA BANERJEE



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CHAPTER

## 14

### Livelihood constraints and socio-ecological loops: household drought coping survival strategies in rural plateau tracks of eastern India

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#### 14.1 Introduction

Globally, agriculture dominates land use, including significant economic, social, and cultural activities as well as offering a wide range of ecosystem services. However, because of its nature, agriculture is still quite susceptible to changes in the climate. In India, the great majority of smallholder farmers depend on雨fed agriculture for a living, and they are frequently affected by the whims of the weather and climatic conditions (Gautam, 2001). Variability in rainfall is one climatic aspect that significantly affects both the economy and means of subsistence (Gautam, 2001; Holmstrom et al., 2009) of the majority of Indian households. Variability and unpredictability of the climate represent a risk that can severely limit alternatives and opportunities (Holmstrom et al., 2009) for millions of poor people in India.

In the last decades, rural households of plateau tracks of the Chota Nagpur plateau of Eastern India experienced severe to extreme droughts with extensive crop failure and food crises. Over 90% of people suffered from high levels of food insecurity as a result of this drought. Lying on the tail-end of the Chota Nagpur plateau, Purulia represents an area of particularly low agricultural productivity and a high incidence of severity of poverty among the rain-fed areas in Asia. Purulia is one of the administrative districts of West Bengal chronically affected by meteorological drought conditions (Palchandittri & Bhawar, 2013). The north-western and south-western portions can be labeled as extreme drought-prone areas of the district. High seasonality of rainfall (62% occurred in monsoon period)

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# Sūdraka's *Mṛcchakatikam*

## A Reader

Edited by  
Saptarshi Mallick



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"What is in a name?":  
Exploring the Dynamics of  
*Mṛcchakatikam* or A Clay Cart<sup>1</sup>

Debjyoti Bhattacharya

India believed in multicultural and multilingual diversity even before it gained independence from the British Colonial rule in 1947. This cultural diversity has been represented in various forms and structures since the Rig Vedic Age. It initially developed with the caste system which ushered in discrimination on several grounds like, family name, religion, creed, rituals and gender. Even in the twenty-first century India people continue to segregate among each other on socio-cultural as well as economic standpoints. These factors often play an important role in determining the identity of an individual which emerges through an ever-continuing struggle against stereotypes imposed by society on these human beings. However, there is also a positive point of view. Sometimes, the content of some entities overshadows and counters the "name"/"title" ascribed to them and with this, we once again, invariably, come back to Shakespeare and his often-quoted sentence about the futility of the "name". In this essay, I would like to focus on the interpretation of the title of a Sanskrit text. This form of visual poetry has most likely originated from the Vedas where an event was communicated and represented through dialogues, for instance, the Yama-Yami dialogue, the Sarvā-Pani or the Upaniadic dialogue called Yama-Naciketa. If we analyse a few of these typical dialogues then we will identify that the name(s) of these dialogue(s) are, most of the time, also the name

<sup>1</sup> Translated from Bengali by Debjyoti Sangupta.

## Sūdraka's *Mṛcchakatikam*

Edited by Saptarshi Mallick

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## An Adaptive Prospect Theory View of Market References: NARDL and GARCH-X Models

Paritosh Chandra Sinha

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### Abstract

This chapter considers investors' susceptive (S), proactive (P), reactive (R), and mindful (M) attitudes for the SPRM efficient portfolio. It offers an adaptive prospect theory (APT) view of decision choices that incorporates behavioral biases and noises. With use of NARDL models, in explaining returns of the sample stocks listed in the NSE Nifty from 2000 to 2019, the study incorporates positive and negative effects of the decision references like risk-free return and systematic risk along with endogenous return variables. It explains investors' behavioral biases at susceptive, reactive, and mindful attitudes at stable, unstable, and adaptive market spectrums. The GARCH effects of the empirical GARCH-X augmentation of the NARDL model show the presence of noise and its impacts in terms of proactive effects in the decision choices. With investors' episodic journey over the stable, unstable, and adaptive stock markets, the author contributes towards developing the SPRM framework. Investors' inter-temporal adaptation across biases and the limited sample size limit the generalizability of the study.

### Chapter Preview

### An Adaptive Prospect Theory View of Market References: NARDL and GARCH-X Models

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## Happiness and Money : A Complex Relationship

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### Abstract

Happiness measures the quality of life. Lately, social and economic factors of happiness become very popular among researchers. Absolute income is an obvious determinant of happiness, but more money does not guarantee higher happiness. Other domains of life play a vital role. This article looks at the relationship between money and happiness and several other covariates of happiness. It aims to establish an alternative methodology for policy framing regarding the overall development of society.

**Keywords:** Subjective, well-being, happiness, life-satisfaction, Gross National Happiness

### Introduction

Happiness is a subjective concept. Different people can be satisfied in different ways. To Jane Addams, happiness was found by serving the people, to Robert the Bruce it was the Scottish independence. That is why it is better to find out determinants of happiness and understanding the process that underlie happiness. Throughout history, the study of happiness and search for better life was the province of philosophy. Aristotle, Bentham, Mill are notable philosophers who considered happiness to be the ultimate motivation for human action. Psychologists and sociologists have also contributed to the field of happiness. For a long time, economists were not comfortable to work with a subjective concept like happiness. Because, happiness has no market price and is not directly observable in the market as a commodity. It is purely a relative phenomenon, an experience or attitude towards life. Obviously, there are objective happiness measures such as U-index or The Brain Imaging Method, in which certain



## Happiness and Money : A Complex Relationship

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### Abstract

Happiness measures the quality of life. Lately, social and economic factors of happiness become very popular among researchers. Absolute income is an obvious determinant of happiness. But more money does not guarantee higher happiness. Other domains of life play a vital role. This article looks at the relationship between money and happiness and several other covariates of happiness. It aims to establish an alternative methodology for policy framing regarding the overall development of society.

**Keywords:** Subjective, well-being, happiness, life-satisfaction, Gross National Happiness

### Introduction

Happiness is a subjective concept. Different people can be satisfied in different ways. To Jane Addams, happiness was found by serving the people, to Robert the Bruce it was the Scottish independence. That is why it is better to find out determinants of happiness and understanding the process that underlie happiness. Throughout history, the study of happiness and search for better life was the province of philosophy. Aristotle, Bentham, Mill are notable philosophers who considered happiness to be the ultimate motivation for human action. Psychologists and sociologists have also contributed to the field of happiness. For a long time, economists were not comfortable to work with a subjective concept like happiness. Because, happiness has no market price and is not directly observable in the market as a commodity. It is purely a relative phenomenon, an experience or attitude towards life. Obviously, there are objective happiness measures such as U-index or The Brain Imaging Method, in which certain

technical procedures are followed to estimate the extent of happiness. It is possible to collect the information regarding the real-time experience of an individual for many days or even for many times per day. The U-index measures how much times per day a person spends in a bad mood. The Brain Imaging Method uses interaction between brain tissue and various types of electromagnetic radiation to scan the brain waves and identify the factors that make the person happy or unhappy. But researchers on happiness are interested mainly on self-reported happiness, that is, individuals have to perceive and state their own level of well-being or satisfaction with life on a pre-determined scale. Happiness, subjective well-being and life-satisfaction are separable construct in the field of psychology but in economics, they are used interchangeably so that individual can relate to well-being in his/her own terms. This self-reported happiness is assumed to serve as the proxy of individual utility under certain assumptions.<sup>1</sup> Several large surveys have asked different questions regarding individuals' happiness and have recorded the responses in a particular time interval. Table - I shows how the self-reported happiness questions has been posed in different surveys.

Table I:

Name of the Survey	Happiness / Life - satisfaction Question	Response Option	Well-being Variable	Geographical coverage
The General Social Surveys (GSS)	Take all things together, how would you say things are these days?	3 points verbal scale categorised as very happy, pretty happy, and not too happy.	Happiness	USA
The World Values Surveys	All things considered, how satisfied are you	10 points numerical scale where 1 signifies	Life Satisfaction	More than 90 countries

<sup>1</sup> For a measure of reported subjective well-being to serve as a proxy for individual welfare, an important assumption is necessary - the standards underlying a person's judgments are those the individual would like to pursue in realizing his or her ideal

ফরওয়ার্ড বুক ও নেতাজি সুভাষচন্দ্র বসু : এক  
তাত্ত্বিক পর্যালোচনা  
কৃষ্ণ কালি শক্তি সাউ

*"I shall always remain a servant of India and look after the welfare of thirty-eight crores up Indian brothers and sisters. This shall be for me my highest duty."*

*"Even after winning freedom I will always be prepared to shed the last drop of my blood for the preservation of India's freedom."*

Sabhas Chandra Bose

বৃত্তান্ত :

কালোজের স্বাধীনতার কথা আছে তাপ করা। সেটিকেও ভারতবর্ষীর মেলা ও কল্যানের জন্য শেষ বিষু রঙে পেশাই কর্তৃপক্ষ এবং নিয়ে দেশের বহিতে হোকে সংগ্রহ পর্যালোচনা করেছেন সিংহ। সেই কালোজের প্রমিত, বিষ্ণুলী সংগঠক সুভাষচন্দ্র বসুর অন্তর্ধানী রহস্য। ভারতের স্বাধীনতার ৭৫ বছর ও সুভাষচন্দ্রের শীর্ষস্থানে উর্বেচিত হোন। ভালোর নিষ্ঠুর পরিচয়ের হয়তো তিনি আজ আমাদের মধ্যে সেই। কিন্তু এটাও নিয়ম আর সিষ্টুর সত্তা যে কালোজের বাজানীতির ইতিহাসে তিনি বিপৰ্যক্ত ঘোষণা। অথচ সুভাষচন্দ্র একটি সংগঠিত চিপ্র হিল, এক সুন্দর কর্মসূচি হিল, জাতি গোল ও জন্ম গঠনের আকাশের এই স্মরণীয় মুগ্ধ শীর্ষ আবেদন হিশেবে।

সহকারী সম্পাদক, সম্পাদক মহাবিদ্যালয়, ভুগাইল পৌর্ণী।

৪২৮

Netaji Subhas Chandra Bose : Atit Theke Bartaman Bhawan  
Edited by Sachchidananda Roy Soumen Roy

প্রথম প্রকাশ : ২৫শে জানুয়ারী, ২০২৫

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প্রকাশক এবং বাজানীতির নিষিদ্ধ সন্মুহূর্ত ছাড়া এই বইয়ের কোনও আয়োজন কেন্দ্রীয় কেন্দ্রীয় পুনৰ্জীবন বা প্রতিসিদ্ধি করা যাবে না, কেনেন যাহুক উপরের (যাতিক, বৈশ্বনীক কা জন্য কেবল মাদ্য, যেমন সেকেন্টোকল, টেল বা পুনৰ্জীবনের সুযোগ সঞ্চালিত ক্ষেত্ৰে কোনও মাধ্যম কেন্দ্রীয় প্রযৱে) যাহামে প্রতিসিদ্ধি করা যাবে ন বা কেনেন হিল, টেল, পারাফেনেটিও মিডিয়া বা কেবলও তথ্য সমূহের যাহুক প্রচারিতে পুনৰ্জীবন কৰা যাবে ন। এই শৰ্ক সঞ্জীব হৃষে উপস্থৃত প্রাণী ব্যবহৃত প্রয়োগ করা যাবে।

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অঙ্গবিহীন : বাবুল সে

বর্ত সম্পাদক

সুল কল্পনাকুমার প্রেস  
মিলিন্ড, মালি, শুভু

# নেতাজি সুভাষচন্দ্র বোস অতীত থেকে বর্তমান ভাবনা



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সৌমেন রায়

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চৰ্কীয় পৰ

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কৃষ্ণ কালি শক্তি সাউ/৩২৮

# Redefine Library in the Social Media Age

Edited by  
**Dr. Swapna Khan**  
**Dr. Soma Bandyopadhyay**



**Universal Briefing**

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## Role of Libraries in Promoting E-Learning among Users by Online Tools and Technology

Dr. Pronobi Porel<sup>1</sup>

### Abstract

The study shows the perceptions of e-learning tools and technology across the world during Covid-19 Pandemic. Traditional education has been changed for covid-19 pandemic situation. Education sectors have been closed during this period. In worldwide education system huge changes are happened. This study is to identify the approaches that are virtual education systems including their features. The study focuses the advantages of e-learning and the challenges of e-learning.

