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## Understanding the factors responsible for selection of Hearing Aid for Senior Citizens

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### Abstract

Hearing impairment is one of the most common disabilities. The problem relates to communication and socialization challenges. Increase in human longevity would increase the cases of hearing loss in elderly citizens. This impacts the overall personality of a person. People generally get demotivated and introvert. In severe cases people develop suicidal tendencies and loose the interest to stay alive. A major challenge of audiological rehabilitation has been to encourage those who have fitted hearing aids to use them. The aim of the present study is to describe hearing-aid use among older adults and to identify motivational factors associated with hearing-aid use. Suggesting that these factors are important and should be emphasized in rehabilitation programmes. In looking across the literature, we have identified five main factors which can determine whether or not someone would get a hearing aid: - Self-reported hearing loss, stigma, degree of hearing loss, personality or psychological factors, and cost of hearing aids. Different factors affecting the usefulness of hearing aids can be investigated in two stages. The first is the stage before receiving hearing aids when a person looks for help and receives hearing aid and the second stage after receiving the hearing aid when the person has used the hearing aid and reports his or her satisfaction. The factors affecting the receiving stage are the amount of hearing loss, problems experienced by the person, the patient's motives and expectations, personality traits, auditory counseling, and economic issues. However, after receiving a hearing aid, factors such as other non-auditory abilities, hearing loss, age, duration of hearing aid use, hearing aids characteristics, disabilities, attitudes, and personality traits affect the satisfaction of the patient.

**Keywords:** hearing-aid use, older adults, accepted need, follow-up support, rehabilitation, hearing loss

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Title of paper: Activity of ROCKII not ROCKI promotes pulmonary metastasis of melanoma cells via modulating Smad2/3-MMP9 and FAK-Src-VEGF signalling.

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## Activity of ROCKII not ROCKI promotes pulmonary metastasis of melanoma cells via modulating Smad2/3-MMP9 and FAK-Src-VEGF signalling

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### ARTICLE INFO

#### Keywords:

Metastatic lung melanoma  
pROCKII<sup>Ser1366</sup>  
MMP9  
Smad complex  
VEGF regulatory axis  
KD-025

### ABSTRACT

Rho-associated coiled-coil kinase (ROCK) inhibition decreases tumorigenic growth, proliferation and angiogenesis. Multifaceted evidences are there about the role of ROCK in cancer progression, but isoform specific analysis in secondary pulmonary melanoma is still unaddressed. This study explored the operating function of ROCK in the metastasis of B16F10 mice melanoma cell line. Inhibition by KD-025 indicated dual yielding role of ROCKII as it is associated with the regulation of MMP9 activity responsible for extra-cellular matrix (ECM) degradation as well as angiogenic invasion as an effect of Src-FAK-STAT3 interaction dependent VEGF switching. We found the assisting role of ROCKII, not ROCKI in nuclear localization of Smads that effectively increased MMP9 expression and activity ( $p < 0.01$ ). This cleaved the protein components of ECM thereby played a crucial role in tissue remodeling at secondary site during establishment of metastatic tumour. ROCKII phosphorylation at Ser<sup>1366</sup> as an activation of the same was imprinted essential for oncogenic molecular bagatelle leading to histo-architectural change of pulmonary tissue with extracellular matrix degradation as a consequence of invasion. Direct correlation of pROCKII<sup>Ser1366</sup> with MMP9 as well as VEGF expression in vivo studies cue to demonstrate the importance of pROCKII<sup>Ser1366</sup> inhibition in the context of angiogenesis, and metastasis suggesting ROCKII signaling as a possible target for the treatment of secondary lung cancer specially in metastatic melanoma.

### 1. Introduction

Melanoma is a type of cutaneous neoplasia which is originated from the pigment-producing cells known as melanocytes [1]. Disease primarily develops in the skin but may rarely occur in the nose, eyes and sometimes inside the body such as in the mouth, throat even in the intestine [2]. It is known for its aggressive nature with a least chance of prognosis until tumours become mature and metastasize at variety of atypical locations [3]. Median overall survival of malignant melanoma

(MM) is only 5.3 months and the mean survival is 9.2 months [3]. Clinical studies identify lung as the most common metastatic site (18–36%) for melanoma [4] and only 5–19% of patients are generally survived after five years of diagnosis [3].

Malignant melanoma at lung creates further complications since the prophecy of lung cancer is poor due to its asymptomatic nature at the initial phase [5]. In fact, the symptoms are often mistaken with infection or effect of smoking, which further delays diagnosis. Therefore, majority of metastatic lung melanoma cases are diagnosed at either stage III or IV,

**Abbreviations:** CDK, cyclin dependent kinase; DMEM, Dulbecco's Modified Eagle's Media; DMSO, dimethyl sulphoxide; ECM, extracellular matrix; EDTA, ethylenediaminetetraacetic acid; FAK, focal adhesion kinase; FBS, foetal bovine serum; IL, interleukin; JNK, Janus kinase; MMP, matrix metalloproteinase; PBS, phosphate buffered saline; ROCK, rho associated protein kinase or rho-associated coiled-coil kinase; STAT, signal transducer and activator of transcription; TGF $\beta$ , tumour growth factor $\beta$ ; VEGF, vascular endothelial growth factor; Smad, Sma-and Mad-related protein; CBP, CREB-binding protein; HMGB1, high mobility group box protein1.

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Year 2022

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Name of the teacher: Dr. Shibu Das



Title of paper: A multiplex polymerase chain reaction for the simultaneous detection of the virus and satellite components associated with cotton leaf curl begomovirus disease complex


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Journal of Virological Methods  
Volume 300, February 2022, 114369


## A multiplex polymerase chain reaction for the simultaneous detection of the virus and satellite components associated with cotton leaf curl begomovirus disease complex

S. Palchoudhury<sup>1</sup>, V.K. Khare<sup>1</sup>, N. Balram,  
U.K. Bhattacharyya, S. Das, P. Shukla, P. Chakraborty,  
K.K. Biswas  


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Name of the teacher: Dr. Gouriprosad Datta

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RESEARCH ARTICLE



International Journal of  
PHYSICAL EDUCATION, FITNESS AND SPORTS



DOI: 10.34256/ijpefs2225

## Reference Interval of Muscle Damage Indices and Cortisol in Young Athletes of Various Sports Discipline

Surojit Sarkar<sup>1</sup>, Swapan Kumar Dey<sup>2</sup>, Gouriprosad Datta<sup>1</sup>, Amit Bandyopadhyay<sup>3,\*</sup>

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**Abstract:** Creatine kinase (CK), lactate dehydrogenase (LDH) and cortisol are widely accepted as biological markers. The purpose of the study was to frame the reference interval for muscle damage indices (CK, LDH) and cortisol in the young athletic population of various sports disciplines. 260 young male players [i.e., football (n=62), hockey (n=60), gymnastics (n=36), swimming (n=28), table tennis (n=25), sprint-jump-throw (n=36) and middle-long distance running (n=13)] were recruited for the study (mean age = 15.6±1.59 yrs). Assay of LDH, CK and cortisol was done using the standard enzymatic protocol. The reference interval was calculated by following the Clinical and Laboratory Standard Institute (CLSI) C28-A3 guideline and "MedCalc" software (version 19) with a 90% confidence interval. Serum LDH range was from 148.00-324.00 IU/L with a mean of 233.2±34.74 and a median around 236.25. Serum CK ranged from 17.00-43.50 IU/L with a mean of 28.93±5.23 IU/L and a median around 28.00. Cortisol ranged from 4.99-15.78 µg/dl with a mean of 9.31±2.09 µg/dl and a median around 8.90. The present study confers 165.63 - 303.43 IU/L, 19.00 - 40.09 IU/L and 6.07-14.15 µg/dl as the reference interval values for LDH, CK and cortisol, respectively. The present finding will guide the researchers to avoid misinterpretation of muscle damage indices values during any phase of competitive training of sports person.

**Keywords:** Reference Interval, Creatine Kinase, Lactate Dehydrogenase, Cortisol, Sports Discipline.

### About the Authors



**Mr. Surojit Sarkar** has pursued both B.Sc (Physiology) in 2013 and M.Sc (Physiology) in 2015 from the University of Calcutta, India, and now he is pursuing a Ph.D. at the same university. Mr. Sarkar has also completed various courses, i.e., Workshop course on Statistics (from ISI, Kolkata) and Advance Proteomics course (from IIT, Kharagpur). Mr. Sarkar has experience working with many sophisticated high-end sports science techniques and molecular biology techniques. He is currently working as Physiologist Gd-III (Lead) at Sports Authority of India. He was awarded 'National Fellowship in Sports' in 2016 under the Ministry of Youth Affairs and Sports (MYAS), Govt of India and conducted the Fellowship under the Sports Authority of India.



**Dr. Swapan Kumar Dey** was the senior scientist of the Sports Authority of India (SAI). Presently, he is a visiting professor in the Department of Sports Science, University of Calcutta. He has done his master's and Ph.D. from Calcutta University in 1979 and 1988, respectively, in Sports, Exercise and Cardio-respiratory Physiology. Dr. Dey has more than 35 years of research and 30 years of teaching experience in the field of Sports and Exercise Physiology at graduate and post graduate levels. He teaches Sports Anthropometry and Sports Nutrition and Physiology to the students of various courses undertaken by SAI and post graduate physiology and sports science students. He is an active member of the Indian Science Congress Association, the Physiological Society of India and the Indian Association of Sports Medicine. He was attached as a Physiologist with the All India Football Federation (AIFF) of AFC's development program in India and a member of the

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Name of the teacher: Dr. Sahana Mazumder Sen

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**An Intricate Discussion on the Conventional and Rapid Identification Methods to Identify MRSA: A Review**

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**Abstract:** Mortality due to MRSA infection varies from 10-63%. This study aims to summarize the standard identification methods to identify MRSA and to tally the frequency of methods used by the researchers to pinpoint MRSA. The biochemical and morphological methods include the conventional ways using standard antibiotics whereas, genetic methods look for MRSA specific genes like SCCmec element, mecA, mecC, etc. MRSA possess PBP2a, which can be identified using specific anti PBP2a antibody, brings it under rapid kit-based MRSA identification method. The frequency of the biochemical and morphological, genotypic and rapid kit-based identification methods is 72%, 62% and 19% respectively; whereas the specificity of the biochemical and morphological method and rapid kit-based methods vary between 82-95% and 81-100% respectively. Using whole clinical samples to culture along with the rapid kit-based methods will enhance our chances to identify MRSA rapidly. For the prevention of disease rapid identification is always the utmost priority.

**Keywords:** mecA, MRSA, Penicillin, PBP2a, SCCmec, Staphylococcus aureus, VRSA

**Background: The Bacteria –**

*Staphylococcus aureus* is an 1µm diameter organism, colonizing the nasal cavity of humans as well as other organisms (Sadiq et al., 2020), which can cause multiple infections including blood stream infections (BSI), toxic shock syndrome (TSS), Staphylococcal food borne diseases, skin infections, sepsis, and other life threatening diseases (Ki & Rotstein, 2008; Tong, Davis, Eichenberger, Holland, & Fowler, 2015). *S. aureus* acquires an arsenal of genes viz. Antibiotic resistance genes (ARGs), Virulence factors encoding genes (VFGs) which can be transferred from one generation to another with the help of Horizontal gene transfer (HGT) and recombination methods (Naorem, Urban, Goswami, & Fekete, 2020). The ARGs and VFGs independently can influence the drug resistance in the organism, making it difficult to deal. One such drug resistant *Staphylococcus aureus* is MRSA (methicillin resistant *Staphylococcus aureus*). MRSA is resistant against a broad range of antibiotics (Singh et al., 2017) including β-lactam antibiotics, co-trimoxazole, ciprofloxacin, erythromycin and so on. Very few antibiotics are available to combat with MRSA infection such as vancomycin, teicoplanin and linezolid (Adwan et al., 2013), eventually vancomycin resistant *Staphylococcus aureus* (VRSA) has also emerged in India as well as in other corners of the globe (Shaw & Mazumder, 2021). Focusing upon the prevalence of the deadly MRSA infection in different regions of India in a yearly manner has revealed that the burden is spiking high, making it difficult to check the outbreak. From the year 2015 to 2020, the prevalence of MRSA in India has increased from 37% to 69% respectively (Patil et al.) and also the MRSA is endemic in India (Indian Network for Surveillance of Antimicrobial Resistance (INSAR) group, 2013) as well as in United States (Escudero, 2014). As far as the mortality due to MRSA/*Staphylococcus aureus* is concerned, this bacterium seems to be highly infectious as well as dangerous for the human kinds. The mortality rate varies from 10% to 63.8% depending upon the kind of infection as well as coinfection (table-1).

Delay in MRSA identification may lead to severe life-threatening issues in MRSA infected patients. Present study aims to take a bird's eye view on various available identification methods to identify MRSA. This review also aims to suggest a probable way to identify MRSA without taking much time.

Some total of approx. 120 articles' abstract were reviewed using keyword "MRSA identification" between the year 2010 and 2020. 41 articles were found to be relevant with the study, further excluding the review articles/book chapters/books we get 32 published papers for the review.

An Intricate Discussion on the Conventional and Rapid Identification Methods to Identify MRSA: A Review  
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Name of the teacher: Dr. Bhuban Chandra Das

Title of paper: Magneto-Soret-Dufour thermo-radiative double-diffusive convection heat and mass transfer of a micropolar fluid in a porous medium with Ohmic dissipation and variable thermal conductivity

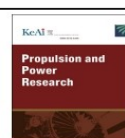
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## ORIGINAL ARTICLE

### Magneto-Soret-Dufour thermo-radiative double-diffusive convection heat and mass transfer of a micropolar fluid in a porous medium with Ohmic dissipation and variable thermal conductivity



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#### KEYWORDS

Double diffusive convection;  
Thermal radiation;  
Micropolar fluid;  
Soret-Dufour

**Abstract** This paper deals with developing a numerical boundary layer flow model to analyze convective heat transfer characteristics of a micropolar fluid past a vertical plate in a composite material with viscous-Ohmic dissipations in the presence of a transverse magnetic field. The basic governing equations are solved numerically by using the Runge-Kutta-Fehlberg method. The computed results reveal a reduction in the velocity, temperature, and microrotation profiles by increasing the Prandtl number. Also, the concentration distribution is enhanced by enhancing or decreasing Soret-Dufour parameter, and there seems to be decremented in the skin-friction coefficient values with Schmidt number.

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Name of the teacher: Mr. Sanjay Kumar Paul

Title of paper: Exploring the possibility of drug repurposing for cancer therapy targeting human Lactate dehydrogenase A: a computational approach

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## Exploring the possibility of drug repurposing for cancer therapy targeting human lactate dehydrogenase A: a computational approach

1

Sanjay Kumar Paul<sup>a</sup>, Kaustav Dutta Chowdhury<sup>a</sup>, Santi Ranjan Dey<sup>a</sup>, Ayantika Paul<sup>b</sup> and Rajen Haldar<sup>b</sup>

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Communicated by Ramaswamy H. Sarma

### ABSTRACT

Human lactate dehydrogenase A (LDHA) is an anaerobic glycolytic enzyme involved in the inter-conversion of pyruvate to lactate. The level of LDHA in various types of cancer cells is found to be elevated and the dependence of cancer cells on anaerobic glycolysis is viewed as the reason for this elevation. Moreover, inhibition of LDHA activity has been shown to be effective in impairing the growth of tumors, making the LDHA as a potential target for cancer therapy. In this computational study, we have performed a pharmacophore based screening of approved drugs followed by a molecular docking based screening to find a few potential LDHA inhibitors. Molecular dynamics simulations have also been performed to examine the stability of the LDHA-drug complexes as obtained from the docking study. The result of the study showed that darunavir, moxalactam and eprosartan can bind to the active site of LDHA with high affinity in comparison to two known synthetic inhibitors of LDHA. The results of the molecular dynamics simulation showed that these drugs can bind stably with the enzyme through hydrogen bond and hydrophobic interactions. Hence, it is concluded that darunavir, moxalactam and eprosartan may be considered as potential inhibitors of LDHA and can be used for cancer therapy after proper validation of their effectiveness through in vitro, in vivo and clinical trials.

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### KEYWORDS

lactate dehydrogenase A;  
drug repurposing; darunavir;  
moxalactam; eprosartan

### Introduction

Efforts to find simple, safe and inexpensive cancer treatments have been going on for a long time. Various studies have repeatedly suggested that the distinguished features of cancer cells could be exploited to design blueprints to specifically kill cancer cells (Pucci et al., 2019). One such feature that has currently attracted the attention of scientists is the altered cellular metabolism exhibited by some cancer cells (Heiden et al., 2009; Vander Heiden, 2011; Mishra & Banerjee, 2019). For example, in normal resting cells, respiration occurs by cytoplasmic glycolysis followed by mitochondrial oxidative phosphorylation, however, in case of many cancer cells the oxidative phosphorylation is bypassed by the energy inefficient anaerobic glycolysis or glycolysis followed by lactic acid fermentation, which is a characteristic of hypoxic tissue (Ward & Thompson, 2012; Zhao et al., 2011). This phenomenon is also known as the Warburg effect (Liberti & Locasale, 2016). The reason for this altered cellular respiration in cancer cells is presumably the hypoxia, which they commonly encounter in the tumor microenvironment (Emami Nejad et al., 2021). So, if a way to stop this anaerobic respiration of cancer cells could be discovered, it might be used for cancer therapy.

The transition from oxidative phosphorylation to anaerobic glycolysis requires the enzyme lactate dehydrogenase which catalyzes the last step of anaerobic glycolysis i.e. inter-conversion of pyruvate to L-lactate with concomitant inter-

conversion of NADH to NAD<sup>+</sup> (Dashty, 2013; Li et al., 2015). This makes sense why most of the tumor cells over-express the lactate dehydrogenase enzyme. Few studies also indicate that tumor cells may release the overproduced LDH through their damaged cell membrane, resulting in increased serum LDH levels in cancer patients, which also can be detected clinically (Jurisic et al., 2015).

Detailed observation of the structure of lactate dehydrogenase shows that it is a tetrameric protein consisting of two types of subunits: M (muscle type) or H (heart type) encoded by two genes (*Ldh-A* and *Ldh-B* respectively). These two types of subunits through differential combination may assemble into five isozymes (Farhana & Lappin, 2021). Studies have shown that the homotetrameric lactate dehydrogenase A (LDHA) also known as LDH5 isozyme is the key player in cellular anaerobic respiration and the elevated level of this isozyme contributes greatly to cancer proliferation and survival (Augoff et al., 2015; Feng et al., 2018; Miao et al., 2013). The increase in LDHA level in cancer cells is viewed as the consequence of initiation of some transcriptional programs by the oncogenes such as Src, Myc and Ras in order to adapt with the hypoxic tumor microenvironments (Dang & Semenza, 1999). The stabilization of hypoxia inducible factor 1 alpha (HIF-1 $\alpha$ ) is the most important among them that contributes to the up regulation of LDHA along with other glycolytic enzymes (Semenza et al., 1996).

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Name of the teacher: Dr. Samiran Mondal  
Title of paper: Understanding the Role of Flavonoid Based Small Molecules in Modulating the Oncogenic Protein-Protein Interactions: A Quest for Therapeutic Arsenal

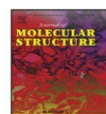
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## Understanding the Role of Flavonoid Based Small Molecules in Modulating the Oncogenic Protein-Protein Interactions: A Quest for Therapeutic Arsenal



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### ABSTRACT

We explored the anticancer activity of two synthetic flavonoid-based small molecules, HMDC and HMDF, with bioactive methylenedioxy functionality. HMDF inhibited the proliferation of the p53 wild-type (NCIH460 and A549), and p53 null (NCIH299) non-small cell lung cancer and breast cancer (MCF-7) cells more potently than HMDC without significant cytotoxic effects on the normal lung-epithelial (L132) and macrophage (Raw 264.7) cells. HMDF mediated reduction of the cell proliferation occurred due to its attachment at the p53-binding domain of MDM2 (also evident from molecular docking analysis), which induced the disruption of the p53-MDM2 interactions. Ultimately, a higher expression of p53 in the NCIH460 cells was observed. The up-regulated p53 level instigated apoptosis of cancer cells. However, MDM2 expression level remained unaltered. The docking studies further indicate that HMDF can suppress the anti-apoptotic activity of Bcl-2 protein by blocking its BH3 domain.

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### 1. Introduction

The diverse range of protein-protein interactions (PPIs) greatly influences a broad spectrum of vital biological processes indispensable for the survival of living organisms [1–5]. However, the disruption of the PPI network is the root cause of many human diseases, most commonly, multiple forms of cancer [6]. Therefore, the identification and modulation, i.e., either inhibition or stabilization of the aberrant PPIs and associated transcription factors that regulate the signaling cascades [3–7], are essential for developing efficient anti-cancer therapeutic agents with lesser side effects.

The murine double minute 2 (MDM2) gene encodes a negative regulator of the tumor suppressor protein 53 (p53) that plays a fundamental role in regulating the cell cycle, apoptotic cell death, DNA repair mechanism, and innate immunity [8]. p53 is the master regulator of several cellular signaling pathways, and it also encodes a redox-sensitive transcription factor which generates a beneficial anti-cancer effect towards the genotoxic DNA damage [9]. Tumor suppressor p53 turns out to be inactive in almost 50% of human cancers, including non-small-cell lung cancer (NSCLC), due to its

mutation or deletion [9–11]. Here, it is noteworthy that lung cancer is the most fatal and critical factor of cancer-related deaths worldwide [12]. Therefore, PPIs involving MDM2 and p53 are among the most widely studied areas of cancer research.

MDM2 effectively suppresses the p53 activity through three mechanisms. Firstly, MDM2 binding to p53 at its trans-activation domain blocks the p53 transcription activity. Secondly, MDM2 can promote the nuclear export of p53, and lastly, MDM2 acts as an E3 ubiquitin ligase triggering the proteasome-mediated degradation of p53 [13–15]. Therefore, the maintenance and revival of the function of p53 with simultaneous inhibition of the MDM2 activities are emerging as promising therapeutic strategies for developing effective anti-cancer drugs [16].

Nowadays, many pieces of research are carried out to shed light on the therapeutic potentials of small molecules towards the modulation of intracellular PPIs. Small molecules are being extensively explored as PPI modulators due to their (i) ability to bind to a specific bio-target, e.g., protein or nucleic acid, and altering its function; (ii) access to a wide range of organs with high cell-penetrating effects and active site-specificity; (iii) ability to modulate multiple targets simultaneously as well as reversibly and (iv) high metabolic stability.

Plant-derived secondary metabolites, e.g., flavonoids, are well-known examples of naturally occurring small molecules with po-

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Name of the teacher: Dr. Sibnath Sarkar

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## HOME STAY TOURISM AND ITS SUSTAINABLE APPROACH IN RURAL DEVELOPMENT: AN APPRAISAL FROM EASTERN HIMALAYA

Dr. Sibnath Sarkar<sup>\*1</sup>

<sup>\*1</sup>Assistant Professor, Department Of Geography, Rammohan College,  
Kolkata, West Bengal, India.

### ABSTRACT

Sustainable tourism development is critical to the conservation of nature and the preservation of indigenous culture. This is a contemporary global -national-regional-local issue with the adoption of the Sustainable Development Goals, to which India too is committed. Tourism destinations often are dependent on natural and cultural/heritage resources to form their attractions bases, which are linked to the economic vitality of local communities. One such unexplored areas is Ryshop, a small rural village and hill station of West Bengal, which is the tranquility of nature with its virgin untapped forest, and the serene Kanchenjunga within the lap of the mighty Himalayas. The lush greenery, panoramic view of hills and the simplicity of the indigenous inhabitants attracts the urban tourists to this place. The paper attempts an empirical presentation addressing the concept of home stay. A home stay by its combined words (home-stay) involves the staying of tourists at some one's home as a paying guest for a short-term period to feel at home, away from home. This stay may be provided at an individual level (a family) or at a community level (local communities) providing accommodation and other requisite consumer services for these short time visitors. Such a venture provides an economic incentive to the local people especially the poor who are residing in these sparsely populated regions. It also adds an ethnic flavor to the consumer's (tourist) taste. The concept of home stay tourism is an emerging perception on tourism introduced recently into the Indian tourism sector. The tourism sector to sustain should be in harmony with each local environment and culture. It is seen that, the sustainability approach is very much in vogue in this area; adopted by the local community. The social equity, environmental protection, and economic livability here sets an example which can be practiced at present in the Eastern Himalayan region especially in rural India with its multiple possibilities, and huge tourism opportunities. This primary level field based study has been conducted administering questionnaires, as well as with the help of individual open ended interviews and group discussions. This finding can be exemplified elsewhere as an approach on sustainable development of tourism through the community participation and management practiced at village level.

**Keywords:** Tourism, Home-Stay, Community, Sustainable Development.

### I. INTRODUCTION

Tourism is the collection of activities, services and industries that delivers a travel experience, including transportation, accommodation, eating and drinking establishments, retail shops, entertainment business and other hospitality services provided for individuals or groups travelling away from home. The World Tourism Organization (WTO) defined sustainable tourism development as "that which meets the needs of present tourist and host regions while protecting and enhancing opportunities for the future". Sustainable tourism or Ecotourism is as an instrument to empower indigenous communities in a particular area (Sofield, 2003). Its goal is to achieve conservation and community development through the provision of economic and social benefits to the local communities for their well-being (Chapman, 2003). This is a contemporary global -national-regional-local issue with the adoption of the Sustainable Development Goals, to which India too is committed. Home-stay tourism is one of the aspects of sustainable ecotourism that endeavors to conserve the natural, cultural, and built environment; provide economic, environment and social benefits to local residents and provide a high-quality experience for the guests. Developing approaches that are able to touch upon each of these areas can ensure the long-term success of the community. Community based ecotourism through the home-stay model is one of the top activities promoted in society to reduce the incidence of rural poverty (Leksakundilok, 2004). A home stay by its combined words (home-stay) involves the staying of tourists at some one's home as a paying guest for a short-term period to feel at home, away from home. This stay may be provided at an individual level (a family) or at a community level (local communities) providing

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Year 2022

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Name of the teacher: Dr. Kaustav Dutta Chowdhury

Title of paper: Exploring the possibility of drug repurposing for cancer therapy targeting human lactate dehydrogenase A: a computational approach.