**Keywords :** Online education, e-learning, covid-19 pandemic, online tools, virtual platforms.

### 1 Introduction

Covid-19 pandemic has affected different people in many ways. Around the world most of the educational institutions have decided to close all educational sectors at that time. That's way an old education strategy has to change for urgency. A large number of those institutions

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# ROLE OF ACADEMIC LIBRARIES IN THE MODERN ICT ENVIRONMENT

Editors

Partha Chattopadhyay  
Indranil Mondal



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মোহাম্মদ আবদুল জালিয়া

অসমীয়া সমাজে দ্রষ্টব্যর কৃতিত্ব, কলার ও ভাষার  
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## Use of E-resources of N-LIST Consortium by the User Communities of Rabindra Mahavidyalaya, Champadanga, Hooghly: A Study

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### Abstract

The National Library and Information Services Infrastructure for Scholarly Content (N-LIST) jointly executed by UGC-INFONET Digital library Consortium, INFLIBNET Centre and INDEST-NCLT Consortium, IIT Delhi launched in 2010. It is a consortium of valuable electronic resources (e-resources) designed for the teachers as well as students of affiliated colleges of India which are covered under sections 12(B) and 2(F) of the UGC Act. Such an initiative may be a great help to the teachers and students for the preparation of class teaching, research or for any type of use regarding academic purposes. The study aims at ascertaining the awareness of N-LIST programme among teachers of selected colleges, understand the usage pattern and preferences, level of satisfaction, the need for orientation programmes and the various suggestions put forward by the users. However, through this paper an attempt has been taken to depict a picture of the usage of e-resources by the user communities of Rabindra Mahavidyalaya.

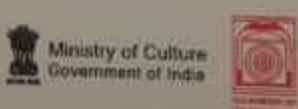
### Introduction

In the present age of digital knowledge, the easy and quick access to information, which is the vital rescue for each citizen, is essential for the development of any nation. The concept of library cooperation, inter library loan and resource sharing among libraries have paved the way for initiative of library consortia. The most important development that has taken place for academic libraries is the move from being self-sufficient organizations to becoming members of library consortia for collaborative survival.

The UGC Infonet Digital Consortium, an initiative of INFLIBNET Centre, was a great leap forward for the democratization of knowledge. Through this programme, a very large amount of information was made available to the academic community of universities in India. Still, a large group of students and teachers in colleges, except those who have access to nearby university libraries, were deprived off this knowledge reservoir. So as a next step, the project

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LIBRARY SERVICES:  
ISSUES AND CHALLENGES"**

*Edited by  
Dr. Atashi Karpha  
Principal, Gokhale Memorial Girls' College*



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**SWAYAMPRAHA:**  
an open path of education towards forming a Knowledge Society

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And

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**Abstract :**

There are so many initiatives which have been taken by the Govt. of India in recent past to cater the quality and uniform higher education throughout India. The SWAYAMPRAHA initiative is one of them. It is mainly based on the satellite technology to provide the good and high-quality education in every corner of India especially to those areas where the internet technology is very poor. There are total 34 DTH channels devoted to spread the educational programmes on the subjects of the Science, Social Science, Arts & Humanities streams. The eminent teachers from different academic institutions of the country delivered lectures on varied topics which are very much related to the present CBCS syllabus at the undergraduate level. The lectures are telecasted repeated times according to the convenience of a learner. It is a platform of self-study and to ask any doubt regarding any lecture. The system also has a mechanism to clarify any doubt of any learner within a time bound-limit. The programmes which will be telecasted through this platform may be initiated in advance for the sake of the learners. It is known to all that Libraries are being treated as Knowledge Hub of any academic institution. Library is the only place where the objectives of SWAYAMPRAHA may be fruitful and this can ultimately lead to form a true Knowledge Society in India. Library may create an amicable working environment among the students and their respective institutions with organizing different awareness programmes regarding SWAYAMPRAHA.

However, all such initiatives help us to form a Knowledge Society in reality.

**Keywords:** SWAYAMPRAHA, Satellite Technology, Knowledge Society, College Library, Open Education

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# Read, Learn, Grow: Lifelong Learning in Public Libraries

Edited By : Tanmay Saha



## Role of Public Libraries in the Context of National Education Policy, 2020

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### Abstract :

The whole National Education Policy, 2020 has been divided into 4 different parts. In each part, the role of the libraries especially the public libraries have been depicted. To reduce the rate of illiteracy, the promotion of a culture of reading, the importance of the public library is always noteworthy. The provision of creation of National Book Promotion Policy, creation of Digital Libraries, the establishment of Social Book Clubs, Adult Education Centers and Mobile Libraries must address the need of Information as well as Digital Literacy Skills among all to indicate the spirit of Public Libraries. Through this paper, the importance of Public Libraries has revealed in the context of National Education Policy, 2020. Hence, Public libraries should immediately implement the guidelines laid down in the National Education Policy to shape a better tomorrow of our society.

**Keywords:** NEP, Public Library, Digital Divide, Information Literacy, Digital Literacy

### Introduction:

The Public Library, the local gateway to knowledge, provides a basic condition for lifelong learning, independent decision making and cultural development of the individual and social groups.[9] Being the peoples' university any member of the society can come and use Public Library irrespective of caste, creed, sex and ethnicity. There are mainly three types of Libraries in our civilized society. They are namely Academic, Special and Public libraries. All the State Central Libraries, District Libraries, Sub-divisional, Town, Rural Libraries and Community Library & Information Centres (CLICs) come under the umbrella term 'Public Libraries'. Among these three, the social responsibilities of Public Libraries are much more than that of the others in terms of Collection Development Policy, nature of services, infrastructure and users' community. However, recently Ministry of Culture, Govt. of India has brought out the

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Public Libraries

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৪৭

‘প্রাক পুরনিমোশিক বচনে ইতিহাস ও সন্কৃতি’ এইটি কেবল পাঠ্যকাগজ রচনা নয়, কাব্য আমি পরিষ্কৃত নই। তবে ইতিহাসের বই, পাঠ্যপুস্তক, ইতিহাস অন্তর্ভুক্ত নিলেবাসের সাথে সামঞ্জস্য রেখে দেখা হয়েছে। বঙ্গদেশের যিশ্বের কাব্য অভিনন্দন ও মহাযুগের বঙ্গের ইতিহাস আমার প্রিয় বিষয়, প্রাচীনত্বের ছাপ রয়েছে, পুরাণের ঐতিহাসিক নিম্নলিখিত উভয়ে আছে এবংকম সহজপ্রতিক্রিয়া জয়গা দেবকলা বাঙ্গলার আনন্দকোনাচে রাখিয়ে আছে সেবন দেখা, যারা সেবন নিয়ে চৰা করেছেন তাদের দেকে জোন দেওয়া আব সেই সব তথ্যকে ব্যতো সঙ্গে অন্তর্ভুক্ত করে দুই মলাটের মধ্যে সাজিয়ে ছাত-ছাতী ও আঙুষ্ঠী ধর্মিনদের হাতে তুলে দেওয়ার ইঙ্গ আজ গূর্হ হতে চলেছে। এই সুযোগ করে দেওয়ার জন্য একেন্দ্রিক প্রেস তথা অঙ্গনবাড়ুকে ধন্যবাদ। পরিশেষে আমার পরিবারের বড় ও ছেটি সন্দিগ্ধের, আমার বৃক্ষ ও সহকর্মীদেরও, সন্তানতুলা যারা আছে, ছাত-ছাতী ও আবো অনেকে তাদেরকে ধন্যবাদ জানাই আমাকে উৎসাহদানের জন্ম।

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**Dr. Dwipayan Sinha** is an Assistant Professor in Botany and is presently serving Vice-principal General Degree College, Mohanpur, Purulia, Midnapore under West Bengal Education Service. He is presently heads the Department of Botany Bidhanagar College, Kaliatra, and has more than 10 years of teaching experience in the field of Plant Sciences. He has graduated with Botany honours from the prestigious Presidency College and masters from the University of Delhi in the same subject with specialisation in plant molecular biology and crop genetics. He has done his Ph.D. from CSIR-Indian Institute of Toxicology Research on the antioxidant potential of gymnosperms. He has more than 10 years of research experience and is actively involved in the exploration of antioxidant potentials of Gymnosperms. He also involved in ethnobotanical studies and is currently involved in exploring ethnobotanical knowledge of various regions of West Bengal. He is also exploring the phytodiversity pattern of the Si-Jhumka tree in the Fasihin Medinipur district of West Bengal. He is also actively involved in writing articles related to plant sciences and is presently having several publications in peer-reviewed journals. He is also associated with the editorial board and review panel of journals of international repute.



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**Hand Book of Agriculture & Plant Sciences**

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## Ethnobotanical and Medicinal Importance of Bryophytes

### Introduction

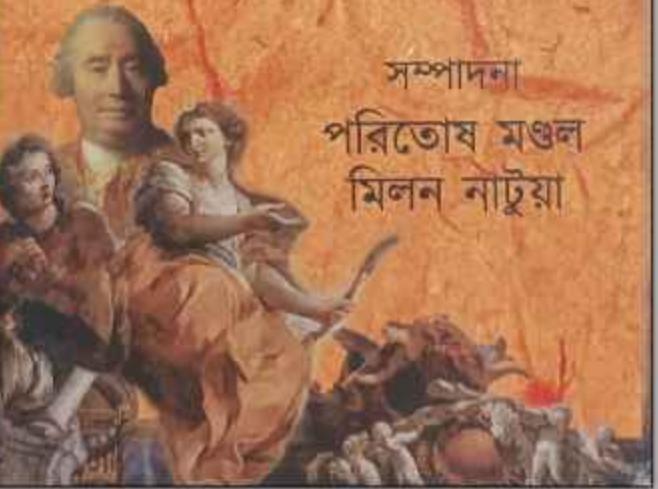
The taxonomic position of bryophytes lie in between algae and pteridophytes with more than 20,000 species with 10,000-14,000 mosses, 5000 liverworts and 215 hornworts (Goffinet and Shaw, 2009; Soderstrom, 2016). Based on the affinity of the present-day liverworts to the first land plant fossils, bryophytes are considered to be the oldest terrestrial plants with the spores almost 500 million years old, albeit strong scientific evidence for this is lacking in the literature. In the southern hemisphere due to the richness of endemic genera of bryophytes, it has been suggested their

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## নায় মতে পরমাত্মার শরীর পরীক্ষা সৌমিত্র লস

শুভাকার মহার্ষি গৌতম উক নায় দর্শনে বোঝুশ পদার্থের উত্তোল দেখি যা,  
একটি হল যথা- প্রমাণ, প্রমোয, পশ্চেত, প্রযোজন, দ্বীপ, সিদ্ধান্ত, অবয়ব, কর,  
নির্মাণ, বাদ, জীব, বিজ্ঞ, হেহাতোস, হল, জাতি ও নিশ্চিহ্ন। এই বোঝুশ পদার্থে  
কঙ্কালসন্দের দ্বাৰা নিরোহিস লক্ষ হয়। নায় দর্শনের ছিটীৰ প্ৰক্ৰম পূৰ্বৰ্থ  
যান্দেয়। এই প্ৰক্ৰম পূৰ্বৰ্থ হল বারোটি যথা- আৰু, পৰীক্ষা, অৰ্থ, শুভ, মুক্ত,  
প্ৰৱৃত্তি, দেৱ, প্ৰেতাতৰ, যন্তা- দুৰ্বল ও অপৰ্বণ। একটিৰ মধ্যে কোনো পদাৰ্থ  
আৰু শৰ্মেৰ দ্বাৰা যে কীৰ্তাতা ও পৰমাত্মা অৰ্থাৎ দৈশ্ব্যকে গ্ৰহণ কৰা হয়েছে, এই  
পৰমাত্মা ও দৈশ্ব্যই হলো আমৰ আপোচা বিশ্ব। কিন্তু প্ৰথম হয়ে আৰু কীৰ্তি  
যে পৰমাত্মা বলে কেউ একজন আছেন তাৰ আমাদি কি? এবং কীৰ্তিৰ বা পৰমাত্মা  
কেনে আছেন- কীৰ্তিৰ কৰবো কৰি শীৰ্তিৰ এৰ প্ৰযোজনীয়তা কি? এ প্ৰয়োজন উভয়  
আনন্দক কৃতি প্ৰয়াল পাৰওয়া যায়। শোকালোপনিষদে বলা হয়েছে এক সেকল লৰ  
এক মৰ্তা- শুভ কৰে কৃতিকে বাহুত সাথে কাউকে পৰেৰ স্বামৈ কৰুকে সিদ্ধান্তেন।  
কিন্তু সে সকল মৰ্তিক সম্পদামূলক বেনেৰে প্ৰয়াল কীৰ্তিৰ কৰেন না, কীৰ্তি কৰে  
কৰেন না। তাই দৈৱাচিক গৰি অনুমোদন প্ৰয়াল এবং দ্বাৰা দৈশ্ব্যেৰ অভিত প্ৰতিশালন  
কৰকে লিঙ্গে বেনে, দেনেন ঘোষিত কৰি বোন কৰ্তৃ হকে উৎপন্ন হয় অনুমোদন  
কৰিতি অনুমূল প্ৰতিতি কোন কৰ্তৃৰ কৰ্ম। এই কৰ্তৃত কীৰ্তেৰ পৰ্যন্ত সহুৰ না,  
সুতৰাং এই কৰ্তৃতিৰ কৰ্তৃ হিসেবে দৈশ্ব্যেৰ অভিত প্ৰতিত হয়। অনেক মৰ্তিক  
সম্পদামূলক আছে যেহে অনুমদনৰ প্ৰয়াল কীৰ্তিৰ কৰেন না, কিন্তু দৈৱাচিকসমা  
তিক্ষণ আলোচনাৰ কৰা অনুমদনৰ প্ৰয়াল প্ৰতিতি কৰোৱিলৈন।