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## Exploring the possibility of drug repurposing for cancer therapy targeting human lactate dehydrogenase A: a computational approach

Sanjay Kumar Paul, Kaustav Dutta Chowdhury, Santi Ranjan Dey, Ayantika Paul & Rajen Haldar

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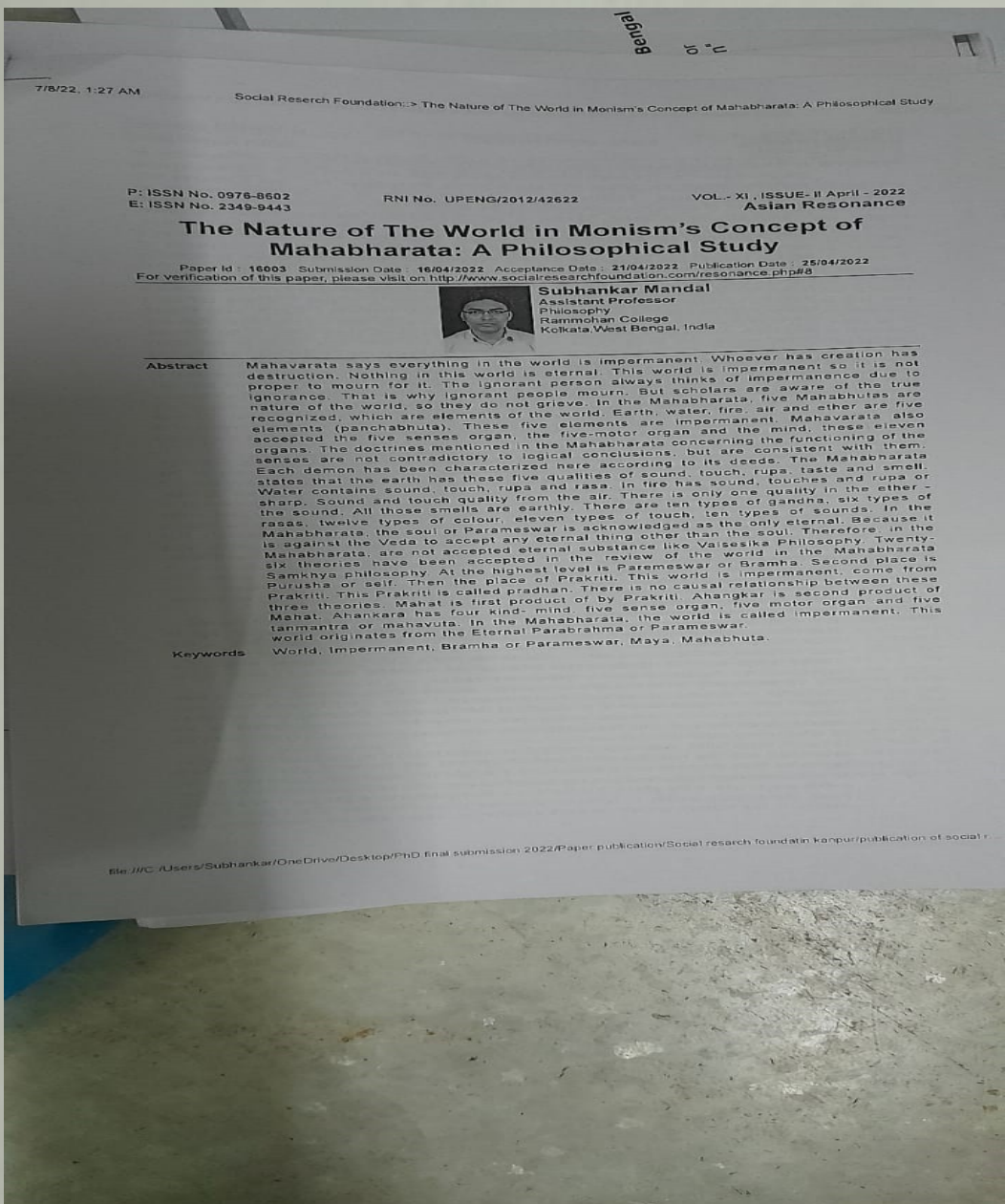
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Year 2022

Date ..... 20

Name of the teacher: Dr. Subhankar Mandal

Title of paper: The Nature of The World in Monism's concept of Mahabharata: A Philosophical Study



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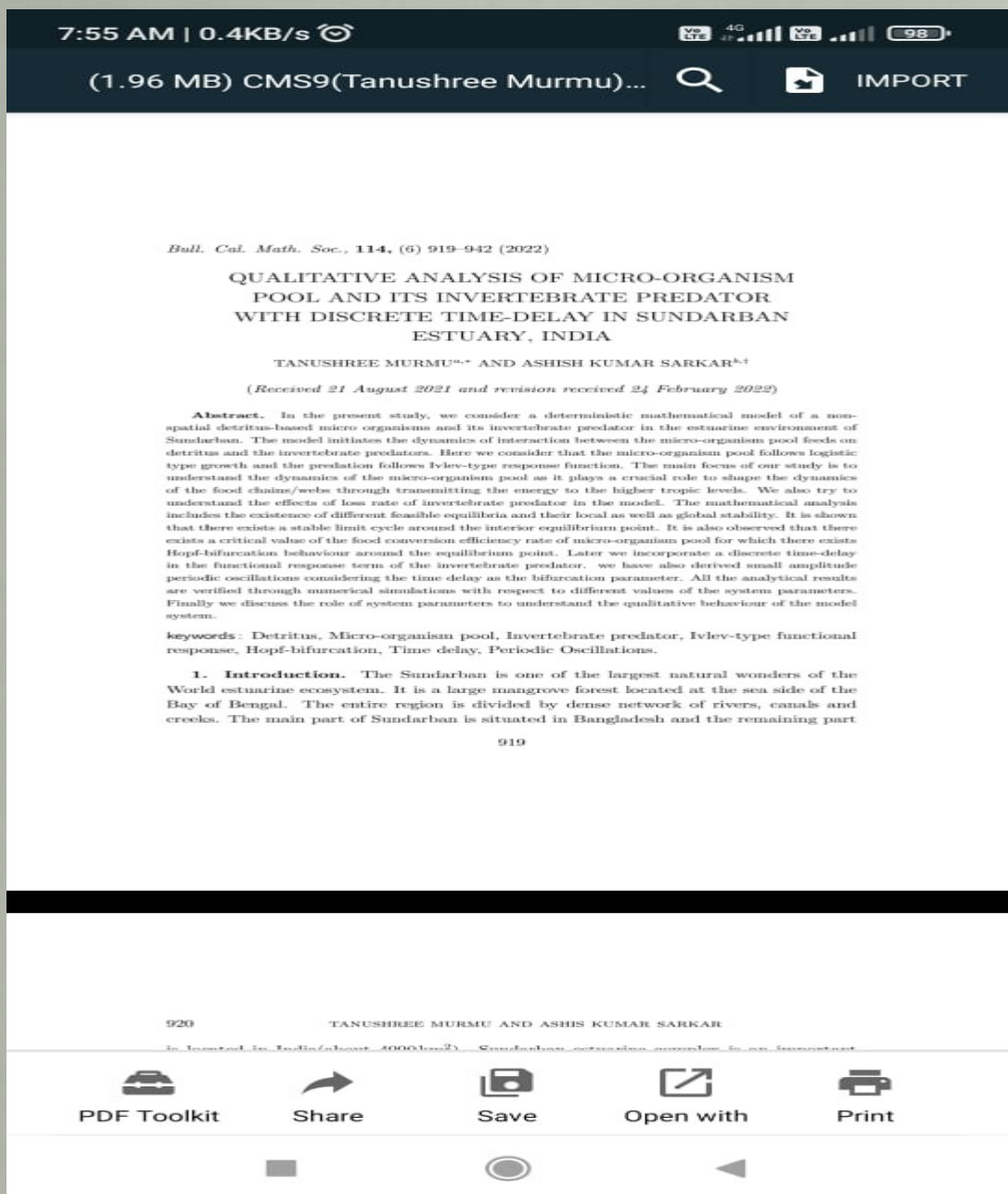
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Year 2022

Date ..... 20

Name of the teacher: Tanushree Murmu

Title of paper: QUALITATIVE ANALYSIS OF MICRO-ORGANISM  
POOL AND ITS INVERTEBRATE PREDATOR WITH DISCRETE  
TIME-DELAY IN SUNDARBAN ESTUARY, INDIA



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Name of the teacher: Dr. Samik acharjee

Title of paper: In-vivo Thermal Stress Induces Melatonin Receptors and Heat Shock Proteins Expression in the Spleen of Mice in a Time and Temperature Dependent Manner.

Journal of Stress Physiology & Biochemistry, Vol. 19, No. 3, 2023, pp. 125-142  
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ORIGINAL ARTICLE



## ***In-vivo* Thermal Stress Induces Melatonin Receptors and Heat Shock Proteins Expression in the Spleen of Mice in a Time and Temperature Dependent Manner.**

Samik Acharjee <sup>1</sup>, Shiv Shankar Singh <sup>2\*</sup>

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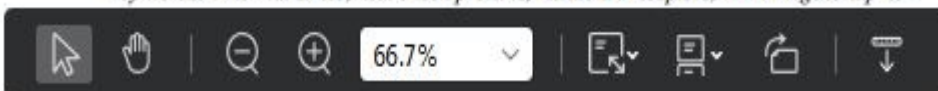
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Heat shock proteins (Hsps) responses against stress conditions. Melatonin completes its stress relieving activities via its MT1 and MT2 receptors. The present study delineates the expression pattern of Hsp70/Hsc70 and MT1/MT2 receptor proteins along with the AANAT gene expression in the splenic tissue of mice subjected to hyperthermic stress in a temperature dependent and time dependent manner. *In vivo* thermal stress resulted increase in expression of Hsp70, Hsc70 and MT2 receptors proteins in both temperature dependent and time dependent manner. Optimum heat exposure at 43°C and maximized Hsps expression was observed after 5 hours of heat exposure. Heat stress caused increase in AA-NAT gene expression of the splenic tissue resulted in the synthesis of melatonin which might act as signal molecule for upregulating the activity and rise of the stress responsive genes and proteins like: Hsp70/Hsc70, whereas simultaneous increase of MT2 expression shows its possible involvement in such mechanism.

*Key words:* Thermal stress, heat shock proteins, melatonin receptors, AA-NAT gene expres-



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Name of the teacher: Dr. Samik Acharjee

Title of paper: Ethnomedicinal Knowledge of Bishnupriya Manipuri Community of Unakoti District of Tripura, North East India

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Research Article

**Ethnomedicinal Knowledge of Bishnupriya Manipuri Community of Unakoti District of Tripura, North East India**

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**Keywords:** Ethno-medicine; Khulleigulli; Bishnupriya Manipuri, COVID 19, Tripura

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**ABSTRACT**

The present study deals with indigenous ethno-medicinal knowledge of Bishnupriya Manipuri community of Unakoti district of Tripura, Northeast India. The ethno-medicinal exploration reveals the usage of different plant and herb species in a particular concoction that has not been documented till date. The study comprises of 15 plants and herb species mixed in a preparation locally known as 'Khulleigulli' that is used as an excellent primary treatment for sore throat, cough, cold, fever and also has been claimed to miraculously reduce the severity of upper respiratory symptoms of COVID 19. The concoction could possibly a better alternative with no known side effects as modern day allopathic medicines. There is a need of further critical phytochemical analysis of the formulation.

**1. Introduction**

Northeast India comes under the lower Himalayan range and is known for its extraordinary biodiversity. The region including Tripura is home to huge number of bioresources and is ranked 8th out of the 234 Bio-diversity hotspots in the world. [1, 2] Out of 450 tribes found in the country, about 225 of them hail from the region of Northeast India. [3] This magnificent region has the richest reservoir of plant diversity and it supports around 50% of India's biodiversity. [4] Tripura is a small state located at the Indo-Bangladesh border and it also shares the boundary with Mizoram and Assam. Tripura is home to many communities such as Bengalis, Reang, Chakma, Tripuri, Bishnupriya Manipuri and many others. Bishnupriya Manipuri, an original community of Manipur had to relocate themselves after they lost control over Manipur to the rival clan of Meiteis. [5] In Tripura, the community resides in parts of Unakoti district, North Tripura and parts of West Tripura. Unakoti is a beautiful district in the northern part of Tripura and the district is named after a magnificent archeological site called Unakoti nestled in the hills of Tripura with coordinates as 24.1781° N, 92.0273° E. It is believed to have one less than a crore marvellous rock carvings of Lord Shiva, his followers, Lord Ganesha, Maa Durga and many other Gods and Goddesses. The site has rich plant diversity.

Over the time, the community has gathered knowledge of utilizing the vast flora diversity found in the region and uses different ethno-botanical plants as medicines based on their belief and practices in curing diseases and ailments. The community still prefers traditional medicines before reaching out to the modern pharmaceutical ones. The people of the community prefer the herbal concoction as they are non-toxic and works miraculously in relieving common cold-like symptoms including fever, sore throat etc. The objective of the study is to survey and understand the use of herbal concoction called as 'Khulleigulli' by the Bishnupriya community since no record is available with regard to it so far. The use of this concoction is however declining because of the modernization and due to the decrease of the knowledgeable person. This miraculous concoction is alien to the outside world and has not been under study. Also, the plants used in this concoction have not been studied empirically in detail for the active chemical compounds in it. A detail study on the 'khulleigulli' would be helpful as an alternative to several allopathic medicines. Immediate documentation of such valuable knowledge is important as we are gradually missing precious ethno-medicinal knowledge with increasing impact of modern western pharmaceutical medicines.

1 | The American Journal of Science and Medical Research, 2023; 9(2)

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Name of the teacher: Dr. Samik Acharjee

Title of paper: Comparison of environmental stress in relation to infrastructure of old and new building of Rammohan College, Kolkata, West Bengal.

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**COMPARISON OF ENVIRONMENTAL STRESS IN RELATION TO INFRASTRUCTURE OF OLD AND NEW BUILDING OF RAMMOHAN COLLEGE, KOLKATA, WEST BENGAL**

Samik Acharjee<sup>1</sup>, Sonali Ghosh<sup>2</sup>, Sanjay Kumar Paul<sup>1</sup>, Kaustav Dutta Chowdhury<sup>1</sup> and Santi Ranjan Dey<sup>1\*</sup>.