পূৰ্ণপৰ্ণ নথিক সম্পদামূলক বালোন জৈনই কানুনৰিদিন কৰা। কিন্তু সেচৈতিকসম  
বালোন তা কথাবৈই সহুৰ না, কীৰ্তিৰ মতে চতুৰ্বিংশ তুলেৰ প্ৰয়ালই। এই  
জগতৰে উপলাভ কৰেন। পৰমাত্মা যেকে অনুমোদি কৰে জগতৰে উপলাভ কৰা  
কোন কীৰ্তাতা এই জগতৰে সুষ্ঠীকৰা হতে পাৰেন না। কৰেন উপলাভৰে প্ৰয়াল  
আৰু যেকে ইয়াৰে দ্বাৰা কৰ্তৃত সম্পদিত হয়। পৰমাত্মাৰ জন্ম অভিতিক কৰা  
কৰুকে জীৱেৰ পৰ্যন্ত কৰি প্ৰকাৰ জন্ম সহুৰ না, কিন্তু তাৰ কৰণ পৰ্যন্ত শুভ

# Reflectivity

(Multidisciplinary Edited Book)

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Dr. Ketan Kumar Mishra

Reflectivity has made many advances before to publish this issue. A swift glance at the issue verifies again our continued commitment and resolve to publish a Book of the highest standards devoted exclusively to the conservation of worldwide.

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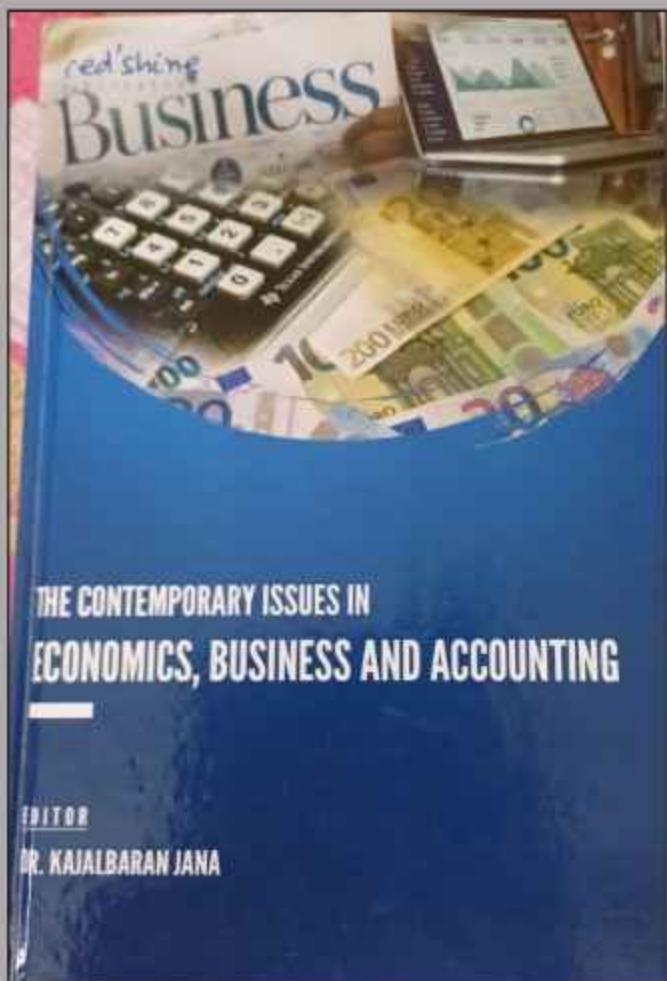
## Mating Disruption of Rice Yellow Stem Borer, *Scirpophaga incertulas* (Walker) as an effective rice-IPM tactics by Sex Pheromone trapping at Hooghly, West Bengal

Eureka Mondal\* and Kaushik Chakraborty\*\*

### Abstract

Yellow stem borer (YSB), *Scirpophaga incertulas* (Walker) renders damage to rice crop in both vegetative and reproductive growth stages. A study was conducted during 2019-2020 crop season to evaluate the efficacy of pheromone trapping against YSB in field condition at Tarakeswar, Hooghly, West Bengal. Eight plots each measuring 25m×20m were considered and prepared following conventional management practices for study. The funnel traps lured with pheromone were installed in all of the experimental rice fields. Depending on the height of the installation of the pheromone trap, there were two treatments against control ( $T_0$ ), where no trapping was done. In Treatment 1 ( $T_1$ ) pheromone trap was installed at 90 cm height while in Treatment 2 ( $T_2$ ) a height of 80 cm was maintained. Trapping at be-

\* Department of Zoology, Raiganj University, Raiganj, Uttar Dinajpur, West Bengal, India, 733134 \*Email: [eurekazoology10@gmail.com](mailto:eurekazoology10@gmail.com)



## THE CONTEMPORARY ISSUES IN ECONOMICS, BUSINESS AND ACCOUNTING

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### Chapter 9

Impact of COVID-19 on Rural Household Income in West Bengal

Vivekananda Meta

Abstract:

COVID-19 is a newly discovered infective disease caused by corona virus and its infection has been increasing day by day. On the other hand rural household income is the most important base of growth of income of state as well as our country. We would like to investigate in this paper whether household incomes have been affected due to presence of COVID-19 in rural areas of West Bengal. For this purpose we collected the primary data from 200 sample household. This study shows that its effect is powerful in decreasing the rural household income. It is also shows that the reverse migration will create excess pressure on the agriculture in rural economy resulting poverty in a significant number of people.

**Key Words:** COVID-19, migrant labourers, agriculture, rural household, West Bengal

Coronavirus disease 2019, also called COVID-19 has been declared a pandemic by the World Health Organization (WHO) on March 11, 2020. The main symptoms of this disease are fever, cough and breathing trouble. These are usually expressed within 2-14 days. This new virus and disease had been unknown before the outbreak began in Wuhan, China, in December 2019. The first case in India was identified on January 30, 2020 in Kerala. More cases started coming to light in the

# INDIGENOUS PEOPLE AND NATURE

Insights for Social, Ecological, and Technological Sustainability

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## Livelihood issues and educational challenges of indigenous people—retrospective and perspective from a backward district in India

Susmita Serigupta<sup>1</sup> and Sanat Kumar Ghosh<sup>2</sup>

<sup>1</sup>Department of Geography, Rabindra Mahavidyalaya, West Bengal, India; <sup>2</sup>Department of Geography, The University of Burdwan, West Bengal, India

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### 12.1 Introduction

Where two meals a day is a dream, school education to us is a luxury.

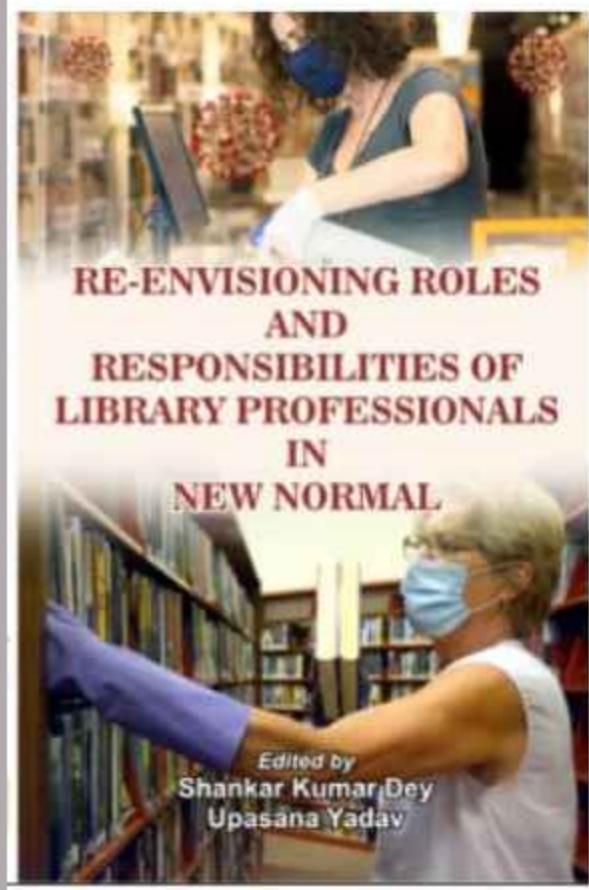
—A 40-year-old tribal man at a remote forested village in Purulia district of Chota Nagpur plateau, Eastern India.

Getting such a stunning response, the immediate questions that arise in the mind are: Are the people of backward areas of India really interested in school education? What is the priority in their day-to-day life—education or managing two full meals a day? Is the school education system in rural India being affected by lack of awareness or socioeconomic legacy? The voice also reinforces the notion that even after numerous attempts within the last 74 years of Independence like the implementation of Sarva Siksha Abhiyan (SSA), District Primary Education Program (DPEP), declaration of the National Policy on Education (1986) (*The National Policy on Education, 1986, 1986*), and the Program of Action (1992), the socioeconomic marginalization has constrained the access to school education in rural India, especially in economically backward areas. Educational disparities contributing a great deal to the persistence of huge inequalities in Indian society largely stem from more fundamental inequalities such as class, caste, and gender (*Dreze, 2003*). Ample learners from socially marginalized groups, especially the tribal people in the rural areas, fail to complete the primary education; even if they complete, moving to the upper primary becomes impossible in most cases. The promotion from upper primary to secondary is a distant dream to millions of tribal children till today (*Sengupta & Ghosh, 2011*).

Despite the remarkable progress in primary education as being published in different government reports, one can't ignore the gap between school enrollment rate and school attendance rate of the marginal group children, or the gloomy situation of their low achievement scores in school education (*Balagopalan, 2003*). Overwhelmingly, physical barriers with their harshness are the most important denominator for the socioeconomic stagnancy of most of the people living in the hilly and plateau regions of India.

In rural India, poverty is essentially linked to subsistence agriculture, which is the mainstay of people's livelihood. Studies show that how the context of poverty and deprivation in poorer households is characterized by uncertainty, food insecurity, engagement of children in work, and illiteracy in the family (*Jha & Jhingran, 2002*). From their early years, children started learning to be and then participating in becoming productive members of the family and community (*Dube, 1981*). With time, they become valuable assets at home, freeing adults to work, assisting on the family farm, or less often working as wage laborers. The eldest daughter is often the biggest loser, as she has to take over the household work responsibility (*Jha & Jhingran, 2002*).

The tribe is a social category that is not a part of the traditional Hindu caste structure. Tribal people have also been described as "aborigines," "primitives," "Adivasis," etc. There are 574 tribal groups identified as Scheduled Tribes in India, and there are specific provisions



## RE-ENVISIONING ROLES AND RESPONSIBILITIES OF LIBRARY PROFESSIONALS IN NEW NORMAL

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## Scope of Fair Use in Digital Rights Management: An Overview

*Dr. Swapna Khan<sup>1</sup> & Dr. Pronobi Porel<sup>2</sup>*

### Abstract

*Rapid development of information technology, rigorous demand from the users' community, and increasing dependence on the internet have changed traditional offline business mode to online mode for selling of digital goods. This trend needs a system to protect copyright in digital media. Digital Rights Management (DRM) systems aim to create a secure framework to control the access of intellectual property assets and preserve the basic right of the owners. "Fair use" is another aspect of copyright law that needs to be preserved in DRM technologies. The present study focuses on both of the aspects of the digital environment which will guide librarians in their daily activities at the time of dealing with digital copyrighted resources.*

**Keywords:** Digital Rights Management, Copyright, Access control, Fair use, Permission management

### Introduction

In recent years it is highly noted that rapid change and development have occurred in the field of copyright protection in the digital environment. Technological development has presented numerous tools to restrict the use of copyrighted documents available on the internet and even in many offline

# Digital Transformation of Higher Education in India

Edited by

Dr. Swapna Kumar Bera  
Dr. Samiran Naskar  
Dr. Arup Bijali



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Digital Transformation of Higher Education in India

## E-Learning Through Various Electronic Resources During the Outbreak of Corona Virus: Role of LIS Professionals

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**Abstract:** Modern Information & Communication Technology has paved the path of creating various e-resources for accessing them from remote places by the academicians throughout the world with the advent of electronic learning. Through this paper, the various aspects associated with the e-learning, the names and their associated links of e-resources are provided for easy access during the lockdown situation for the sudden outbreak of the Coronavirus. By virtue of electronic learning, the teaching-learning process may be continued during this emergency situation by the active collaboration of the respective academic institutions, authority, teaching staff, LIS professionals, and the most targeted group that is the student community. This may be a good substitute alternative in lieu of a strenuous teaching-learning process.