1. Assistant Professor, Department of Zoology, Rammohan College, Kolkata, W.B., India  
2. Assistant Professor, Department of Physiology, Rammohan College, Kolkata, W.B., India

**ABSTRACT**

The phrase "environmental stress" is used to characterise the physical, chemical, and biological constraints on the diversification of organisms and ecosystems. Environmental stressors are the tiny annoyances and frustrations of everyday living. One important aspect of education is the support system. In the tropical nation of India, the state of West Bengal, the summers are hot and muggy for almost half the year. The problem is getting worse as a result of global warming. A stressful environment can be produced by infrastructure elements such as wall textures, ceiling heights, window positioning, air flow, lighting, and fan designs, among others. College teachers may experience professional burnout as a result of the environment's stress. There has been research done on the environments of the classrooms at Rammohan College in two separate buildings. According to the reference range, it has been discovered that the indoor classroom environment of the New Building is consistently within the "Partial Discomfort" range (lowest and highest THI values 75.86 & 79.20). According to the reference range, the indoor classroom atmosphere of the old building runs from "Comfortable to Partial Discomfort" (74.15 & 77.56).

Key Words: Rammohan College, THI, WBGT, Class room, Infrastructure, Stress

**INTRODUCTION**

Due to severe occupational and environmental restrictions, it is possible that a teacher may experience stress. Environmental stress is the term used to describe the physical, chemical, and biological limitations on species production and ecosystem expansion. The minor irritations and frustrations of everyday life are what are known as environmental stressors (Miller and Bates, 2007). Physiological reactions may occur when environmental stressors worsen. Stressors can be a result of human action or they might exist naturally in the environment. While certain environmental stressors primarily have an impact on the local community, others may potentially have repercussions farther afield or even globally (Eres and Atanasoska, 2011).

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Year 2023

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Name of the teacher: Dr. Samik Acharjee

Title of paper: Structural Prediction of Melanocortin Receptor (MC4R) of *Carassius Auratus*: An in-silico Approach.

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Research Paper

## Structural Prediction of Melanocortin Receptor (MC4R) of *Carassius Auratus*: An in-silico Approach

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Department of Zoology, Rammohan College, Kolkata-700009; West Bengal, India

DOI: <https://doi.org/10.52403/ijrr.20230530>

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**ABSTRACT**

*Carassius auratus* commonly known as goldfish is one of most attractive fish used as ornamental fishes throughout the world. From the ancient times, the melanocortin system is considered to be conserved ranging from teleosts to mammals. Various researches in several fish species presented melanocortin receptors 4 (MC4R) is involved in different functions in fish body. Therefore, in-silico analysis of MC4R of *Carassius auratus* has been carried out in the study to know the physicochemical properties and 3D structural confirmation of the protein. Sequence containing accession number XM\_026207258.1 was taken from National Center for Biotechnology Information (NCBI) and then processed to ExPasy's protparam for the physicochemical characterization, SOPMA for secondary structure prediction. Template search was done by SWISSMODEL/Workspace and Swiss-Pdb-Viewer was used for prediction of 3D structure of the concerned protein. The results suggested MC4R is a stable, hydrophobic and slightly basic nature of protein. The secondary structure of the analysed MC4R protein suggested presence of 50.77% alpha helix, 19.69% extended strands and 3.38% beta turns along with 26.15% random coils. Moreover, it might be resolved from the Ramachandran plot that the structural prediction of MC4R is correct in prediction. Further, predicted 3D structure of MC4R protein can also be utilized for docking and simulation studies in future for finding out its relative binding affinity and functional action mechanism aspects. Moreover, the study is an approach for reducing the sequence data and solved structures gap by X-ray crystallography and NMR spectroscopy, which are also tedious

and expensive laboratory techniques in application as well.

**Keywords:** Melanocortin receptors 4 (MC4R); In silico analysis; 3D structural prediction; *Carassius auratus*.

**INTRODUCTION**

*Carassius auratus* commonly known as gold fish is one of most attractive fish used as ornamental fishes throughout the world. The raising world demand has opened the market for ornamental fishes possessing with unique shapes or colours following the use of transgenic technologies. By the use genes encoding fluorescent proteins through transgenic technologies, production of variable colours in fishes and a variety of combinations can be achieved<sup>1</sup>. Goldfish is a freshwater fish in the family of Cyprinidae of order Cypriniformes. High demand of gold fish as aquarium fish exists, which made it as a best choice for culture among ornamental fish farmers.

From teleosts to mammals, the melanocortin system is considered to be conserved. Five subtypes of melanocortin receptors, ranging from type 1 to type 5 (MC1R-MC5R), are available. These melanocortin receptors are G protein receptors (GPCRs) consisting of seven transmembrane domains<sup>2-4</sup>. Recently, studies on melanocortin receptors 4 (MC4R) have extensively been done by various researchers in several fish species. The first cloned MC4R was from zebra fish<sup>5</sup>. Thereafter, various researchers presented more than twenty fish MC4R, which are available in the database of NCBI along with

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Year 2023

Date \_\_\_\_\_ 20

Name of the teacher: Dr. Shrabani Sen

Title of paper: NON LINEAR DYNAMICS OF CHEMICAL AND BIOLOGICAL OSCILLATORY SYSTEMS

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**NON LINEAR DYNAMICS OF CHEMICAL AND BIOLOGICAL OSCILLATORY SYSTEMS**  
**Dr. Shrabani Sen<sup>\*1</sup>**  
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DOI : <https://www.doi.org/10.56726/IRJMETS33444>

**ABSTRACT**  
Our object in this chapter is to outline a brief overview of the background theories needed for understanding a number of far-from-equilibrium phenomena, such as chemical oscillations, patterns, spirals, targets and so on. Oscillations are ubiquitous in chemical and biological systems. Every living system contains hundreds of chemical and biological oscillators. The systematic study of oscillating chemical reactions is a fundamental area of research in nonlinear chemical dynamics. We start with a brief overview of some history of chemical oscillations followed by the basic thermodynamics and stability analysis including the phase plane representations.

**Keywords:** Stability, Fixed Point, Thermodynamics, Far From Quilibrium Process, Oscillations.

**I. INTRODUCTION**  
**Dynamics**  
Dynamics is a subject that explains how a physical variable of interest changes with time. Harmonic oscillation is a typical paradigm of linear motion. A conspicuous feature of this motion is that the frequency of the oscillator is independent of its amplitude. When the system is nonlinear its motion is more complicated because of the dependence of frequency on amplitude as a result of which the motion may vary from purely periodic to aperiodic manner (Epstein 1998, Hilborn 1994, Strogatz 1995). Although nonlinear dynamics owes its origin in Physics to Newtonian dynamics developed in mid-1600s for solving classic two-body problem, it is treated as an interdisciplinary subject today (Epstein 1998, Golbeter 1996, Murray 1993). With such an early development, the subject found a very little applicability because the three-body problem was beyond the scope of the method developed by Newton at that time. It crossed this barrier when Poincare succeeded in developing a powerful geometric approach to analyze such problems. His discovery forms one of the fascinating areas of nonlinear dynamics today which has widened its scope in the first half of the last century and the study of nonlinear oscillations found widespread applications in almost all branches of science starting from physical science to chemistry and biology. During the last decades of the nineteenth century Lyapunov's results on the stability theory broke new ground for subsequent development of this field. The theory of nonlinear dynamics is now applied to many scientific disciplines: mathematics, computational science, microbiology, biology, economics, engineering, finance, philosophy, physics, politics, population dynamics, psychology, and robotics (Jalan et al, 2005). Non-linear dynamical behavior has been observed in the laboratory in a variety of systems including electrical circuits, lasers, oscillating chemical reactions, fluid dynamics, and mechanical and magneto-mechanical devices, as well as computer models of chaotic processes. Observations of chaotic behavior resulting from nonlinear characteristics in nature include changes in weather, the dynamics of satellites in the solar system, the time evolution of the magnetic field of celestial bodies, population growth in ecology, the dynamics of the action potentials in neurons, and molecular vibrations. With all these aforementioned list of examples nonlinear dynamics is now gradually expanding its horizon and as a result it is a major field of research interest nowadays.

**II. OSCILLATIONS**  
Our objective here is to gain some more insight into the nonlinear chemical dynamics of oscillatory systems. Oscillations can be both temporal and spatio-temporal in nature. The word temporal signifies homogeneous oscillation in space and the word spatio-temporal implies coupling the temporal part with the spatial part through diffusion. A chemical or biological oscillation is a rhythmic far-from-equilibrium process. A casual look at the history of nonlinear chemical dynamics reveals that the development of the subject had to go a long way [www.irjmets.com](http://www.irjmets.com) @International Research Journal of Modernization in Engineering, Technology and Science [453]

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to establish that there is no conflict between second law of thermodynamics and chemical oscillation. The long-standing confusion around the discovery of Belousov (Belousov 1955) which led to its initial rejection was subsequently clarified by the work of Zhabotinskii (Zhabotinskii 1964). This made possible for this far-from-equilibrium phenomenon to expand its horizon to different branches of chemical science with its versatile applications in various fields of science and technology.

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Name of the teacher: Dr. Debjanee Ganguly

Title of paper: A Gendered Pandemic in India, Nepal and Bangladesh

[illegible]

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## Freshwater fish parasite diversity in West Bengal – A review

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### ABSTRACT

Aquaculture has the potential to meet the need of growing demand of fish in an affordable price. But in capture and in culture fisheries the fishes face diseases that interfere in the production of fish. The occurrence of disease causes the reduced production in aquaculture or reduce the marketable value of fish because of change of flesh quality, thus hampering the production. Freshwater fishes whether they are cultured or wild face different types of diseases in their skin, gills, fins, blood, and internal organs. The parasites that cause the diseases may be protozoans or metazoans. The main protozoan freshwater fish diseases are ichthyophthiriasis, trichodiniasis, costiosis, chilodonellosis. The most common metazoan parasitic diseases of freshwater fishes are dactylogyriasis, gyrodactylosis, argulosis, myxosporidiasis, ligulosis, ergasilosis, lemaesis, etc. The focus of this review is to screen the research studies that takes place on freshwater fish parasites of West Bengal. The review also aims to study the diversity of freshwater fish parasites in West Bengal, so that it will help the researcher to get an idea about the freshwater fish parasites and their mode of infection in the fishes. The research work that takes place in different regions of West Bengal. Some of them reveal new species of parasites in fishes. Protozoan, cnidarian, acanthocephalan, nematode, cestode, trematode, crustacean parasites are identified in freshwater fishes of West Bengal. Among the protozoans ciliates, flagellates are identified. Trichodinids are very common protozoan fish parasites in most districts. Parasites under genus *Myxobolus*, *Dactylogyrus*, *Gyrodactylus*, *Argulus*, *Lerne* are common among the metazoans.

**Key words :** Fish parasites, Diversity, Protozoan fish parasites, Metazoan fish parasites.

### Introduction

Fishes are the important source of protein containing food. For that reason, day by day demand of fish production increases in West Bengal. With the increasing demand of fish food production concern about the fish diseases increases in the farmers and in the researchers. Fishes are the source of earning for many people and it helps in the economic devel-

opment of our country by acting as a source to earn foreign money. Parasitic infestation frequently occurs in fish that causes retarded growth rate, reduced production, consumer rejection, low reproduction and mass mortality in fish. There are many parasitic diseases of fishes in the world. Fish parasites cause commercial losses in both the aquaculture and fisheries industries and may have human health, as well as socioeconomic implications both in

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## Red Ghost Crab *Ocypode Macrocer* (H. Milne Edwards, 1852) Population Dynamics Changes at Bay of Bengal Coast Line in Response to Construction of Digha Marine Drive and Tajpur Port: EIA Study by Rammohan College

Kaustav Dutta Chowdhury<sup>1</sup>, Chayanika Roy<sup>2</sup>, Debanjana Ghosh<sup>3</sup>, Fuleswari Chakraborty<sup>4</sup>, Tamanita Kundu<sup>5</sup>, Sanchita Saha<sup>6</sup>, Aishwarya Das<sup>7</sup>, Anjana Sinha<sup>8</sup>, Suchismita Medda<sup>9</sup>, Santi Ranjan Dey<sup>10</sup>

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**Abstract:** On the sand beaches of the Bay of Bengal, from Bichitrapur in Orissa to Mandermani in West Bengal, population dynamics of *Ocypode macrocer* (H. Milne Edwards, 1852) were investigated. The crabs are found across the coastal areas that face the sea. Bichitrapur, Talsari, Udaipur, New Digha, Mohana, Shankarpur, Tajpur, and Mandermoni were the principal study locations. The infra-littoral sand flats zone is where the Red Ghost Crabs live. The development of the particular stretch of beach and the prevalence of crab burrows are related. Crab activity occurs both during the day and at night. One to three openings towards the sea can be found in each crab burrow. EIA (Environmental Impact Assessment) is an essential study required before onset of any project or for any ongoing project. This EIA study was conducted in 2017, prior to the start of "Marine drive & Tajpur port" construction, and in 2020, following completion of "Marine drive & Tajpur port" by Rammohan College. At the construction areas, it was discovered that the Red Ghost Crab population had substantially decreased. Additionally altered is the burrow distribution pattern. An essential ecological stabilizer of Sea beach is the red ghost crab. Additionally, it was discovered that the sea beach began to erode where the crabs were completely gone.