**Key Words:** E-learning, E-Resources, Lockdown, Corona Virus, LIS Professionals

### 1. Introduction

At present, the whole world is at stake due to an unprecedented outbreak of COVID-19 that is a coronaviruses (WHO, 2021). In this situation, India is also affected by this virus and our whole country is under lockdown situation. The whole countrymen of India are in anxiety and waiting for a normal situation. Like other sectors, the education sector

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## Deciphering the Role of Phytoanticipins, Phytoalexins, and Polyphenols in Plant-Insect Defense

Sumanti Gupta and Amit Roy

### Abstract

Knowledge of plant-insect interaction is continuously evolving with the coevolution of both interacting partners. In addition, the dynamic environmental factors are playing crucially into the interface chemistry of both the host plant and the attacking herbivorous insect. The present study has made efforts to shed light on the current knowledge of insect behavior during herbivory. Behavioral pattern of insects feeding on various plant hosts revolves around modifying host surveillance and overwhelming their defense mechanisms. On the contrary, hosts pay full attention on strengthening its defense arsenal with adequate and appropriate armors that can mount a timely resistance against the attacking insect. In this context, the molecular role of most important class of phyto-biomolecules referred to as phytoanticipins, phytoalexins, and phenolics that were widely investigated as potential insecticides since early days are elaborated under the light of recent day understanding. Thus, the chapter schematizes the general understanding of plant-insect interaction with an aim at adding to the knowledge of the development of better insect management strategies in the near future.

### Keywords

Herbivory · Insect pests · Phenolics · Phytoalexins · Phytoanticipins · Plant defense

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# ANCIENT INDIAN POLITY AND DEMOCRATIC SYSTEM OF MODERN INDIA : AN INTERFACE

A Three-days International Webinar Proceedings  
(13th-15th August 2020)

Chief Editor  
**LOKESH MONDAL**  
Co-Editor  
**KOUSHIK ROY**

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## বর্তমান রাষ্ট্রজীবনে ধর্মশাস্ত্রের প্রাসঙ্গিকতা

ডঃ দোয়েল গান্ধুলি

প্রাচীন ভারতীয় রাষ্ট্রচিত্তাম ধর্ম ও নীতিকেই রাষ্ট্রশক্তির মূল বলে শীকার করা হয়েছে। এখানে নীতি ও কর্তৃত্ব বিষয়ক উপদেশের পাশাপাশি রাজার কর্তৃত্ব ও রাষ্ট্রশাসনগতিগুলি উপরে ছান পেয়েছে। তৎকালীন সমাজের ভিত্তি হিল বৰ্ণশাম ধর্ম। বিশেষভাবে এর উৎপত্তি হয়েছিল পুর ও কর্মের ভিত্তিতে, পরবর্তীকালে এই বিভাগ অগ্রগতিগুলিপে প্রসিদ্ধি লাভ করে। ধর্মান্তরকার মনু এই অগ্রগত বিভাগ দীক্ষার করলেও এণ্ড ও কর্মের আগামী মানুষের প্রেটেড নির্মাণশক্তিকে তিনি উক্তথ নিয়েছেন। ভারতীয় সমাজের কাছে নিয়ন্ত্রণের জীবন চর্তুর একটি জীবনের ভূলে ধরেছেন মহার্থ মনু। তাঁর মাত্রে সামাজিক শৃঙ্খলা বজায় রাখতে হলে অপরাধীর কঠোর দণ্ডবিধান একান্ত প্রয়োজন। উপর্যুক্ত মন্দদানের মাধ্যমে একদিকে যেমন অপরাধীকে দণ্ডিত করা হয়, তেমনি সাধারণ নাগরিকদের অপরাধের সম্পর্কে সতর্ক করা হয়। দুর্বল যাতে সর্বল কাহুক নিষ্পেচিত না হয়, সজ্জন যাতে দুর্বলের ধারা অত্যাচারিত না হয়, সেজন্য মনু ব্যবহার বা বিচার-ব্যবস্থার কথা বলেছেন। মনুর এই ব্যবহার বা বিচার-ব্যবস্থা পরবর্তী স্বত্তিশাঙ্ক সমূহে এমনকি প্রাচীন ভারতের বিচার ব্যবস্থা প্রয়ালেও মর্যাদার সাথে গৃহীত হয়েছে। মনুর মাত্রে নারী শক্তি সনাতন ভারতীয় সন্দৰ্ভতিতে মর্যাদার আসনে প্রতিষ্ঠিত। ধর্মশাস্ত্রের মনু ভারতীয় পরম্পরার অনুসরণ করেই বলেছেন, ‘যত্ন মার্যাদা পূর্ণতে রমতে তত্ত্ব দেবাতা’। মনু বলেছেন—‘গৃহিণী গৃহমুচাতে’—অর্থাৎ নারীকে কেবল করেই গোরহ্যালামের সূচনা হয়। কন্যা জয়া জননী কাপে নারীর ছুমিকা সর্বজন প্রফুল্ল। মনুসংহিতার নবম অধ্যায়ে নারীকে গৃহের দীক্ষিতাপে বর্ণনা করে নলা হয়েছে—‘ক্ষিয়া প্রিয়শ গোহেয়ু ন বিশেষোহিতি কৃশন’। অন্য তাই নয় সমাজ জীবনের সুস্থিতার জন্য মনু প্রামীণ অধ্যনীতিকে উৎসাহ নিয়েছেন। শাক, বাশ ও কাট-শিল, চৰ্ম, নৌ-যান প্রকৃতি শিল হিসেবে তখন প্রচলিত ছিল। নদীমাতৃক ভারতবর্ষের কৃষি তথন নাগরিকদের প্রধান জীবিত ছিল। রাষ্ট্রের উন্নয়নে রাজা প্রজাদের নিকট থেকে কর আদায়

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## Awareness of Internet Facilities among College Students for their Online Education During Covid-19 Pandemic: Analytical Study of Two Semi-Urban Colleges in West Bengal, India

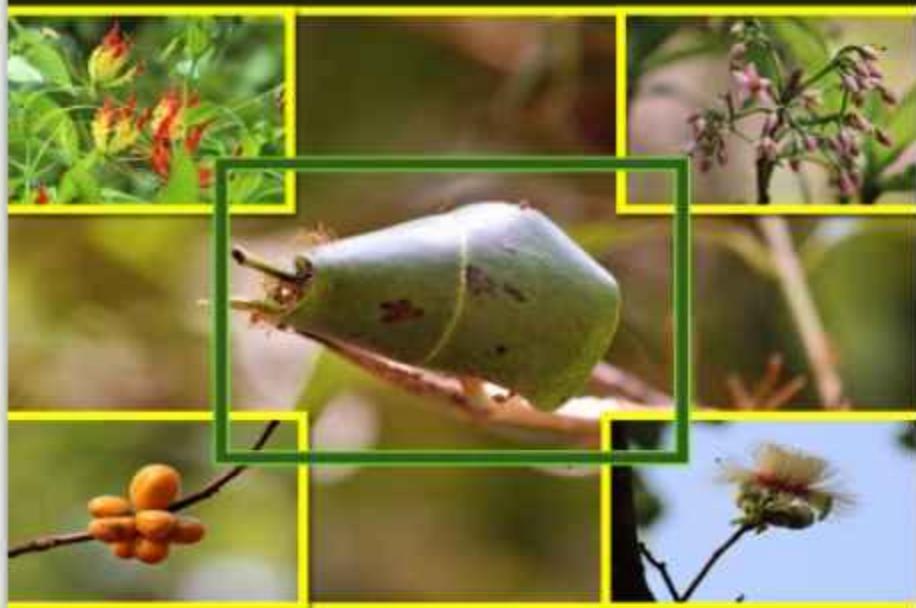
Dr. Pronobi Porel and Dr. Swapan Khan

### Abstract

The study focuses the awareness of the college students about online facilities available for their study. During Covid-19 pandemic, 850 questionnaires have been distributed among the students to their email address and 512 (60.24%) responses have been received. The responded students are from different stream i.e. the Arts (54.49%), Commerce (29.69%) and Science (15.82%). The result found that 24.80% (127) of the students rarely use or do not use any search engines and 75.20% (385) of the respondents use at least one search engine at regular basis for their educational purposes. It also shows that 53.91% (276) of the students

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## Extent of crop herbivory by lepidopteran insect pests with special reference to rice yellow stem borer and its effective control by using phyto-formulations in agrarian ecosystem: a case study

Eureka Mondal<sup>1</sup>, Shruti Rathod<sup>2</sup>, Kaushik Chakraborty<sup>1\*</sup> & Sanjeet Kumar<sup>3</sup>

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### ABSTRACT

Now a day's crop loss by insect pest herbivory is a most common event. More than ten thousand insect species cause serious damage to many important crops throughout the world. Among the pest community, lepidopteran insect pests are very common in agricultural fields and responsible for huge loss of crops, vegetables, fruits etc. Actually the larval stages are most injurious to the crops. Among the food grains, rice occupies second position and used as the principal food staff all over world. Like other crops and vegetables, paddy crop is attacked by more than hundred types of insect pest species. Stem borer causes much losses in both kharif and summer. Among the stem borers, 40 species of stem boring caterpillars belonging to order Lepidoptera are very well known as rice pest. But Yellow Stem Borer (*Scirpophaga incertulas* Walker) is the most destructive and predominant over other stem borer species. Larval infestation in rice causes drying of the central shoot known as 'Dead Heart' in young plants and massive damage of the growing panicle results in 'White Ear Head' disease. Though synthetic insecticides are the primary way to control pest infestation, but for controlling the pest population in a sustainable way, different Phyto-formulations should be used as pesticides. Because the ultimate goal of any scientific formulation is to increase well-being and improvement of the total environmental health.

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Editor

**Dr. Joydip Chandra**

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6

### Online Educational Tools and Techniques: Role of Libraries in Present Era

Swapan Khan & Pronobi Porel

#### Abstract

A varieties of online tools and techniques are available for online education. But the selection, identification and proper use of those tools are very crucial jobs to fulfill the basic purpose of online education for all students regardless of location and time. The present paper focuses those tools and techniques and highlights the role of the librarians to provide quality education in present situation. Most of the educational institutions are very enthusiastic to use those online tools for their system. But the selection of best alternative tools, fruitful use, overcome the barriers etc. all are very important issues to implement a new system. Initiatives by librarians can play a significant role in this present situation.