**Keywords:** EIA, *Ocypode macrocer*, Ecology, population, Digha, Bay of Bengal

### I. INTRODUCTION

*Ocypode* Weber, 1795; a semi-terrestrial crabs are common inhabitants of tropical and sub-tropical sandy beaches (Dahl, 1953; Hedgepeth, 1957), where they occupy obvious burrows (Vannini, 1976; 1980). *Ocypode macrocer* (H. Milne Edwards, 1852) lives in the supralittoral zone along the coast of the Bay of Bengal region. Nandi and Dev Roy (1996) and Haque and Choudhury (2014) conducted studies on the burrowing behaviour of *O. macrocer* from the Sundarbans' coastal zone. In the Digha coastal region, Patral et al. (2017) investigated the distribution of every variety of crab. They discovered that the genus *Ocypode* has three species of crab, with *Ocypode macrocer* (H. Milne Edwards, 1852) falling under the IUCN's DD (Data deficient) classification. They are known as RED GHOST CRAB because; if anyone approaches towards them they disappear inside their burrow promptly. Each burrow aperture has a diameter that falls into one of the following categories: >30 mm, 31-39 mm, 40-50 mm, 51-59 mm, 60-69 mm, 70-79 mm, or 80-90 mm. Burrow opening diameters are often greater than 30 mm and seaward-facing. Before emerging, the burrow dropped in an awkward manner. Burrows were either helical or J-shaped. Always, at least 1 cm of the burrow's deepest point was above the water line (Haque and Choudhury, 2014). Crab activity surveys revealed through behavioural observations that they were active both during the day and at night. Regular burrow excavation was noted twice a day after the tide receded. Sand was regularly taken from a burrow, and much of it was then scattered to an area about 1 m away. Crabs were often solitary feeders. Scavenging, predation, and deposit were the three main feeding behaviours (Haque and Choudhury, 2014).

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Title of paper: Assessment of Socioeconomic Impact of Sericulture in Murshidabad: A Social Outreach Programme of Rammohan College

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## Assessment of Socioeconomic Impact of Sericulture in Murshidabad: A Social Outreach Programme of Rammohan College

Chayanika Roy<sup>1</sup>, Sanjay Kumar Paul<sup>2</sup>, Brinta Basu<sup>3</sup>, Sriparna Bawali<sup>4</sup>, Mohana Mukherjee<sup>5</sup>, Siddhee Sthita Mishra<sup>6</sup>, Kaustav Dutta Chowdhury<sup>7</sup>, Santi Ranjan Dey<sup>8</sup>

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**Abstract:** Sericulture was traditionally the main source of income for rural residents in Murshidabad, West Bengal. Sericulture greatly boosts the state's economy by generating jobs, especially for rural women. In 2015–16, the state produced 2568 metric tonnes of raw silk, generating jobs for 22, 19 lakh people. In West Bengal's various districts, there are many problems that affect sericulture workers, such as fluctuating cocoon prices, a lack of markets where raw cocoons can be sold, poor market connections, a lack of storage facilities, poor information about market prices, middlemen who take advantage of sericulture workers, a lack of funding, a lack of innovation, etc. The Researchers were motivated to do this particular investigation by these related issues. As a result, the current investigation will focus on issues at the highest level to lowest level. We found tremendous poverty and gender discrimination, INDIA is earning a lot from Sericulture. This study examines the socioeconomic disparities within the sericulture industry, focusing on the living conditions and prosperity of farmers, weavers, and industrial employees. Through comprehensive research and data analysis, we found that farmers, as landowners, enjoy greater prosperity compared to weavers and industrial employees. The key factor contributing to this disparity is the limited government involvement and support in the growth of the sericulture business, particularly in relation to weavers and industrial employees. Our findings reveal that weavers and industrial employees face extreme poverty, with minimal access to government assistance. Moreover, our investigation uncovered that multiple reellers share a single reeling machine, highlighting the collective efforts of individuals in overcoming resource constraints. The study underscores the urgent need for government intervention to uplift the conditions of weavers and industrial employees, as well as to promote equitable growth in the sericulture industry.

**Keywords:** Sericulture, Murshidabad, Gender, Socio - economy, Survey

### 1. Introduction

The Chinese word "Su" [Si], which implies silk, has been translated to the English word "Sericulture." "Seri means "silk" in Sericulture, while culture refers to raising animals [1]. Raising silkworms for the production of raw silk and other byproducts is known as sericulture. In other terms, sericulture is the mass - scale raising of sericigenous insects for the purpose of producing raw silk. Being a unique fibre and known as the "Queen of Textile," silk. Sericulture is a rural, labor - intensive, agro - based cottage industry that offers plenty of jobs to the economically underprivileged groups in society [2]. Sericulture is attracting farmers' attention since it needs little capital outlay and yields great returns quickly. It is the ideal method for enhancing both the rural economy and farmers' level of living. One of India's key economic sectors, sericulture has a significant impact on reducing poverty. Sericulture is one of the cottage businesses that gives rural residents more employment options [3]. The only cash crop in the agricultural industry that provides immediate returns within 30 days is sericulture. The Indian silk industry is the largest in the world and accounts for over 15% of global production [4]. Sericulture is an industry that values the environment and is friendly to women. It illustrates how communities may utilise natural resources without endangering the ecosystem and how people and nature can coexist peacefully. Therefore, sericulture is the ideal profession for West

Bengal's rural population. Sericulture is hence frequently referred to as the "Poverty Industry." The second - highest number of individuals are employed in sericulture, a cottage industry in agriculture (1 acre supports 13 people). Despite the small investment, the profit margin is high. Silk has the ability to produce enough foreign cash. The Morus tree helps halt soil erosion and can be grown on shared land. [4]. Sericulture is a profession that welcomes women and Additionally, fishing, poultry, and the development of medicines can all benefit from using silk worm byproducts [5]. The plant is grown in agricultural fields, and West Bengal is where high yielding versions of the S1, S1635, and BC229 silkworms are raised.

The silk moth can go through one life cycle (univoltine), two life cycles (bivoltine), or four to five life cycles (multivoltine) in a calendar year. The Nistari eggs, which are a hybrid between two distinct cycles, are employed during raising. Typically, multivoltine into multivoltine, multivoltine into bivoltine, or bivoltine into bivoltine are crossed to create Nistari. Typically, multivoltine breeds like A23, B, G, etc. as well as KPGB, NB18, P5, etc. are employed. There are bivoltine breeds utilised. A thread called silk has a sericin - coated protein covering its fibroin core in the middle. The silk gland secretes silk. The fourth and fifth instar larva have a fully formed silk gland. Adults have a lifespan of 4 - 6 days. In women, it is larger than in men. It has a yellowish brown hue. Scales cover the body.

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Title of paper: Happiness Vs Stress, A Case Study of Grievance Analysis from Feed Back: An Evaluation Model Invented By Rammohan College



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## Happiness Vs Stress, A Case Study of Grievance Analysis from Feed Back: An Evaluation Model Invented By Rammohan College

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### ABSTRACT

A highly useful life standard is happiness. A person can only be happy when they are leading a stress-free existence. College students may experience stress related to a variety of academic and external factors and thus they may have grievance(s) against college. Academic, social, environmental, psychological, and physical adjustment are all hampered by uncontrollable stress. The level of happiness and grievance among Rammohan College students was thoroughly investigated in this study. A total of 1002 Rammohan College students (2020-2022) from all semester were conveniently chosen at random to complete a series of questionnaires in order to get trustworthy data. Statistical approaches for inference and description were used to analyze the data. According to the study's findings, the majority of students (82.7%) are satisfied with the college. 17.3% of students are dissatisfied, compared to 13.7% of students who are really stressed and have grievance against college. The majority (91.1%) of students at Rammohan College are from the lower middle class economically. It has been tried to determine whether their financial situation is the primary source of their dissatisfaction and grievance or if there are other factors at play. We discovered a direct link between "not getting any scholarship" and "unhappy and economically backward" pupils.

**Keywords:** Happiness, Stress, Rammohan College, Scholarship, Gymnasium, Grievance

### INTRODUCTION

The ultimate purpose of life is to be happy. A college should foster a happy environment to all stakeholders. Academic excellence is displayed by the happy students more than by the sad students. Stress is a common factor among unhappy people. Every person, regardless of ethnicity or cultural background, experiences stress on a regular basis [1]. The persistent result of several stable and taxing daily duties in every area of our lives is stress. College students' academic lives are challenged by the transition from adolescent to maturity. College students go through rapid physical, social and mental changes at this period and they may also feel unsuitable and adaptable, in the college environment. Due to academic pressure, adjusting to a new environment, failure fear, the struggle to be distinct, inferiority, gaining social familiarity and financial constraints, college students continually experience more complex inconveniences. [2].

One of an adolescent's most exciting and memorable experiences is college life. A vibrant environment, the company of friends, and a variety of academic and extracurricular activities are all enjoyed by teenagers in colleges, enriching and nurturing their academic lives and ultimately preparing the adolescent for adulthood [2].

College students are susceptible to a variety of stress-inducing scenarios, which causes them to constantly come up with new ways to cope with stress. Both the subject matter and the surroundings can be sources of stress for college students. The failure of the students to overcome these factors, which are connected to academic, socioeconomic, and personal triumphs, causes stress [2]. They also need to prepare and concentrate in order to do well in academic assignments across

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## Unfolding Protein Structure of RTBV: Encoded by DS DNA Embedded in Rice Genome, A Bioinformatics Approach Related with Rice Tungro Disease

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### ABSTRACT

The combined infection of the unrelated rice tungro bacilliform virus (RTBV) and rice tungro spherical virus (RTSV) results in rice tungro, a composite disease. In vulnerable rice growers, RTSV manifests as severe stunting, whereas RTBV is virulent and causes first the yellowing of the leaves, then the death of the plant. The Green Leafhopper (GLH), *Nephotettix virescens* (Distant) is the vector that carries both viruses. If the plant is not infected with RTSV, RTBV cannot be spread. *Oryza sativa* L., the rice plant, contains a piece of the RTBV genome contained within its genome. The hypothetical protein structure of that particular DNA of RTBV has been described in this paper.

**Keywords:** Rice, Tungro, RTBV, DNA, Protein

### INTRODUCTION

The TUNGRO disease has also been referred to as "Penyakit merah" in Malaysia, "Yellow-orange Leaf" in Thailand, "mentek" or "habang" in Indonesia, and "accepha pula" in the Philippines. In the Filipino language, "Tungro" implies deformed growth. A number of nations that produce rice, including Bangladesh, China, India, Malaysia, the Philippines, Thailand, and China, have reported outbreaks (Banerjee et al., 2009). Between 1968 and 1994, this deadly virus infected roughly 1,99,000 acres of rice crops in Indonesia (Varma et al., 1999).

Rice Tungro Bacilliform Virus (RTBV) and Rice Tungro Spherical Virus (RTSV) are the two major viruses that cause rice Tungro disease. With particle sizes of 100–300 nm in length and 30–35 nm in breadth, RTBV is a double-stranded (DS) DNA genome virus and a member of the Tungro virus genus of the Caulimoviridae family.

Contrarily, RTSV is a single-stranded (SS) RNA virus that is polyhedral in shape, roughly 30 nm in diameter, and belongs to the Waikavirus genus of the Sequoviridae family. Different symptoms can be caused by either one or both viruses being present in the plant. While plants infected with both RTSV and RTBV exhibit mottled leaves, severe stunting, and yellow to orange discoloration of the leaves, leading in a large yield drop (more than 85%), RTSV alone only manifests symptoms like mild stunting and light yellowing of the leaves.

When RTBV is transmitted, RTSV functions as a helper virus. The Green Leafhopper *Nephotettix virescens* (Distant) is the only vector for the spread of these viruses (Dey, 2016a, 2016b, 2019).

On the other hand, RTBV is a plant retrovirus with an 8 kb circular ds DNA genome. A promoter controls the RTBV DNA genome's transcription, situated between ORF IV and ORF I in the intergenic region.

Vascular tissues are where RTBV accumulates, and these tissues also get the majority of the promoter's activity (Tangkanond, 2005). Two basic Leucine Zipper (bzlp)-type rich proteins, RF2a and RF2b, were shown to interact with Box II and activate transcription from the RTBV promoter in vitro and in vivo. These proteins were one of several

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## A Geographical Analysis of Alpana and Biodiversity in parts of Rural West Bengal, India

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Abstract
<p><i>Alpana is a traditional folk art, a form of symbolic visual folk communication, and a cultural symbol of Bengal. In Bengal, alpana or alpana refers to colourful themes, religious art, or painting done with hands and paint, which is primarily a paste of rice and flour on the floor. In terms of biodiversity and the environment, Alpana of Bengal has given rise to the concept of the connection between forestry culture and agro-based society. This paper examines the trajectory of the practice, the symbolic meaning attached to the art form of Alpana, biodiversity in the art, and tribal perspectives showcasing the environment and agricultural issues of parts of rural West Bengal. The research findings are based on qualitative field observation in some purposely selected rural parts of West Bengal on visual images of the alpana by analyzing as an insider (a Hindu and a Bengali) as well as an outsider (a non-tribal while working among some tribals). The use of multiple data collection techniques (such as graphic elicitation, participant observation, etc.) has helped in triangulating the data collected leading support to the validity claimed in the study of Alpana. This study lends its uniqueness in that little study has been done on the geographical spread of the practice of alpana and its similar art form in India. The author demonstrates the significance of this traditional art in the modern day exploring the blogs and social networking media on views expressed by the present-day generation. It explains the need of sustaining this rich traditional art heritage from vanishing.</i></p>
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### Introduction