**Keywords :** Online education, blended education, educational tools, online teaching, virtual learning

#### Introduction

The expansive nature of the Internet and the accessibility of information technology is the most significant change of this century. This change has been shifted in every sector of the society especially business and educational sectors. Gradual demand for online or web based learning has resulted the appearance of

ড. সুব্রত কুমার দে  
ড. দীনবন্ধু কুণ্ডু

সম্পাদিত

# বিশ্ব পৃথিবীর গোপনীয়া দ্যুর্গা শিক্ষা কাণ্ড



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### সর্বসম্মতিক্রম

কল্পনাক্ষেত্রে নিখিল অনুভূতি রাখা এই লেখের বেদনও কাশের ক্ষেত্রেও পুরুষব্যক্তির  
প্রতিমূলি করা যাবে না। কোন বাস্তব উপরের প্রতিমূলি ব্যক্তি বা অন্য কোমল  
ক্ষেত্রে প্রতিমূলি করা যাবে না বা কেবাণ তিক্ত, দীপ, পারম্পরাগোত্তোর মিহিরা বা  
ক্ষেত্রে কর সামাজিক পরিকল্পনাকে পুরুষব্যক্তির করা যাবে না। এই শর্ত লক্ষিত হলে  
পুরুষ ব্যক্তির করা যাবে না।

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পুরুষ কুণ্ডলী

পুরুষ

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ক. মুক্তা মুখ্যোপাধ্যায়

### শাস্তিনাম্বকরণ

সত্ত্বনাম্বকরণ কাজের সংস্থা বেশি না হাতেও প্রাচীটি পূর্বেই মনে রাখত  
যাবে। তেমনি এক খবর— 'চরণদাস এম. এল. এ'। প্রাচীটির সঙ্গে প্রাচী  
অভিন্নতা পাকার প্রাচীনতিক প্রাচীত, সেকাহেরে প্রাচীনতির সম্পর্কে তার প্রাচী  
শাস্তি ছিল। এই প্রাচীর নাম চরণ চরণ পদ। এম. এল. এ পদ বলতে বাল্মীয় প্রাচীন  
চাইকানারের তাড়ার নামানিন পদ কলমসমূহের ক্ষেত্রে এসে তার অন্ধকার প্রাচীনতা  
প্রকাশ প্রিয়। আমার নিখিল পাঠে দেখাতে দেখেছি, এই প্রাচীত, প্রাচীনিক প্রাচীন  
জনে সীভূতে তাকে বাকবাক চাপেন্দুর ব্যতোহ হয়, তাঁর সত্ত্বনাম্বকরণেরে।

সূচক শব্দ : এম. এল. এ, প্রাচীন, জনপ্রিয়, পুরুষ, সামাজিকবাদী।

### কুল প্রবন্ধ

সত্ত্বনাম্বকরণ ভাদুটী (১৯০৬-১৯৬৫) নথপ্রসূ প্রেক্ষক মন। প্রিয়েছেন 'ভাদুটী'  
(১৯৪৫), 'সীভূতি চরিত মামাস' (প্রথম চারণ-১৯৪৯, বিত্তীয় চতুর্থ-১৯৫১)-এর  
মতো সাড়াজাগানো উপন্যাস সহ মোট চার্ট উপন্যাস, সামাজি বিচু পদ্ম কলন  
আৰ পাটিৰ মতো হোটেগাল। কিন্তু সংখ্যার সামান্য হালেও বাল্মীয় প্রাচীনতাৰ  
ভাগোৱে অসামান্য কিনু শিশুমুক্তা দান কৰে গোহেন সত্ত্বনাম্বকরণ।

'চরণদাস এম. এল. এ' গোচাটি তার অন্তৰে প্রেত গুৰি। গোচাটি শাবদীয় দেশে  
১৯৬৮ বৰ্ষাকে প্রকাশিত হৈছে। প্ৰথে গোচাটি 'জলশৰ্মা' (১৯৬২) প্ৰকাশেৰ অন্তৰ্ভুক্ত  
হয়েছে। প্ৰাচীনতিক নেতৃত্বেৰ চৰিত্ব তুলে ধৰেছেন প্ৰাচীটিতে। প্ৰসঙ্গত, প্ৰাচীনতিৰ  
সঙ্গে সত্ত্বনাম্বকৰণৰ গভীৰ সম্পর্ক ছিল। প্ৰাচীন দেশে বছৰাৰ জোল প্ৰেচেনেন।  
১৯৪৭ সালে প্ৰিয়েছেন প্ৰদেশ কলেজেনোৱে সংশোলন হৈছে। সত্ত্বনাম্বকৰণেন প্ৰিয়েছেন

# ECONOMIC AND BUSINESS CHALLENGES IN INDIA: PANDEMIC AND AFTER

Edited by  
**Dr. Kajalbaran Jana**

Indian Accounting Association  
South Bengal Branch

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## COVID-19 AND ITS IMPACT ON MIGRANT LABOURERS IN UNORGANIZED SECTOR OF HOOGHLY DISTRICT



**Vivekananda Meta**

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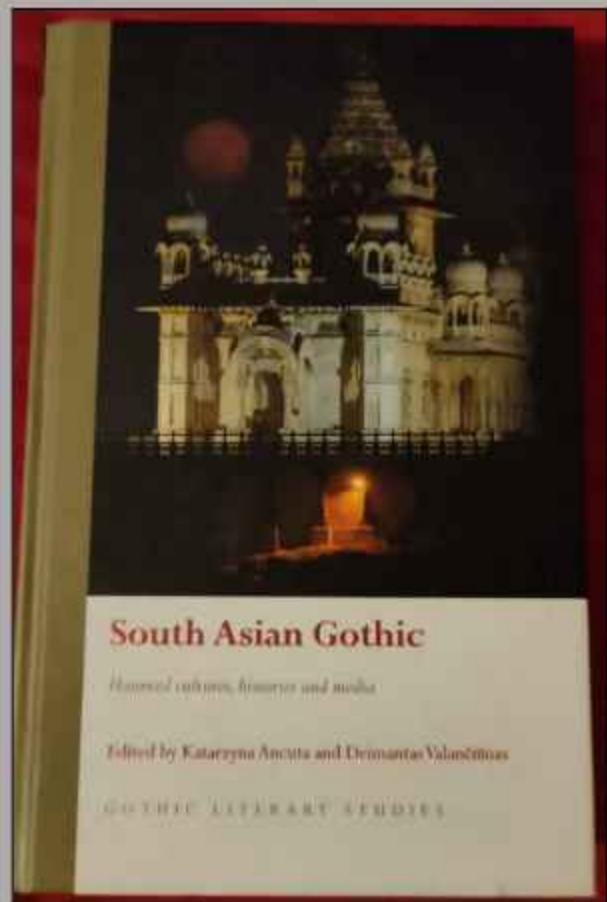
### Abstract

COVID-19 is a newly discovered infectious disease caused by strong virus and its infection has been increasing day by day. On the other hand, migrant labourers have the great contribution in economic growth in country. In this paper, we would like to discuss some of the important issues regarding the effect of epidemics like COVID-19 on the migrant labourers in unorganized sector of Hooghly district. For this purpose we collected the primary data from 200 sample household. The study shows that the maximum migrant labourers have lost their job and its effect is powerful as decreasing the migrant labourer's income. It also shows that the reverse migration will create severe pressure on the agriculture in rural economy, resulting poverty in a significant number of people.

**Key Words:** COVID-19, migrant labourers, agriculture, West Bengal

### Introduction

Coronavirus disease 2019, also called COVID-19 has been declared a pandemic by the World Health Organization (WHO) on March 11, 2020. The main symptoms of this disease are fever, cough and breathing trouble. These are usually expressed within 2-14 days. This new virus and disease had been unknown before the outbreak began in Wuhan, China, in December 2019. The first case in India was identified on January 30, 2020 in Kerala. More cases started coming to light in the country from March onwards and as on 12th July the total number of reported cases were 5,748 and still increasing too rapidly.



*South Asian Gothic*  
Haunted cultures, histories and media

edited by

Katarzyna Ancuta and Deimantas Valančius



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## South Asian Gothic

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GOTHIC LITERARY STUDIES

4

### Search and Subterfuge: The Haunting of the Bengali Bhadrakali in Tagore's 'The Hungry Stones'

PRASANTA BHATTACHARYYA



Devising or using a term like 'Indian Gothic' looks problematic since its multifarious implications can never be fully addressed in an article on Tagore as an Indian Gothic writer and it is materially condemned to work through a process of conscious selection. Since selection does mean a mode of exclusion, it must be made clear at the outset that Tagore as an eminent example is chosen as a representative writer of the Gothic because of his characteristic use of terror as a defining insight against rational empiricism in some of his signature short stories. From the inception, this feature remains central to the Gothic and is always enacted as an inalienable part of its narrative structure (Trott, 2005, p. 485). The example of a most significant, widely read individual author and the colonial history, culture and eventually a brand of imbued literature one may legitimately call Gothic pave the way to look for the postcolonial sensibility within which a story like the 'The Hungry Stones' is surely embedded (Ancuta, 2015, pp. 429–30).

For a start, it seems logical that I begin with the imperial Gothic sphere with all possible colonial and postcolonial reverberations since the impetus for a Gothic search is continental – and for India, a former colony, strictly British – in origin (Paravissini-Gebert, 2002, p. 229). A very physical locus for beginning could be the former province of Bengal with its Gangetic port-city of Calcutta

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# Sesquicentennial Commemoration Volume of Jalpaiguri District (1869-2019)



Edited by:

Dr. Ananda Gopal Ghosh  
Dr. Nilangshu Shekhar Das  
Dr. Nirmal Chandra Roy  
Dr. Kartik Chandra Sutradhar

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## CHAPTER 21

### Response of People to the Refugees of 1971: A Study of Jalpaiguri District (W.B) through 'Janamat Patrika'

Papiya Dutta

The Bangladesh war of independence in 1971 is one of the most important incidents in our recent past. In one hand it proved religion as a faulty component of nationalism among the Muslims of the sub-continent, on the other hand it gave another impetus (after 1947-50) towards the exodus of people (nearly one crore) from Bangladesh to different districts of West Bengal, Assam, Meghalaya, Tripura, Bihar etc.(though Tripura and Meghalaya were not states at that point of time). So far as West Bengal is concerned Major portion of those victims took shelter to the present day border districts of northern part of West Bengal as the largest part of the Bangladesh border is shared by this part of West Bengal. Jalpaiguri was one of them. It has to be taken into consideration that the Calcutta based newspapers could not cover all the news details of northern districts of West Bengal. So local newspapers, periodicals etc. are a good source of information of the particular history of the period. 'Janamat' and 'Tribott' were two weekly newspapers of Jalpaiguri district. 'Janamat Patrika' was the most popular weekly newspaper of Jalpaiguri covered those experiences vividly.

It was the largest exodus in the recent history of all over the world. Undoubtedly such a unique and tragic history is required in depth study at micro level. It is true that a trend of reconstruction of the history as well as memory study has been started recently, but most of the studies are given emphasis on the effects of migration of the refugees in West Bengal. The role of the people and various organizations such as clubs, sports association, social and religious organizations, intellectuals, political parties etc. are yet to attract social science researchers. They collected funds through charity programmes, football tournaments etc. and supplied foods, cloths, medicines among the refugees. It was not only unprecedented, but also a Himalayan

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# Molecular Plant Abiotic Stress

Biology and Biotechnology

Edited by  
Aryadeep Roychoudhury  
Durgesh Kumar Tripathi



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16

## Insight into the Molecular Interaction Between Leguminous Plants and Rhizobia Under Abiotic Stress

Sumanti Gupta<sup>1\*</sup> and Sampa Das<sup>2\*</sup>

<sup>1</sup>Department of Botany, Adishwar Mahavidyalaya, Chittagong, Bangladesh, 702401, West Bengal, India

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### 16.1 Introduction

#### 16.1.1 Why Is Legume-Rhizobium Interaction Under the Scientific Scanner?

Is rapid urbanization becoming more of a bane than a boon? The answer to this question is given by two parallel schools of thought with no common point of conjunction. However, one inevitable consequence of urbanization is population pressure that is leading to a perpetual decrease in the share of fertile farm lands, causing food shortages. The only promising solution put forward by plant researchers and breeders is to increase the production of sustainable high-yielding crops that can make up for the shortfall in food for the increasing population (Abdelrahman et al. 2017). Abiotic and biotic stresses are the main factors of environmental stress and cause severe damage to plant health at every level, including morphological, biochemical, and molecular, and thus ultimately reduce the quality and yield (Atkinson and Urwin 2012; Zhu 2016; Giménez et al. 2018). In order to protect crops from various abiotic and biotic stresses, the use of chemical fertilizers is on the increase. However, the random use of chemicals has raised severe concerns about safeguarding health and ecosystems (Irfan et al. 2017). Under this scenario, biofertilizers have emerged as safe and eco-friendly alternatives.

The need for nitrogen fertilizers is great, as nitrogen is one of the most important biomolecules required for plant growth and development (Chang et al. 2009). Although atmospheric nitrogen content amounts to nearly 78%, the usable amount is limited, since plants and other organisms lack the ability to convert molecular nitrogen to an assimilable form. Thus, agriculture has been reliant on the use of industrial nitrogen fertilizers that account for approximately 50% of fossil fuel used for their production. Moreover, not only does combustion of fossil fuel increase the release of greenhouse gases but leaching of nitrogen fertilizers also leads to the eutrophication of waterways (Crutzen et al. 2007). Thus, reducing the dependence on chemical fertilizers and exploring inexpensive and safe alternative nitrogen inputs is urgently needed.

Production of biological nitrogen fertilizers solely depends on the process of biological nitrogen fixation. Few diazotrophic archaeabacteria and bacteria have the unique

\*Corresponding authors

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ডক্টর বুদ্ধদেব চন্দ  
ও  
ডক্টর সোমনাথ দাস

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Hyderabad	No. 3-4-164, Lingampally, Besides Raghavendra Swamy Matham, Kachiguda, Hyderabad - 500 027. Phone: 040-27560041, 27591139
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বাংলা প্রবন্ধ  
বিবিধ ভাবনা

সংগ্রহণ  
পীরপন মালিক

সুচিপত্র

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ଶୀଘ୍ର ସମାଧି କରିବ  
୫/୨ ଲକ୍ଷ ଟଙ୍କା ଅନୁଭବ କରି  
ଆମାରିବି : ୧୯୦୨୨

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ପ୍ରକାଶକ : ଏକାନ୍ତ ସମ୍ପଦ ପ୍ରକାଶନ

## পারিবারিক নারী সমস্যা : অন্ধাশক্তির রায় সন্মিলকমার মেটে

**লেখক পরিচয়িতি :** ১৯০৮ খ্রিস্টাব্দের ১৫ই মার্চ জানুয়ারীর অম্ব হয় প্রিটিশ ভারতে বৃক্ষে  
উভিয়ার চেতনামণে। পিতার নাম হিস নিমজ্ঞি চৰণ মায়। মাতা কটুকের প্রদিপ গান্ধি  
কন্না হেমচন্দ্ৰী দেৱী। ছোটবেগো জোৰামুন্ড পাঞ্জাবীয়ন কুৰ হচ্ছ। ১৯১১ খ্রি পূৰ্ব  
বিহুবলীৰ থেকে তিনি যাত্রিক পশ কৰেন। এইস্বর সহবাসপ্রেতে সম্পূর্ণৰূপ শিখতে আসেন  
কুমুদী পৰিকল্পন সম্পূর্ণ হোমেন্টেন্সুনা থেকে আছে যান। গোল কটুকের রাজনৈতিক কুসুম  
থেকে অষ্টী পৰ্বতী দেৱী এবং প্ৰত্যু হৃষি অধিকৃত কৰেন। ১৯২৫ খ্রি বি.পি.গীতামোৰে তিনি  
পৰ্মা বিশ্বিলোকন থেকে ইয়াৰী সাহিত্য প্ৰথম হৃষি অধিকৃত কৰেন। ১৯২৭ খ্রি ৫২  
পঢ়তে পড়তে আই.সি.এস পৰ্যাকৃত তিনি প্ৰথম হৃষি অধিকৃত কৰেন। তিনিই প্ৰথম হৃষি  
হিসেবে এ গৌৰো নাম কৰেন। তিনি সূর্যতাৰি ঘৰতে আই.সি.এস হতে ইয়াজুৰ যান। ১৯৪২  
খ্রি তিনি সূর্যতাৰি চকৰিতে মোগামুন কৰেন এবং ১৯৪৭ খ্রি সোৱাবসনা প্ৰথম কৰেন।

ଶୈଳନେର ଅନୁଭବମି ସହି ଡ୍ରିଚ୍‌ଯା ଅତିଥିକିତ ହୃଦୟର ତୋର କାହେ ଅଭିନ୍ଵ କାହାମି ହିଁ  
ମାତ୍ରକାହେ ହେବ ଗୋଟିଏ । ତାବେ ତୋର ପାଞ୍ଚମ ଅଭିନ୍ଵାତ୍ମି ହିଲେ ବାଲୋତେଇ । ଅନ୍ତରଥର କାହାମି ହେବ କାହାମି ହେବ କାହାମି ହେବ  
କାହାମି ହେବ, କେମାନ୍ତିକ ଓ ଏହା ହେବିତା । ଶତାବ୍ଦିକ ଅଛେ ତିଣି ବଢ଼ା । ତାହା ଦ୍ୱାରା ହେ  
“ପରମ”—୧୯୧୯ ମୀ ପରମିତ ହୁଏ । ତୋର ପିତାମହଙ୍କାରୀ ଉପରେତୁ ହେବ—

১. সন্তানতা (৫টি খণ্ড)
  ২. অজ্ঞাতবাদ
  ৩. কলাশুলকটি
  ৪. সুরথমোহন
  ৫. মর্তের বর্ণ
  ৬. কলনারূপ
  ৭. আগুন নিয়ে থেলা (১৯৫০ প্রিঃ)
  ৮. পুরুষ নিয়ে থেলা (১৯৫০ প্রিঃ)
  ৯. অসমানিকা (১৯৫১) প্রিঃ
  ১০. না
  ১১. কলা।

ତୀର ଉପରେଥିଲେ ଅବଧିଗୁଡ଼ି ହୋଇ 'ତାଙ୍କୁ', 'ଆମଳା', 'ଜୀବନବିଜ୍ଞିତି', 'ଏକହୃଦୟ', 'ଜୀବନକାରୀ', 'ଦେଶକାଳ ପାତା', 'ଅତ୍ୱା', 'ନନ୍ଦନ କାହିଁ ଯିହାତା', 'ପାତା ପାତାମ୍ବେ' 'ପ୍ରତିବିବନ୍ଦି କଣ୍ଠି ଯାମାନା' ଇତ୍ୟାବି

# বাংলা সাহিত্যের ভাষা কালে-কালান্তরে

**সম্পাদনা**  
শ্রামী শান্তি গুপ্ত  
দীপ অক্ষয় মালিক

বাংলা সাহিত্যের ভাষা : কালে-কালান্তরে  
বালে পদ্মালয়ার তত্ত্বাত কালের উনিশ শতকের প্রধান দিন প্রাচীক :  
গোবিন্দ পাতেল, পরিচালক ও বিবেচনাকাৰ/১১৯  
অফিচিয়াল পার্টি

গোবিন্দ পুরি সাহিত্যের ভাষা ও পরীক্ষার প্রয়োজন : একটি সমীক্ষা/১২০  
শ্রামী শান্তি  
বালে পদ্মালয়ার পাতেল : বৈশ্বিক প্রতিনিধি/১২১

শ্রামী শান্তি

শ্রামীক সাহিত্যের মন্তব্য ও সাহিত্য-সংকলন/১২২

শ্রামী শান্তি

অক্ষয় মালিক পাতেলের গবাড়ায়া : একটি সমীক্ষা/১২৩  
শ্রামী শান্তি

'কে অধিক আলোর অধিক' : একটি কাব্যাত্ত্বিক অনুসন্ধানের ভাষা/১২৪  
অক্ষয় পাতেল

বালেশ কুমার চৌধুরীর মুখের ভাষা : উনিশ শতকের নিবাচিত নাটক/১২৫  
মর্তিব্য শাকুন

ছড়ার ভাষা অসমুকের সত্ত্ব—সত্ত্বের অসমুক :  
অক্ষয় মুখোপাধ্যায়ের 'লোকসাহিত্য'/১২০

শ্রামী মুখোপাধ্যায়

অক্ষয় মুখোপাধ্যায়ের বিশেষসাহিত্যের ভাষা/১২১  
অক্ষয়কুমুর মুখোপাধ্যায়

বৈশ্বিক পদ্মবন্ধীর ভাষা : কিছু কথা/২০৫  
শিখি ঘোষ

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মুদ্রণ, ২০১৬

পৰিমাণ : ১৫০

ছড়ার ভাষা অসমুকের সত্ত্ব—সত্ত্বের অসমুক

অক্ষয় মুখোপাধ্যায়ের 'লোকসাহিত্য'

শ্রামী মুখোপাধ্যায়

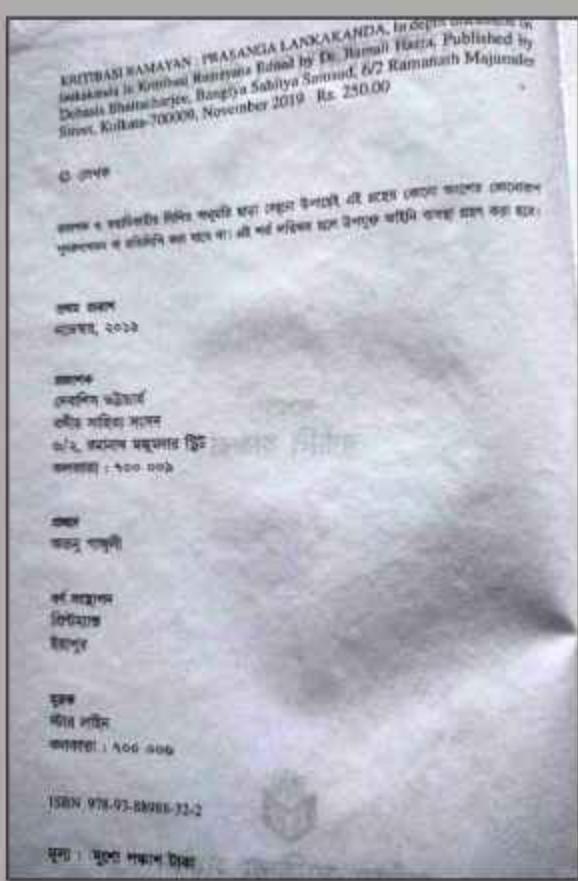
হজ সমসমাজ মূল কর্তৃতাত্ত্বিকতার পথিয়ে স্থান পায়। সুকুমার রায় বা 'অবগুণকরণ কর ন  
কর্তৃতা' আবেগেই ছড়ার প্রত্যেক নিরিয়াস কথা কলেজে-দুয়ারটুকু পার হয়ে একেবারে 'শ্রী  
শিখ' কা 'অক্ষী বড়ি আজো'-র মধ্যে তো বসতে পারে না। যদিও বৃক্ষদেব সন্তুষ্ট অসম  
সীমান্ত অসমুক সম্পাদিত বালে আবুনিল কবিতা সংকলনে সুকুমার বা 'অবগুণকরণ স্থান পেতে  
হৃত-কৃত সাহিত্য-সংকৃতি' (ছড়া বা কবিতা যখন আবৃত্তিকারের হাতে বা অবগুণকরণ  
ব্যবস্থাপনা প্রাপ্তি হয় রসিকজনের কাছে অনুমোদয়)-র পরিপন্থে এরা সেখানেও পৃথক অসম  
পেতে পারেন, বা কখনো আবুনিল বসাই। অবশেষ যখন নাম না জেনা কবিদের লেখা বা বল  
আলোচনার জীবন থেকে জাত ছড়া নিয়ে আলোচনা চলতে থাকে তখন সেশুনির পরিজ  
বর্ত আজো অনুরক্ত।

ছড়া সম্পর্কে আলোচনায় সুকুমার সেন মহাশয় ছড়াকে বলেছেন— 'শিখ-দে  
অমাদের বালো শুধু নূর সর্বকালের সর্বদেশের সাহিত্যের শিকড় ছড়িয়ে আছে এই ছড়া।  
এই সুকুমার সেনের মন্তব্য আবুনি সরাসরি উল্ল্পত্ত করতে পারতে

যে আরো কবলিক দেখায় গাঁথা পড়েনি, যে ভাষার বাক্তিবিশেষের কোনো কিছু কুল  
তাত্ত্বিক নিজের আবেগের ঘাটে নিয়ে স্থায়ী হতে পারেনি, এককথায় যে 'ভাষার শারী  
সহিতেরপুর জৈব পতেনি, এমনকি জৈব পঠারে পঠারের সম্ভাবনাও নেই, তেমন ভাষা যা  
গৱেষণার শিখ-দে আছে'।

ছড়া বা হেলেমুয়ি এইসব সৃষ্টিরও যে বিশেষ মূল্য আছে সেই সচেতনতাৰ সৃষ্টি  
হয়ে পালনো, আলোচনা-শতকের প্রে ও উনিশ শতকের প্রথমজাগো। আরও প্রা  
কশে বৰু পতে প্রথম ও ছড়া সংকলনের মধ্যে নিয়ে রবীন্দ্রনাথ বালের 'কু  
সংগৃহীত মৃগাবলী' গুলী কৃতলেন আমাদের।

রবীন্দ্রনাথ (১৮৬১-১৯৪১) টিরি 'লোকসাহিত্য' প্রস্তুত দৃষ্টি দীর্ঘ অন্ধে  
('হেলেমুয়ি' ছড়া : ১) আৰ 'হেলেমুয়ি' ছড়া : ২) অনেকগুলি ছড়া নিয়ে



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ପ୍ରତିବାନେ ରାମ: ଲକ୍ଷ୍ମାକଣ୍ଡେର ପ୍ରେସିଟେ  
ଲଙ୍ଘ ମୁଦ୍ରାପାତ୍ରାଳୀ

“অন্ত দেখতা আপি যত পাপ করে।  
কোন ক্ষমতার সুর নামে করে।” (শ. ২)