*Alpana* is a traditional folk art and cultural symbol of Bengal representing any auspicious occasion. The word *Alpana* is derived from the Sanskrit term '*alimpana*', meaning 'to plaster' or 'to coat with.' However, according to some scholars, *Alpana* is most likely derived from *alpana*, which is the technique of creating embankments of agricultural field (Baskey, 2001) locally referred to as *aals*. In Bengal, *alpana* or *alpana* refers to colourful themes, religious art, or painting done with hands and paint, which is primarily a paste of rice and flour traditionally drawn by housewives before sunset. Traditionally, *alpana* is supposed to be made using a water-based paste of uncooked rice kernel of unprocessed sun-dried paddy called '*aatopchaal*' (a kind of rice) which is diluted to the consistency of thick milk (Dasgupta, 1975). A cotton ball or a small piece of fine cloth is dipped in the liquid mixture and pressed in between the fingers gently so that the liquid flows evenly as one draws the motifs. The traditional Bengali *alpana*

is white and fashioned by women into various geometrical or freehand motifs of flowers, trees, animals, humans, etc. Many sources believe that some of the *vratar* (rituals) and *pujas* (worship) related to *alpana* date back to pre-Aryan times. It's possible that it came down to us from the Austric people who lived in the area long before the Aryans arrived. These scholars claim that Bengal's rituals and traditional folk arts (including *alpana*) originated with the early agricultural communities (Mookerjee, 1939). Rice powder, rice paste diluted with water, dry colour powders made from dried leaves, charcoal, burnt earth, and other materials are commonly used in such works. As was the case with the Ajanta cave paintings, *alpana* is usually done on the floor and not on the wall or ceiling. Bengali women have applied these designs for religious and ceremonial purposes from time immemorial (Saksena, 1985) in the Hindu sacred space. The art form, *Alpana* was originally performed in villages by the girls to decorate the door-fronts, floors, and the places before the idols of

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Name of the teacher: Dr. Sibnath Sarkar

Title of paper: Rural Bengal Wall Motifs: a visual analysis of the Santhal Women's Art in Purulia

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## Rural Bengal Wall Motifs: a visual analysis of the Santhal Women's Art in Purulia

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### Abstract:

Wall arts or motifs are the ritual drawings connected with desires and aspirations of human beings predominantly by women. The women paint their walls as a celebration of the harvest and as a thanksgiving to nature. Wall art or motifs on wall is a visual cultural symbolic representation of tribal art. In Bengal, Wall art or motifs refers to colourful themes, religious art, or painting done with hands and paint by the village woman, which is primarily derived from mud. Some of the motifs are based on natural colour on mud walls. Red, black and white is the predominant colours used. The rural women first draw the outlines in white and fill up the figures with various colours. In terms of biodiversity and the environment, the wall-art of Bengal has given rise to the concept of the connection between forestry culture and agro-based society. This paper examines the trajectory of the practice, the symbolic meaning attached to the art form biodiversity in the art, and tribal perspectives showcasing the environment and agricultural issue of parts rural West Bengal. The research findings are based on qualitative field observation on visual images of the art. Use of multiple data collection techniques (such as graphic elicitation, participant observation, etc.) has helped in triangulating the data collected lending support to the validity claimed in the study of wall art.

**Key Words:** wall motifs, visual analysis, tribal women

### Introduction

Wall art or pattern motifs are a traditional folk art and cultural symbol as well as self expression of tribal women. The walls of village are often hand painted and decorated to get blessings of god and goddess at weddings, births and harvest season or on religious festival days (Jailly, 2018). Tribal women are basically involved themselves in this indigenous art form, express their arts thoughts in three ways ritualistic, utilitarian and individualistic (Vidyarthi and Rai, 1976) with hands and locally available handmade colour, which is primarily a red colour paste of *khariya* (zinc oxide) and creamy white colour is Kaolin, and locally called *dudhi mati* (type of clay). Traditionally, the art is supposed to be made using a water-based paste of uncooked rice kernel of unprocessed sun-dried paddy called '*aatopchaal*' (a kind of rice) which is diluted to the consistency of thick milk (Maity, P.K., 1988). The traditional wall-art is various colours and created by women into various geometrical or freehand motifs of flowers, trees, animals, humans, etc.

Wall art or motifs on wall is a traditional, ritualistic drawing, popular in Bengal and continues to be an integral part of all celebrations – be it '*pujas*' or weddings (Pattanaik, 2006). Discovery of farming in Neolithic period changed the imagery style. During the farming or agriculture-based life people began drawing on the home walls and floors. This feature still persists in some parts of rural Bengal as perceived by the author in the tribal dominated areas on the walls, the doorway, on the floor and illustrated through some photo plates captured on the field. Beside that style, theme and subject matter also changed. Now the tribal women prefer realistic images rather than symbolic images. Taste of food has also changed from animal flesh

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to grain. Though food gathering or cultivation was less life threatening, the sense of uncertainty was there. As a result, they needed to worship the absolute power associated with inevitability, uncertainty, and providence, which they were already familiar with in the previous hunting and gathering lifestyle (Banerjee, 1995).

Several scholars claim that Bengal's rituals and traditional folk arts (including *alpana*, drawing on the floor, and wall art) originated with the early agricultural communities (Mookerjee, 1939). Rice powder, rice paste diluted with water, dry colour powders made from dried leaves, charcoal, burnt earth, and other materials are commonly used in such works. The art form was originally performed in villages by the girls and women to decorate the door-fronts, floors, wall and the places before the idols of deities. Initially, the art saw the use of motifs of paddy leaf, feet of Goddess Laxmi, lotus and other images which were meant for welcoming wealth into the house. The separation and homogeneity of the motifs in these designs, give them a subtle character. Due to discovery of farming in the Neolithic period imagery pattern changed from hunting to agricultural society. With a touch of hunting culture and patronage of agricultural societal values, this art has become a lost link from the past (Chakraborty, 2015). Thus, while the design has a mechanical motion and a stereotyped symmetry, the intrinsic energy of the motifs of these designs inevitably pushes itself through the traditional guidelines. By assessing the Bengal ritualistic image, a list of biodiversity may be created, and this list explores the extensiveness of biodiversity. In terms of biodiversity and the environment, Wall art of Bengal has given rise to the concept of the connection between forestry culture and agro-based society, which serves as a missing link in human succession. It is also correct to assume that art has a form of symbolic visual folk communication (Banerjee, 1995).

This study lends its uniqueness in that little study has been done on the geographical spread of the practice of the art and its similar art form in India in general and rural West Bengal in particular. Through literature search the research gap has been identified to be attaching symbolic meaning to the art form of the wall art by the Santhals; the associated biodiversity in the art particularly from a tribal woman's perspective.

### Study Area:

Tribal wall art is excellent example of biodiversity, agro symbols related issues. For an in-depth study of the wall art as practiced by the tribes of rural Bengal in the district of Purulia, the forest embraced Baghmundi block of Purulia has been covered (Fig. 1). It is within the Anandpur hills, a sub-range of north-eastern part of

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## Rural Tourism Through the Community Participation and Sustainable Development: An Empirical Study from Silk Route, East Sikkim

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**Abstract:** Tourism destinations often are dependent on natural and cultural/heritage resources to form their attractions bases, which are linked to the economic vitality of local communities. Tourism industry can generate income and holistic development of a region. Rural tourism provides an economic incentive to the local people who are residing in these regions. It also adds an ethnic flavor to the consumer's (tourist) taste. Silk Route in Sikkim is popularly known as 'Silk Route' in Sikkim tourism map. It is one of the best rural tourist destinations of Sikkim. The silk route is very popular among the tourists. The landscape is beautiful and wonderfully thrilling. The lush greenery, panoramic view of hills and the simplicity of the indigenous inhabitants attracts the urban tourists to this place. The paper attempts an empirical presentation addressing the concept of rural tourism, which is an emerging perception on tourism introduced recently into the Indian tourism sector. This paper try to explore the potentiality as a rural tourist destination, and how such rural or Ecotourism can be an instrument to empower indigenous communities in a particular area and provide community development through economic and social benefits to the local communities for their well-being. This finding can be exemplified elsewhere as an approach on sustainable development of rural tourism through the community participation and management practiced at village level.

**Keywords:** Rural tourism, silk route, sustainable development

### I. INTRODUCTION

Tourism is the collection of activities, services and industries that delivers a travel experience, including transportation, accommodation, eating and drinking establishments, retail shops, entertainment business and other hospitality services provided for individuals or groups travelling away from home. The World Tourism Organization (WTO) defined sustainable tourism development as "that which meets the needs of present tourist and host regions while protecting and enhancing opportunities for the future". Sustainable tourism or Ecotourism is as an instrument to empower indigenous communities in a particular area (Sofield, 2003). Its goal is to achieve conservation and community development through the provision of economic and social benefits to the local communities for their well-being (Chapman, 2003). This is a contemporary global –national-regional-local issue with the adoption of the Sustainable Development Goals, to which India too is committed. Rural tourism is one of the aspects of ecotourism that endeavors to conserve the natural, cultural, and built environment; preventing rural-urban migration by providing economic, environment and social benefits to local residents and provides a high-quality experience for the guests. Developing approaches that are able to touch upon each of these areas can ensure the long-term success of the community. Community based ecotourism through the home-stay model is one of the top activities promoted in society to reduce the incidence of rural poverty (Leksakundilok, 2004). In India, there are tremendous tourism opportunities with both cultural and natural resources and it offers vast sprawling natural beauty, seasonal diversities, cultural richness, ethnicity, and hospitality of local communities. "India truly lives in Village" – rural environment has many cultures having different fairs and festivals to show-off. In rural tourism, visitors get a chance to spend time with the rural family by observing their customs, values and culture, which gives them the taste of rural life (Devkota, 2010). Present study explore the Silk-Route of eastern Sikkim as rural tourism destination, which is a part of ancient trade route that begun in Lhasa, through Chumbi Valley, preceded via Nathula Pass, and ultimately took the port at Tamralipta (present Tamluk in West Bengal). This route is now open is popularly known as 'Silk Route' in Sikkim tourism map. This rural tourism sector is the harmony of nature with its unexplored untapped forest, biodiversity and the serene Kanchenjunga within the lap of the mighty Himalayas. The lush greenery, panoramic view of hills and the simplicity of the indigenous inhabitants attracts the urban tourists to this place.

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## ORIGINAL ARTICLE

### Efficacy of green synthesis of Silver nanoparticles from Tulsi (*Ocimum sanctum*) leaf aqueous extract and its antibacterial effect on clinical multidrug-resistant *Staphylococcus aureus* in West Bengal

Kartik Shaw<sup>1,\*</sup>, Payel Das<sup>1</sup>, Tamal Ghorai<sup>1</sup>, Tapomoy Chatterjee<sup>1</sup>, Somnath Gangopadhyay<sup>2</sup>, Sahana Mazumder<sup>3</sup>

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#### Abstract

Rapid augmentation in the prevalence of multidrug-resistant (MDR) *Staphylococcus aureus* is a worldwide threat. Advising newer antibiotics may fail to reduce the chances of the emergence of newer drug-resistant *Staphylococcus aureus*. Very little shreds of evidence can be found to treat clinical MDR *Staphylococcus aureus* with biogenic silver nanoparticles (AgNPs) in West Bengal. To prepare AgNPs biogenically using aqueous tulsi leaf extract (TLE) and also to assess its antibacterial effect upon clinical MDR *Staphylococcus aureus*, biogenic synthesis of the AgNPs using aqueous TLE was done, characterized those with UV-Vis Spectrophotometer, dynamic light scattering, field emission scanning electron microscopy, Fourier transform infrared spectroscopy, and evaluated the antibacterial activity against the clinical MDR *Staphylococcus aureus*. ANOVA followed by LSD post hoc test was used to test the differences between the OD (optical density) of different experimental sets. The biosynthesized AgNPs were spherical, monodispersed, and of smaller size (9-23 nm) with the involvement of eugenol, quercetin, and oleanolic acid present in the tulsi leaf. A significant change in OD was observed in AgNPs (prepared using TLE) treated broth compared to only tulsi leaf extract treated culture. There was a significant similarity between the efficacies of AgNPs and clindamycin ( $P < 0.05$ ). Our findings propose that AgNPs synthesized using TLE were fast and efficient to ameliorate the bacterial growth, which may be used as a potent antibacterial agent for the treatment of clinical MDR *Staphylococcus aureus* infection in near future.

**Keywords:** Ag Nanoparticles; Biogenic; Clindamycin; MDR; MRSA; *Staphylococcus aureus*; Tulsi.

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#### INTRODUCTION

From the origin of the concept of nanoparticles in 1954 by eminent scientist Paul Ehrlich [1] to the 21<sup>st</sup> century, there is an immense change in the craze of using nanoparticles in research work has been observed. Biologically prepared nanoparticles have the potential to lead us to find solutions to a wide range of issues that are being

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encountered nowadays. Chemically reduced silver nanoparticles have an adverse effect on human health as well as it gives low yield and requires high energy [2]. As an alternative, biogenic silver nanoparticles emerged as a good antibacterial, as well as an antifungal, and anticancer agent. Apart from this, the literature suggests the use of AgNPs (Silver nanoparticles) in different sectors like clothing [3], water treatment/purification

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### A study of growth pattern of school going children of Kolkata, India

Tamal Ghorai<sup>1\*</sup>, Sahana Mazumder<sup>1</sup>, Somnath Gangopadhyay<sup>1</sup>, Tapomoy Chatterjee<sup>1</sup>,  
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#### ABSTRACT

**Background:** In our society only, a few peoples have good physiological status from their childhood. Health status of children and adolescents is important factor for young society. This present study highlights the peoples' state of health and nutrition. Change in height with respect to age can be seen during puberty and adolescence. Growth can also be dependent upon the geographical regions.

**Methods:** In this study included 230 adolescent students (boys- 146, girls- 84) in the age group of between 12-18 years. So many related growth parameters were measured using by an anthropometric rod, weighing machine, and slide calliper. BMI, p value was obtained by performing t-test at 0.05 level of significance. Statistical software SPSS version 20 was used.

**Results:** Growth parameter was found to be increasing with age and it was more pronounced between 16 and 17 years. Interestingly the increment of all the growth parameter was found to be more in urban and less in rural.