একজন অবস্থার নথি ১০—  
অবস্থার অন্য এবং নথিটির বিবরণেস্থ তাঁর অন্যতম উৎসুক মুটের সময় আ  
বিক্রিয় পদ্ধতি। অবস্থারের সূচনা তে সক্ষাকাতে এই পদ্ধতি বিস্তারেয়ে  
কৃতিত্ব—“তখনের সূচনা করা সূচনার ঘর” (পৃ. ২৪৯)। রাজপুরাণ হস্তোষীয়  
কান্তে—“ভূমি অনুভূত হয়ে বিশু অবস্থার” (পৃ. ৩০০)। ইউরিডের সূচনার পর মনোনী  
বিশিষ্ট রে পুরাণের জন্ম এই সমস্তের অধিন হারি/কলিতে রাজসূয়ুল ঘণ্টা” (পৃ.  
৪৫৭)। জন্ম দিয়েকে অশুধ্য করে নিয়ে দেলে রাম শীতাতে উত্তোল ডুঁই হন। শীতা  
শিখিতিয়ে রাম অভিজ্ঞ জন্ম” (পৃ. ২)—এ জীবন নথিগুলোর অন্যতম উৎসুক হিল। আর  
জন্ম জন্মস্থ এবং শীত উত্তোল—যা জন্মগুলোর প্রথম ঘণ্টা সংযোগিত হয়েছে লক্ষণগতে।  
অশুধ্যের অভিজ্ঞ অবস্থা স্থানে রামকে পরি। অবস্থা রামকে হবে কৃতিত্বসী জাহানের  
সূচনা সূচিত্ব। বিশুল স্থানগুলোর অন্যতম রাম। রামারামের প্রতার প্রতির  
জন্ম-অবস্থার সীমা পরিষ্ঠিত হয়েছে। সূচনাকৃত তার সংক্ষিক্ষণ রাম। রামার স্থানে

“ବ୍ୟାପି ଯାମେ ଯାଥେ ଶୁଭିଦମ ତିକଳ  
ନିର୍ମିଲ ସରକାରୀ ଥାଏ ।

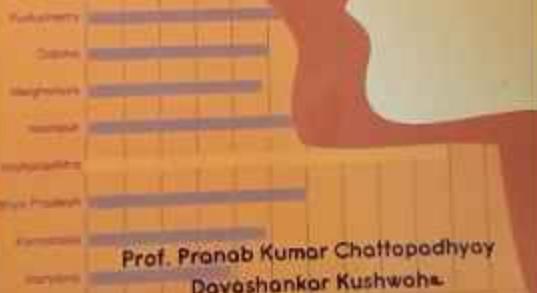
সর্ব পাত্র নিষেধন সম্মত করা হচ্ছে।

“ପୁଣି ପାଦ କାଳ ହେ କରୋ।” (୫୨୫) ଯତନେ ମୁଁ କାହାର କାଳ (କୁଳ ଯାତ୍ରାରେ କାଳ କାହାରଙ୍କେ ଏହି) ଓ ଯତନେ ଯୋଗନେ ଯାଇଲେବୁବେ  
ତାହାର ମିଶ୍ର ବେଳ ଲିଖିତ ବାବେ ଏହି କରିବେ ଅନୁଷ୍ଠାନ ହାବା। କିମ୍ବା “ଉଚ୍ଚରେ ଯାଇବାର କରିବେ  
ଯାଇବାର” (୫୨୫) ଯାଇବାର ଲିଖିତ ହଜନି ବେଳେଇ କିମ୍ବା ଯାଇବାର—“ଆହୁ ଏହି  
ଯାଇବାର ଯାଇ ଯାଇବାର” (୫୨୫) କବି ଦୂରକେ ଆମାର ଯୋଗନେ ଏହି ଯାଇବାର  
କରିବେ—

ପ୍ରକାଶ ମାତ୍ରମେ ଲିଖିଯାଏ ହୁଏଥିବା

# Gender and Development

Aspects of Social and Economic Change



Prof. Pronab Kumar Chattopadhyay  
Dayashankar Kushwaha

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## Ability to Repay Loans in the Non-Agricultural Sector in the District of Hooghly and Bankura

Dr. Vivekananda Maitra

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### Abstract:

The aim of this paper is to investigate the determinants of the borrower's ability to repay loans to the banks in the district of Hooghly and Bankura in West Bengal. For this purpose we have collected the primary data from 128 sample borrowers who have taken loans from Commercial and Regional Rural bank. We employ the probit and logit models to identify the main determinants that influence ability to repay loans of the borrowers. The result of this study shows that the ability to repay loans of the borrowers is influenced by education, proportion of investment financed by loan, worker population ratio, productive use of loans, the growth rate of income and the entrepreneurship is run by male.

**Keywords:** Ability to repay, Repayment, Wilful, Investment, Overdue

### 1. Introduction

In the rural areas, we see that many institutional credit sectors are seriously breaking down due to presence of bank defaults or overdues. As a result the banking facilities cannot be increased in rural areas and further it cannot be extended to different corners of the society in the rural areas. So ability to repay loans to the banks is the vital factor to more build up the society. And that is why, in this paper we want to find out the different factors that help to increase the borrower's ability to repay loans to the banks.

The ability to repay loans to the banks is the explained variable in our study in our logit model of ability to repay. But, what can be the appropriate index of the ability to repay loans to the banks? Different



ବ୍ୟନିଶ ଖତକେର ଗାଲୋ ପୁଣିଶୀ ତମତ୍ତ କାହିନିକେ  
ସମାଜଚିନ୍ତା  
ଦୂରାତ୍ମା ବନ୍ଦୋପାଶାର

অসম সাহিত্য এবং পাঠ্যকারীর ক্ষেত্রে বিশ্বাস দেখানো অসমীয়া, যার জন্ম, উন্নয়ন  
বা উন্নয়ন পৃষ্ঠা নিয়েও কোথা যাব। অসমীয়া সাহিত্যকারীর মেল কিছি প্রেরণ কো  
থা থেকে আসতে প্রয়োগ কোথা কোথা— “Who done it?” দেখতে পাইলে, অস  
ম অসমীয়া কোথা থেকে আসে কোথা বের কোথা। এই অসমীয়া লাইব্রেরীতে কুনৈ কুনৈ

বালা ক্ষমতা প্রয়োজন করাইন হিসেবে অসমীয়া মুক্তি প্রাপ্তি এবং আধুনিক প্রযোজন করাইন বৃক্ষিক কাঠিনি' উচ্চেষ্ঠা শৈলীটি দেখল হয় বালা মৌলিক প্রয়োজন প্রয়োগ। তথ্য হয়ে আর মাত্র নহে প্রয়োজন মুক্তি মানে প্রয়োগ তিনি হচ্ছেন শশীলোচনার্থী।

চিত্ৰ এই অসমীয়া পিলোচিন কাঠিনি বৃক্ষের পুষ্টি প্রযোজনার জন্যে প্রযোজন কৰা হয় যুক্ত ক্ষমতা পুষ্টি প্রযোজন মাত্র উনিশ শতকের কান্তিমত্ত হয় এবং পুষ্টি কেসগুলিৰ পুষ্টি প্রযোজন কৰে প্রক্ষেপণ হয়েছিল পিলোচন পুষ্টি প্রযোজন কৰুন', এই পৃষ্ঠা মুক্তি প্রযোজন কৰাবিশ্বিত হয়। এই কাঠিনিপিলি নিম্নেই আছে-

সঙ্গে গালি দিয়েছিন অনুমতী প্রিয়ার সুবোগপাতাম অশ্বাহ কলে প্রিয়াকে ধূঢ়া দূন। অনুমতী প্রিয়া কেলার জুবরামশুরের ছুয়াজায়। পিলি ১২৩ বাস্ত থেকে ১২ বছত পর্যন্ত 'বাবোগার সন্তু' নামে একটি অদিক শুভ্রা পরিচয়।

ଶିଳ୍ପିକୁମାର ଦାସ ସକଳିତ ଓ ଖଣ୍ଡାନିତ 'ନାମେବ ବାଲୀ ମହିରାଜୀ' ଅଥ-ବାରୋଟାର ଦ୍ୱାରା (୧୯୯୨) : ଡିରାନାଥ ମୁଖ୍ୟାପାତ୍ରା ଏହି ଛିଠିକ୍ରିଟିକ ପତ୍ର ଏକ କବିତା

প্রধানত নিজের অভিজ্ঞতা অবলম্বনে এই গবর্নেন্স প্রিয়ীত হচ্ছে। তবে কেবলমাত্র নিজের টেকনিকাল গবেষণ অনুসূচিত সরকারিত হচ্ছে। এর ১০, ১১, ১২ সংস্কার সম্মতভাবে প্রযোজন করা হচ্ছে। (১০০০ সদস্য আধার) প্রিয়ীতে—  
“বাস্তবিক আমাদের সেশনের পক্ষে নেওয়া!” এই প্রয়োগের বাইরে প্রিয়ী

(from South Africa) O. Natawala et al.  
Editorial: Dr. Pragnadevi Mehta

placed by Dr. Priscilla Marin

ପାତ୍ର  
ମନେ ମହିଳା  
ଏହି କଥାରେ ଅଧିକାର ଯାଇ  
କଥାରେ ... କଥାରେ ...

卷之三

ପ୍ରକାଶ ଦେଖିଲାମ  
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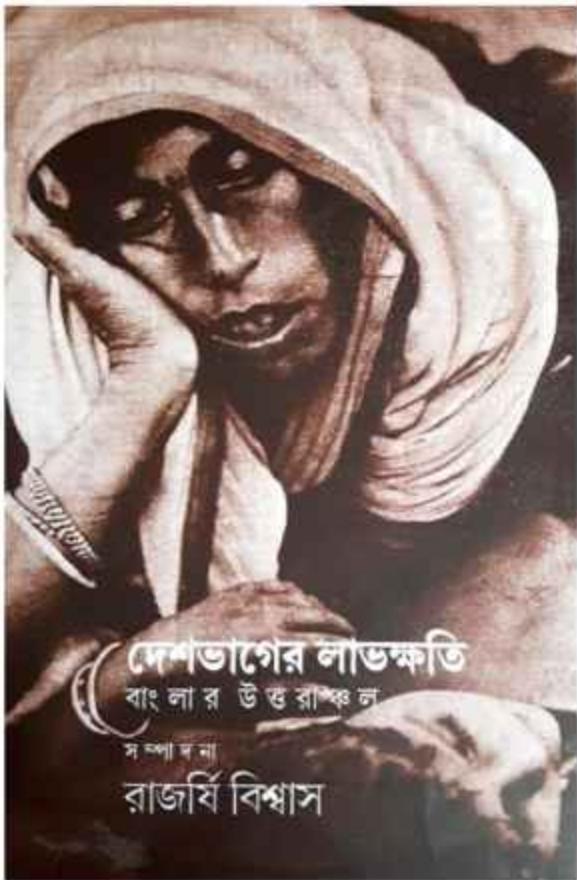
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१०९ वृत्तिरूप

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ପ୍ରକାଶ :  
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#### 第四章 算法设计



## দেশভাগের লাভক্ষতি

বাংলাৰ উৎসুক ল

সমাজ না

রাজবিশ্বাস

Deshbhager Labhkharti: Bangla Utsaraksh  
edited by Rajarshi Biswas

প্ৰথম প্রকল্প  
কলকাতা বইমেলা ২০২০

প্ৰকাশক

অপিয়া বিশ্বাস

পাৰ্শ্ব ল

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০০৩ ২২৪১ ০৪০৪ (১ খেকে ৮টা)

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বিপুল পৰ

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দাম ৫০০ টাকা

### সৃষ্টি

তুলনামূল্য ১

বাংলাদেশ উৎসুকল পট-প্ৰিবৰ্তন

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### একান্তৰেৰ পৰি

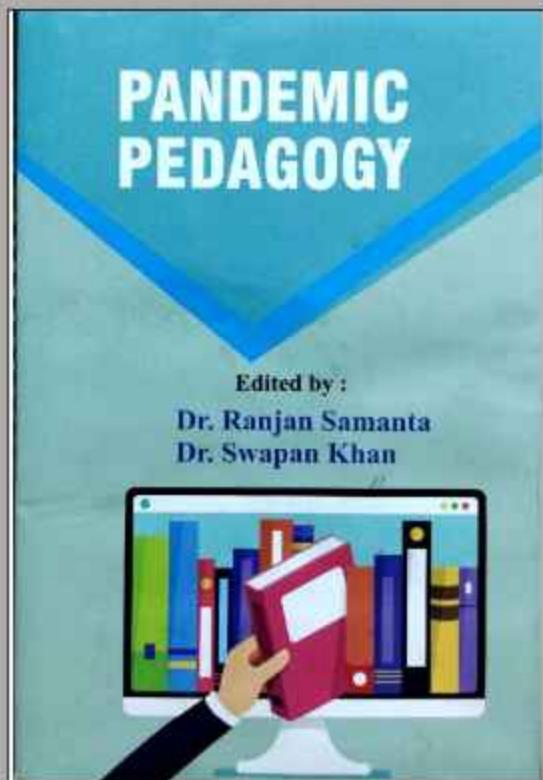
শৱণাবী: সংবোধপত্ৰ-পত্ৰিকাৰ ১৫১ পাপিয়া দণ্ড  
চৰোয়াদেৰ কৰা ১৫৩ অমুলক বাব