**Conclusions:** The findings of this study showed a progressively increasing of growth-related parameters with ages and the progress vary, indicating a nutritional supplementation are unequal (unequal growth pattern), as it was evident from different growth parameters percentile values of CDC and IAP values. This study will certainly help to create among the children and their parents about the physical growth and health.

**Keywords:** Adolescent, Anthropometry, BMI, Growth parameters, Puberty, School students

#### INTRODUCTION

In our society only a few peoples have good physiological status from their childhood. Health status of children and adolescents is important factor contributing to the nation's health. For better performance and life, physiological fitness is way more important.<sup>1</sup> Poor socio-economic status makes both malnutrition and obesity like diseases.<sup>2</sup> Malnutrition causes such a big number of differing kinds of morbidities like growth faltering, developmental retardation, and significant mortality.<sup>3</sup> Physical growth is a dynamic, complicated, and long process that continues throughout all of infancy, childhood, and adolescence.<sup>4</sup> Anthropometry is the branch of human sciences which is related with some

parameters like measurement of size, shape, strength and dealing capacity. Physical dimension of the body is way influenced by nutrition particularly within the rapidly growing period of student community.<sup>5</sup> Despite the well-known importance of nutritional health several cultural, social, political, economic, and academic factors contribute to malnutrition among children.<sup>6</sup> School going children constitute one-fifth of the overall population and are the long run of the state.<sup>7</sup> The health supervision of the school children is critical and might help to spot the magnitude of morbidity and malnourishment in a very community.<sup>8</sup> In Asia, prevalence of undernutrition in the form of protein undernourished children in the world, contributing significantly to the high morbidity and mortality in the country.<sup>9</sup> Evidence from all over India

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### Postural strain of spinner and casting workers of a small-scale aluminium utensil making factory

Tapomoy Chatterjee<sup>1\*</sup>, Sahana Mazumder<sup>1</sup>, Somnath Gangopadhyay<sup>2</sup>, Tamal Ghorai<sup>1</sup>, Amalendu Samanta<sup>3</sup>

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#### ABSTRACT

**Background:** Small scale establishments often neglect the worker safety and comfort which impacts both productivity and workers' safety. Various studies have been conducted in such small-scale establishments but not much has been done on aluminium utensil manufacturing factories. Spinning and casting are two important processes for manufacturing of aluminium utensils. But not much has been studied to assess the hazards of the involved workers. The present study is an attempt to explore this previously unnoticed area.

**Methods:** The study was conducted in different small scale aluminium utensil factories in West Bengal. Sixteen spinners and seventeen casting workers were evaluated for this study. The analysis of posture was done by rapid upper limb assessment (RULA), rapid entire body assessment (REBA) and Ovako working posture analysis system (OWAS). The body parts discomfort was assessed by using Cornell musculoskeletal discomfort questionnaire and Nordic questionnaire was also used to assess the pain they experience.

**Results:** All the casting workers are experiencing postural load beyond the recommended limit whereas in case of spinner, five workers experienced less postural load due to favorable work conditions. Casting workers mainly suffered from low back, neck, right shoulder pain whereas spinners suffered from wrist and finger pain followed by lower extremity pain.

**Conclusions:** Both group of workers are experiencing postural load and discomfort. In case of casting workers, the prevalence was high and immediate interventions are needed. The discomfort is particularly high during the end of shifts.

**Keywords:** Nordic questionnaire, Postural load, Body part discomfort, Cornell musculoskeletal discomfort questionnaire, Musculoskeletal pain

#### INTRODUCTION

The concept of ergonomics in workplace design is ignored in most of the industries. This problem is very much prevalent around the world, including India. The problem of workplace design should be thought of at the blueprint stage involving an ergonomist along with process engineers, and production engineers. The workplace design is basically governed by the two main dimensions,

i.e., clearance and reach, where clearance will be focused on taller individuals and reach for shorter. Lacing of which force the workmen to assume awkward posture, poor posture, and bad posture. Assuming those posture by the workmen are either due to inadequate workspace or due to lack of awareness of the workmen. In most of the unorganized sectors in India, the workers are forced to work in low wage where their work effort is maximum but occupational safety is highly neglected.<sup>1</sup>

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REVIEW ARTICLE

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## A Guide Towards the Phenotypic Detection of Extended-spectrum $\beta$ -lactamases Production in *Enterobacteriaceae*: Alone or in Presence of Other Interfering Enzyme

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### Abstract

Antimicrobial Resistance (AMR) has been regarded as a major public health concern as a reason of millions of deaths. Extended-spectrum  $\beta$ -lactamase (ESBL) is considered as a leading factor contributing to this and limiting its treatment. Thus, ESBL producing *Enterobacteriaceae* should be discriminated from those having other mechanism conferring resistance. Several phenotypic methods have been evaluated for this purpose. Some of these are based on conventional method (DDST, CDT, ESBL E-test, Cica- $\beta$  test) while others depend on automated systems (VITEK 1, VITEK 2, Phoenix, MicroScan). All the conventional methods have been found to be more specific, sensitive and cost effective than any of the automated system though they are easy to perform and interpret. Automated system also fails to detect ESBL in presence of other interfering enzymes such as AmpC, MBL or K1 enzyme. ESBL can be detected by using third-generation cephalosporin (cefotaxime or ceftazidime) or monobactam (aztreonam) in combination with clavulanate. AmpC can be distinguished by using cloxacillin-containing agar, fourth-generation cephalosporin (cefepime) or phenyl boronic acid. MBL producers remain unaffected in presence of clavulanate but gets inhibited by carbapenems (imipenem, meropenem) in combination with EDTA. Cefpodoxime-clavulanate and ceftazidime-clavulanate combinations are reliable for K1 enzyme detection but are not suitable for distinguishing bla<sub>CTX-M2</sub>.

**Keywords:**  $\beta$ -Lactamase, *Enterobacteriaceae*, Extended-spectrum  $\beta$ -lactamases, AmpC, Metallo- $\beta$  lactamase, K1 Enzyme, Phenotypic Detection, Review

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### Vitamin C and E supplementation and high intensity interval training induced changes in lipid profile and haematological variables of young males

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#### ARTICLE INFO

**Keywords:**  
Sprint interval training  
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#### ABSTRACT

High intensity interval training (HIIT) causes oxidative stress and haematological alteration. Present study was aimed to evaluate the effect of 8 weeks' supplementation of vitamin C and E on HIIT induced changes in lipid profile parameters and haematological variables. Hundred six male adolescent players were randomly assigned into five age-matched groups, i.e., Control (no exercise + placebo), HIIT (placebo), HIIT + vitamin-C (1 000 mg/day), HIIT + vitamin-E 400 IU/day and combined HIIT + vitamin C and E. Morning and evening sessions (90 min) of HIIT included 4 phases (15 min each) with 3 sets (4 min each). Each 4 min HIIT set consisted of 2 min intense sprint workout (90%-95% of heart rate maximum [HR<sub>max</sub>]) followed by 1 min active recovery (60%-70% HR<sub>max</sub>) followed by 1 min of complete rest (1:1 work-rest ratio). Lipid profile parameters, haematological variables, endurance capacity and vertical jump were evaluated by standard protocols. Significant decrease in body weight, fat%, total cholesterol, triglyceride, Total Cholesterol/High Density Lipoprotein-Cholesterol and significant increase in High Density Lipoprotein-Cholesterol, maximal oxygen consumption, vertical jump were observed for all four intervention groups. White blood cell count, red blood cell count, haemoglobin percentage and haematocrit values were significantly decreased while platelet count and platelet-to-leukocyte ratio (PLR) ratio were increased significantly only for HIIT group. Blood level of tocopherol and ascorbic acid was significantly increased (values were within the normal range) in all the respective vitamin supplemented groups. Supplementation of vitamin C and E secures health protection with suppressed haemolysis and improved inflammatory blood variables with enhanced explosive leg strength and lipid profile parameters without any concomitant change in endurance capacity.

#### Introduction

High-intensity interval training (HIIT) is a time-efficient strategy and an efficient alternative to traditional endurance training among athletes to develop both the aerobic and anaerobic systems within a short period.<sup>1</sup> But strenuous exercises like eccentric intervals/high-intensity training inflict metabolic and mechanical stress due to the need for excessive energy in a very short time. This higher need for energy increase oxygen consumption leading to the generation of mitochondrial reactive oxygen species (ROS).<sup>2,3</sup> Studies depict that high-intensity exercises elicit detrimental effects on skeletal muscle<sup>2,4</sup> and increase circulatory

proinflammatory cytokines (interleukin-6 [IL-6] and tumour necrosis factor-alpha [TNF- $\alpha$ ]) in proportion to ROS generation.<sup>5,6</sup>

High-intensity/eccentric exhaustive training induces oxidative stress and alters the haematological profile by facilitating haemolysis along with a decrease in ferritin, haemoglobin (Hb) content, and haematocrit value (HCT). However, the erythrocyte-related changes occur simultaneously with decreased leukocyte count, increased platelet count, and platelet-to-leukocyte ratio (PLR) due to the effect of HIIT.<sup>7</sup> Examination of the literature revealed that antioxidant vitamins (e.g., vitamin A, vitamin C and vitamin E) are effective in preventing exercise-induced inflammation-like responses and adverse haemorrhagic changes.<sup>8,9</sup>

Vitamin C and vitamin E are the most prevalent vitamin supplements

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## Hepatoprotective Role of Hydro-Ethanollic Extract of *Alocasia indica* Tubers against Ethanol Induced Oxidative Stress

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**Abstract:** *Alocasia indica* is widely used in Indian folklore medicine and has its mention in Ayurveda. Especially in Ayurveda, it is used to treat tumors, inflammations, hemorrhages, hepato-splenopathies, amenorrhea, dysmenorrhea, fatigue and general debility. The current study investigates the hepatoprotective effect of *Alocasia indica* against chronic ethanol induced oxidative stress and tissue damage. The rats were segregated into seven groups which included normal control, ethanol treated (40%w/v) 2gm/kg body weight /day, ethanol+silymarin (100mg/kg), ethanol+AI (250mg/kg), ethanol+AI (500mg/kg), only AI (250mg/kg) and only AI (500mg/kg) for 30 days to evaluate the hepatoprotective effect against ethanol toxicity. Hepatic antioxidant enzymes, liver markers and pro-inflammatory cytokines were assayed biochemically. Histomorphological alterations were

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Title of paper: Protective role of Decylubiquinone against secondary melanoma at lung in B16F10 induced mice by reducing E-cadherin expression and ameliorating ROCKII-Limk1/2-Cofilin mediated metastasis

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### Protective role of Decylubiquinone against secondary melanoma at lung in B16F10 induced mice by reducing E-cadherin expression and ameliorating ROCKII-Limk1/2-Cofilin mediated metastasis

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ARTICLE INFO

**Keywords:**  
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ROCKII  
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Mesenchymal-epithelial transition  
Limk1/2-Cofilin-F-actin axis  
Pulmonary metastatic melanoma

ABSTRACT

Melanoma is one of the most consequential skin cancer with a rising death incidences. Silent but belligerent nature of metastatic sprouting is the leading cause of melanoma related mortality. Invasion of metastatic cells and re-expression of E-Cadherin play the crucial role in the establishment of secondary tumor at distal sites. Thus, manipulation of tumor cell invasion in parallel to regulation of E-Cadherin expression can be considered as potential anti-metastatic strategy. Evidences suggested key role of reactive oxygen species associated ROCK activities in the modulation of metastatic invasion via F-actin stabilization. Here, we first-time report Decylubiquinone, a dietary Coenzyme Q<sub>10</sub> analog, as an effective attenuator of pulmonary metastatic melanoma in C57BL/6 mice. Current study depicted detailed molecular interplay associated with Decylubiquinone mediated phosphorylation of ROCKII at Tyr722 along with reduced phosphorylation of ROCKII Ser1366 leading to suppression of Limk1/2-Cofilin-F-actin stabilization axis that finally restricted B16F10 melanoma cell invasion at metastatic site. Analysis further deciphered the role of HNF4α as its nuclear translocation modulated E-Cadherin expression, the effect of reactive oxygen species dependent ROCKII activity in secondarily colonized B16F10 melanoma cells at lungs. Thus unbosoming of related signal orchestra represented Decylubiquinone as a potential remedial agent against secondary lung melanoma.

1. Introduction

Melanoma is reported as one of the virulent dermatological cancer [1]. According to GLOBCAN 2020, this fatal disease was responsible for >57,043 deaths and in most cases metastatic spreading is responsible for the same [2]. Now a days, only 15% patients with distant metastasis were survived after five years of diagnosis [1]. Thus, inhibition of metastasis is the main key for improving melanoma related

survivability.

Metastasis is a multi-step process involving epithelial to mesenchymal transition (EMT), loss of cell adhesion and dissolving ECM via metalloprotease activity leading to extravasation [3]. Following extravasation from a primary tumor, migrating cancer cells invade into local as well as distant organ, carry out mesenchymal-epithelial transition (MET) and finally proliferate to generate new metastatic tumors [4]. Studies on breast cancer pulmonary metastasis also suggested

Abbreviations: Dub, Decylubiquinone; DMEM, Dulbecco's Modified Eagle's Media; DMSO, Dimethyl sulphoxide; HNF, Hepatocyte nuclear factor; EDTA, Ethylenediaminetetraacetic acid; ID-1, Inhibitor of DNA binding 1; FBS, Foetal bovine serum; IL, Interleukin; ROCK, Rho-associated coiled-coil containing protein kinase; MMP, Matrix metalloproteinase; PBS, Phosphate buffered saline; TGFβ, Tumor growth factorβ; VEGF, Vascular endothelial growth factor; Smad, Sma-and Mad-related protein; LIMK, LIMK domain kinase 1; ECM, Extracellular matrix; MT, Metastatic tumor bearing mice; BAL, Bronchoalveolar lavage; NAC, N-Acetyl Cysteine.