### শৱণাবী: সংবোধপত্ৰ-পত্ৰিকাৰ

পাপিয়া দণ্ড

দেশভাগেৰ তিন মশকেৱ মধ্যেই এক ভয়াবহ পৰিহিতি সমসাময়িক ভাৰত  
তথা পলিচকবঙ্গেৰ আৰ্থসামাজিক জীবনে ছিল এক বিপুল আৰাট। এটি  
ছিল তৎকালীন সমস্ত পৃথিবীৰ বৃহত্তম অভিনন্দনুন (exodus)। কিন্তু আশ্চৰ্য  
কৰা এত বড় একটি ট্ৰাইজিক ঘটনার গবেষণাভিডিক চৰ্তা উত্তোলনেৰ নিৰিখে  
হয়নি কলালৈ চলে। বাংলাদেশি শৱণাবীদেৰ সিহভাগ আৰুৰ নিয়োছিলেন  
পলিচকবঙ্গে আৱ এৰ মধ্যে উত্তোলেৰ পৌচাটি জেলাই (দাঙিলিয়োৱে তৰাই,  
জলপাইগুড়ি, কৃতিবাহাৰ, মালদা ও পশ্চিম বিনাজপুৰ) ছিল বাংলাদেশেৰ  
সীমান সংলগ্ন। তই উত্তোলনেৰ শৱণাবীদেৰ আগমন হয়েছিল অধিক।  
কাবগ বাংলাদেশ সীমান্তেৰ সুনীৰ্ধ এলাকা উত্তোলনেৰ সংলগ্ন হওয়ায়  
উত্তোলকেই এই ভাব বহন কৰাতে হয়েছিল দক্ষিণবঙ্গেৰ তুলনায় বেশি।  
বৰ্তমান অবক্ষেত্ৰে এ বৰকম সংকটজনক পৰিহিতিতে উত্তোলনেৰ অবস্থা এবং  
সাৰিষ্ঠ সমস্যাৰ প্ৰতি উত্তোলনেৰ বৌদ্ধিক মহল থেকে শুক কৰে একেৰাবে  
সাধাৰণ মানুষ পৰ্যন্ত রাজনৈতিক, অৱোজনৈতিক, সৱকাৰি, বেসরকাৰি সকল  
ভৱেৰ মানুদেৱ প্ৰতিক্ৰিয়া ও ভূমিকা কেমন ছিল, তা কিন্তু নিৰ্বাচিত সংবোধ  
পত্ৰ ও পত্ৰিকাৰ সূত্ৰে প্ৰাপ্ত তথ্যেৰ ভিত্তিতে আলোচনাৰ চেষ্টা কৰেছি।

ওপৰ বাংলাদেশ মুক্তি যুদ্ধ ভুক্ত আগে ও পৱেৰ অবস্থা পৰ্যালোচনা কৰামে  
থেক যায়, সংবোধপত্ৰ-পত্ৰিকাগুলিতে অনুপৃষ্ঠাবৰে এই যুদ্ধ শুক হলে কী



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### Inspiring Online Education in COVID-19 Pandemic: Role of Educational Institutions and the Governments

**Dr. Pronobi Porel**

Librarian

Rabindra Mahavidyalaya, Champadanga, Hooghly

**Abstract:** The whole world has been changed in every aspect of the education due to the Covid-19 pandemic situation. Recently, the people are getting used to new daily routines. Most of the educational institutions are physically closed. A large number of the students are far from the conventional educational system. In this situation many of the institutions and the Government organizations have taken so many positive initiatives to foster the education in new modes. Most of the important initiatives are to increase the date of access free to the online database for paid members, free access to online resources for all the peoples, free membership for the students to access resources and so on. All of these initiatives have been focused to inspire online education in this pandemic situation. In India, the Central and State Government have been taken many initiatives for online education. Many educational institutions in India have been proposed new programmes for their students for online education. The present paper highlights all those major initiatives.

**Keywords:** Online education, virtual education, COVID-19 Pandemic, online resources, virtual learning

#### 1. Introduction

This pandemic started spreading very rapidly around the globe. Most of the educational institutions have been closed around the world to prevent the spread of Covid-19 pandemic. All the regular life is disturbed due to this virus. This closure has greatly affected the student community in their teaching learning process. Most of the educational institutions have been closed and most of them are trying to take



ପ୍ରକ୍ରିୟା ଅନୁମୋଦିତ ହେଲାମୁଣ୍ଡଳା ପାଇଁ ଏହା ଏକ ଅନୁମୋଦିତ ପରିଚୟ ପାଇଁ ଅନୁମୋଦିତ ହେଲାମୁଣ୍ଡଳା  
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ମୁଦ୍ରଣ କେନ୍ଦ୍ର  
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ପ୍ରକାଶ ଏକିକାଳ ମୁଦ୍ରଣ କେନ୍ଦ୍ରାଳ୍ଯୋଗିତା ଯେତେ ଲେଖନ

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新嘉坡、吉隆坡、新德里、新加坡

ମୁଦ୍ରଣ ନିଃବ୍ରାହ୍ମିନୀ ପରିକଳ୍ପନା

বঙ্গের সমবায় আন্দোলনের অতীত ও বর্তমান :  
একটি সমালোচনা

সমিতি পুর্ণিমা পাই শৰীর ধূমাদাসি, হিসো, হেৱ, ঘৰিয়েকে এবং উচ্চ বৈচিত্র্যসমূহের নিয়া আনন্দলম্বন সময় সমাজকে ছিকা খেতে দেন মুল করে দিয়ে দেন প্রতিনিধিত্ব। অধিবেশন সময়ে লালু পৰ্বতীর অভিজ্ঞান হিস. সেগুলো অন্যদলে পুরুষ নিয়েও কথা। সোজে সোজে মানুষের সম্ভাবনা এবং প্রয়োগ হতে থাকল কোথায় তার অধীন? দেখি আপনি মানুষের নিয়েও মনে একটা অনুভূত করতে লাগলেন তিনি অভিজ্ঞান পৰি করতে পদ্ধতি এবং তিনির নির্বাচ কো যাব কৰতে কীভাবে কৰিব তোম সুব এবং সমৃদ্ধিকৃত হুলু খোসে সাধিত আপনি বিষের প্রভাবে কো যাব সুবিধানামক হুলু প্রতিকূল প্রভাব আৰু বাসন্ত বা সমাজি বিষের প্রভাবে কো যাব কৰতে নিয়েন। এই কাহারে এবং কাহাতি পৰ্যাপ্তিকৰণ সময় গড়ে পৰি কৰতে পাবলা। প্রেরণী সময় সময় দাবে সময় সময় নিয়েও কৰে আৰু অন্যদলে পদ্ধতি কৰে নিয়েন। এইভাবে সমস্যাকৰণে পদ্ধতি কৰে আৰু তীব্রভাবে দেখে দেখে কো যাব একজনের পৰি যাব দিবিয়ানামক এক বৰিত পথে উঠেৰিব। আৰু অন্যদলে, পৰামুচ্ছিক নিয়েও। তাঙেল মাঝে অন্যিবেক দেন প্রয়োগিতি সুবৰ্ণ ও পৰামুচ্ছিক আৰু পুর্ণিমানামক দেখিবি অনুভূতিকে কো দীপম ও তীব্রিক কৰেৰ মধ্যে। এই কৰ্তৃত দেখেই সামৰিকালীন দৈনন্দিন প্রয়োগিক সময় পথে উঠেৰিব। সোজে দেখে দিবি পৰামুচ্ছিক উপায়ে এবং সোজি এই সম্ভাবনা সময় আৰু নিয়েও কো যাব কৰতে একটা সামৰণ্য কৰবে নিয়েৰিবেন। এইভাবেই পুর্ণিমানামক দ্বিতীয়ের মধ্যে পোৰ্যাদিক সমস্যাবিহুয়া পৰামুচ্ছিক নির্ভৰশীলতা বা স্বাধীনতা বা অন্যদলের পথে পৰি কৰতে উঠেৰিব।

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**Trends of LIS Education and Professions: Retrospect and Prospect**

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**Syllabus of different courses in Library & Information Science in the University of Calcutta: An Analytical Study**

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&

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**Abstract:** In the state West Bengal there are eight regular state-aided universities where the subject Library & Information Science is being taught. Among these universities the University of Calcutta is one of them. The department of Library & Information Science (LIS) of the University of Calcutta has introduced different courses on the subject Library & Information Science. The syllabus of different courses is of different types and is greatly influenced by the Information & Communication Technology. The objective of this paper is to highlight about the changes of LIS education in the department of LIS in the University of Calcutta.

**Keywords:** LIS education, LIS Syllabus, course structure, UGC

**Introduction:**

The Library & Information Science education in our country is almost eleven decades old. It was started with the introduction of a training course in 1911 in the state of Baroda and in Punjab University in the year 1915. Dr. S.R. Ranganathan, the father of Library Science in India developed this field of study. He introduced this course at the Madras University during 1926-1931. In the state West Bengal at present there are eight regular state- aided universities where the subject Library & Information Science is being taught. These universities are namely the University of Calcutta, Rabindra Bharati University, Jadavpur University, University of Kalyani, University of Burdwan, Vidyasagar University, North Bengal University and the Gour Banga University. It is the University of Calcutta in West Bengal which introduced Library Science course at first in the year 1945. Besides the regular universities the LIS

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# Approaches to Sustainable Development

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## Income Generation in the Agricultural Sector

### The Instrument for Repayment of Bank Loan

Vivekananda Metu

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#### Abstract

Income generation is the basic and primary objective of intake of bank loans. We would like to investigate in this paper whether incomes were generated in the agricultural sector due to taking of bank loans in the districts of Hooghly and Bankura in West Bengal. For this purpose we have collected the primary data from 672 sample borrowers who have taken loans from Commercial, Regional Rural and Co-operative bank. Given the sample observations of 672 households, we intend to estimate the linear model with the help of ordinary least squares method. The study shows that the income generation due to intake of bank loans is influenced by the worker population ratio, productive use of loans, shortfall of desired investment, interest rate differential and education. It is shown that the growth rate of income or income generation varies directly with the level of income.

**Keywords:** Generation, Repayment, Wilful, Defaulter, Investment

#### Introduction

In a country like India, agriculture has a dominant share in the economic growth and provides the base for the growth of other sectors. But the small and marginal farmers who dominate agriculture in West Bengal are not in a position to generate sufficient savings to take care of fixed capital formation. So they entirely depend on loan. If the loans are properly used in production, this will result in increased output and income. Consequently the borrowers will be able to repay the loans to banks. If the process goes on in this manner the wheel of development will smoothly run. But the problem starts,

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## A Journey from MARC to BIBFRAME: A Preliminary Discussion for the Future of Cataloguing

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*Abstract:* Though Machine-readable cataloguing (MARC) is an effective format for bibliographic data for exchange of and shared cataloguing, it never uses the benefits of internet by sharing bibliographic data to the web universally. This paper studies focus on the new scheme introduced by Library of Congress – BIBFRAME – for replacement of MARC. It tries to discuss its basic structure and compared to MARC with an example. Finally it shows the power of BIBFRAME.

*Keywords:* MARC, BIBFRAME, Linked Data, Semantic Web, Information Description

### 1. Introduction

In the 1960s, the Library of Congress (LC) introduced MARC (MAchine-Readable Cataloguing standards). It was developed by American computer scientist Heinzlitz Avram working in the LC. It was designed to create electronic cataloguer records by using set of digital formats for the description of items catalogued by libraries, such as books. Many of this community urge for a new data model for bibliographic description which will be more useful both within and outside the library community. In 2002, library technologist Roy Tennant argued that "MARC Must Die" by observing that "the fields are not explicitly labeled but coded with someone unfamiliar with the complicated syntax" (Tennant, 2002). According to him the MARC standard is old and it is used only within the library community for displaying cataloguing data.

The LC officially announced BIBFRAME, short form for Bibliographic Framework in May 2011. The LC had contacted with Zepheira, a data management company, to develop a linked data alternative to MARC and then they developed a new model called MARC Resources (MARC1). Later it was renamed as BIBFRAME, a linked data entity-relationship model based on the Resource Description Framework (RDF) (Krueger, 2013). The main aim of this initiative was "to re-envision and, in the long run, implement a new bibliographic environment for libraries that makes "the network" central and makes interconnectiveness commonplace" (Miller, Ogbaji, Mueller & MacDougall, November 7, 2012).