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## RELATION BETWEEN AIR QUALITY INDEX (AQI) AND BUTTERFLY RICHNESS: A STUDY FROM ENVIRONMENTAL AUDIT OF RAMMOHAN COLLEGE

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**Abstract:** Butterflies are a crucial component of the environment due to their role in pollination. They are also regarded as reliable ecological indicators because to their sensitivity to climatic and environmental changes. The characteristics that make these species so-called "bio-indicators of the area" include their great sensitivity to environmental changes, the relative ease with which they may be seen, and knowledge of their natural history. An important indicator of air pollution is the Air Quality Index (AQI). Considering that Rammohan College is located in the centre of Kolkata, AQI may have an impact on butterfly mortality, reducing the number of species (species richness) or individuals within a species (species abundance). After 5 year survey, we found that, 21 species of butterfly are present in the Rammohan College campus but there is no significant correlation between butterfly species richness and AQI ( $P=2.5, 10.05$ ).

**Key words:** AQI, Butterfly, Rammohan College, Environment, Audit

### 1. INTRODUCTION

Butterflies are a crucial component of the environment, for their pollination activities (Daily, 1997; Scobel, 1998). They are also regarded as effective ecological indicators because to their sensitivity to climatic and environmental changes (Lawton, 1998; Venkataramana, 2010). The characteristics that make these species so-called "bio-indicators of the area" include their great sensitivity to environmental changes, the relative ease with which they may be seen, and knowledge of their natural history. Approximately, 18,768 species of butterflies have been recorded worldwide and recent findings suggest that India hosts 1318 species in its subcontinent, out of which 89 species belong to Papilionidae, 277 species belong to Hesperidae, 92 species belong to Pieridae, 19 species belong to Riodinidae, 380 species belong to Lycaenidae, and 461 species belong to Nymphalidae (Samal *et al.*, 2021).

According to Blair and Launer (1997) and Stefanescu *et al.* (2004) the richness, diversity, and abundance of butterfly species decline as urban elements such as roads, buildings, and lawns increase. Natural biodiversity suffers as a result of the quantity and quality of natural habitat being reduced due to urban development (Clark *et al.*, 2007). The replacement or reduction of natural and semi-natural habitats by buildings and other concrete constructions is likely to have a negative effect on butterfly populations. Additionally, it is anticipated that different types of pollution will have a negative impact on the quality of residual habitats (Pocewicz *et al.*, 2009). Apart from the habitat loss, the widespread use of insecticides has drastically reduced the numbers of butterflies. The clouds of butterflies that used to fly past as one walked through wild places can no longer be taken for granted.

Nowadays, it is more widely acknowledged that biological variety is a crucial factor in determining the sustainability of development efforts as well as local and global environmental changes. However, few metropolitan areas in West Bengal have seen a thorough study of invertebrates, notably butterflies. It is useful as a tool for making decisions related to butterfly management and conservation. Therefore, it is crucial to create a zone-by-zone database or checklist of the diversity of butterflies in our nation, particularly in our state of West Bengal (Malagrino *et al.*, 2008; Pollard and Yates, 1993; Chowdhury and Das, 2007).

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## COMPARISON OF ENVIRONMENTAL STRESS IN RELATION TO INFRASTRUCTURE OF OLD AND NEW BUILDING OF RAMMOHAN COLLEGE, KOLKATA, WEST BENGAL

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### ABSTRACT

The phrase "environmental stress" is used to characterise the physical, chemical, and biological constraints on the diversification of organisms and ecosystems. Environmental stressors are the tiny annoyances and frustrations of everyday living. One important aspect of education is the support system. In the tropical nation of India, the state of West Bengal, the summers are hot and muggy for almost half the year. The problem is getting worse as a result of global warming. A stressful environment can be produced by infrastructure elements such as wall textures, ceiling heights, window positioning, air flow, lighting, and fan designs, among others. College teachers may experience professional burnout as a result of the environment's stress. There has been research done on the environments of the classrooms at Rammohan College in two separate buildings. According to the reference range, it has been discovered that the indoor classroom environment of the New Building is consistently within the "Partial Discomfort" range (lowest and highest TH1 values 75.86 & 79.20). According to the reference range, the indoor classroom atmosphere of the old building runs from "Comfortable to Partial Discomfort" (74.15 & 77.56).

Key Words: Rammohan College, TH1, WBGT, Class room, Infrastructure, Stress

### INTRODUCTION

Due to severe occupational and environmental restrictions, it is possible that a teacher may experience stress. Environmental stress is the term used to describe the physical, chemical, and biological limitations on species production and ecosystem expansion. The minor irritations and frustrations of everyday life are what are known as environmental stressors (Miller and Bates, 2007). Physiological reactions may occur when environmental stressors worsen. Stressors can be a result of human action or they might exist naturally in the environment. While certain environmental stressors primarily have an impact on the local community, others may potentially have repercussions farther afield or even globally (Eres and Atanasoska, 2011).

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## Red Ghost Crab *Ocypode Macrocer* (H. Milne Edwards, 1852) Population Dynamics Changes at Bay of Bengal Coast Line in Response to Construction of Digha Marine Drive and Tajpur Port: EIA Study by Rammohan College

Kaustav Dutta Chowdhury<sup>1</sup>, Chayanika Roy<sup>2</sup>, Debanjana Ghosh<sup>3</sup>, Fuleswari Chakraborty<sup>4</sup>, Tamanna Kundu<sup>5</sup>, Sanchita Saha<sup>6</sup>, Aishwarya Das<sup>7</sup>, Anjana Sinha<sup>8</sup>, Suchismita Medda<sup>9</sup>, Santi Ranjan Dey<sup>10</sup>

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**Abstract:** On the sand beaches of the Bay of Bengal, from Bichitrapur in Orissa to Mandermoni in West Bengal, population dynamics of *Ocypode macrocer* (H. Milne Edwards, 1852) were investigated. The crabs are found across the coastal areas that face the sea. Bichitrapur, Talsari, Udaipur, New Digha, Mohana, Shankarpur, Tajpur, and Mandermoni were the principal study locations. The infra-littoral sand flats zone is where the Red Ghost Crabs live. The development of the particular stretch of beach and the prevalence of crab burrows are related. Crab activity occurs both during the day and at night. One to three openings towards the sea can be found in each crab burrow. ELA (Environmental Impact Assessment) is an essential study required before onset of any project or for any ongoing project. This ELA study was conducted in 2017, prior to the start of "Marine drive & Tajpur port" construction, and in 2020, following completion of "Marine drive & Tajpur port" by Rammohan College. At the construction areas, it was discovered that the Red Ghost Crab population had substantially decreased. Additionally altered is the burrow distribution pattern. An essential ecological stabilizer of Sea beach is the red ghost crab. Additionally, it was discovered that the sea beach began to erode where the crabs were completely gone.

**Keywords:** ELA, *Ocypode macrocer*, Ecology, population, Digha, Bay of Bengal

### I. INTRODUCTION

*Ocypode* Weber, 1795; a semi-terrestrial crabs are common inhabitants of tropical and sub-tropical sandy beaches (Dahl, 1953; Hedgepeth, 1957), where they occupy obvious burrows (Vannini, 1976; 1980). *Ocypode macrocer* (H. Milne Edwards, 1852) lives in the supralittoral zone along the coast of the Bay of Bengal region. Nandi and Dev Roy (1996) and Haque and Choudhury (2014) conducted studies on the burrowing behaviour of *O. macrocer* from the Sundarbans' coastal zone. In the Digha coastal region, Patral et al. (2017) investigated the distribution of every variety of crab. They discovered that the genus *Ocypode* has three species of crab, with *Ocypode macrocer* (H. Milne Edwards, 1852) falling under the IUCN's DD (Data deficient) classification. They are known as RED GHOST CRAB because; if anyone approaches towards them they disappear inside their burrow promptly.

Each burrow aperture has a diameter that falls into one of the following categories: >30 mm, 31-39 mm, 40-50 mm, 51-59 mm, 60-69 mm, 70-79 mm, or 80-90 mm. Burrow opening diameters are often greater than 30 mm and seaward-facing. Before emerging, the burrow dropped in an awkward manner. Burrows were either helical or J-shaped. Always, at least 1 cm of the burrow's deepest point was above the water line (Haque and Choudhury, 2014).

Crab activity surveys revealed through behavioural observations that they were active both during the day and at night. Regular burrow excavation was noted twice a day after the tide receded. Sand was regularly taken from a burrow, and much of it was then scattered to an area about 1 m away. Crabs were often solitary feeders. Scavenging, predation, and deposit were the three main feeding behaviours (Haque and Choudhury, 2014).

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## Assessment of Socioeconomic Impact of Sericulture in Murshidabad: A Social Outreach Programme of Rammohan College

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**Abstract:** Sericulture was traditionally the main source of income for rural residents in Murshidabad, West Bengal. Sericulture greatly boosts the state's economy by generating jobs, especially for rural women. In 2015-16, the state produced 2568 metric tonnes of raw silk, generating jobs for 22, 19 lakh people. In West Bengal's various districts, there are many problems that affect sericulture workers, such as fluctuating cocoon prices, a lack of markets where raw cocoons can be sold, poor market connections, a lack of storage facilities, poor information about market prices, middlemen who take advantage of sericulture workers, a lack of funding, a lack of innovation, etc. The Researchers were motivated to do this particular investigation by these related issues. As a result, the current investigation will focus on issues at the highest level to lowest level. We found tremendous poverty and gender discrimination, INDIA is earning a lot from Sericulture. This study examines the socioeconomic disparities within the sericulture industry, focusing on the living conditions and prosperity of farmers, weavers, and industrial employees. Through comprehensive research and data analysis, we found that farmers, as landowners, enjoy greater prosperity compared to weavers and industrial employees. The key factor contributing to this disparity is the limited government involvement and support in the growth of the sericulture business, particularly in relation to weavers and industrial employees. Our findings reveal that weavers and industrial employees face extreme poverty, with minimal access to government assistance. Moreover, our investigation uncovered that multiple reelers share a single reeling machine, highlighting the collective efforts of individuals in overcoming resource constraints. The study underscores the urgent need for government intervention to uplift the conditions of weavers and industrial employees, as well as to promote equitable growth in the sericulture industry.

**Keywords:** Sericulture, Murshidabad, Gender, Socio - economy, Survey

### 1. Introduction

The Chinese word "Su" [Si], which implies silk, has been translated to the English word "Sericulture." "Seri" means "silk" in Sericulture, while culture refers to raising animals [1]. Raising silkworms for the production of raw silk and other byproducts is known as sericulture. In other terms, sericulture is the mass - scale raising of sericigenous insects for the purpose of producing raw silk. Being a unique fibre and known as the "Queen of Textile," silk. Sericulture is a rural, labor - intensive, agro - based cottage industry that offers plenty of jobs to the economically underprivileged groups in society [2]. Sericulture is attracting farmers' attention since it needs little capital outlay and yields great returns quickly. It is the ideal method for enhancing both the rural economy and farmers' level of living. One of India's key economic sectors, sericulture has a significant impact on reducing poverty. Sericulture is one of the cottage businesses that gives rural residents more employment options [3]. The only cash crop in the agricultural industry that provides immediate returns within 30 days is sericulture. The Indian silk industry is the largest in the world and accounts for over 15% of global production [4]. Sericulture is an industry that values the environment and is friendly to women. It illustrates how communities may utilise natural resources without endangering the ecosystem and how people and nature can coexist peacefully. Therefore, sericulture is the ideal profession for West

Bengal's rural population. Sericulture is hence frequently referred to as the "Poverty Industry." The second - highest number of individuals are employed in sericulture, a cottage industry in agriculture (1 acre supports 13 people). Despite the small investment, the profit margin is high. Silk has the ability to produce enough foreign cash. The Morus tree helps halt soil erosion and can be grown on shared land. [4]. Sericulture is a profession that welcomes women and Additionally, fishing, poultry, and the development of medicines can all benefit from using silk worm byproducts [5]. The plant is grown in agricultural fields, and West Bengal is where high yielding versions of the S1, S1635, and BC229 silkworms are raised.

The silk moth can go through one life cycle (univoltine), two life cycles (bivoltine), or four to five life cycles (multivoltine) in a calendar year. The Nistari eggs, which are a hybrid between two distinct cycles, are employed during raising. Typically, multivoltine into multivoltine, multivoltine into bivoltine, or bivoltine into bivoltine are crossed to create Nistari. Typically, multivoltine breeds like A23, B, G, etc. as well as KPGB, NB18, P5, etc. are employed. There are bivoltine breeds utilised. A thread called silk has a sericin - coated protein covering its fibroin core in the middle. The silk gland secretes silk. The fourth and fifth instar larva have a fully formed silk gland. Adults have a lifespan of 4 - 6 days. In women, it is larger than in men. It has a yellowish brown hue. Scales cover the body.

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## Year 2023

Date ..... 20.....

Name of the teacher: Mrs. Gargi Das

Title of paper: Preservation And Conservation of Library Materials As Reflected Through Library And Information Science Abstract (1971-2009): A Review Work

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## Preservation And Conservation Of Library Materials As Reflected Through Library And Information Science Abstract (1971-2009): A Review Work

**Pratyusha Mukherjee<sup>1</sup>, Gargi Das<sup>2</sup>**  
<sup>1</sup>Librarian, Central Library, Khalisani Mahavidyalaya  
<sup>2</sup>Librarian, Library, Rammohan College

**Abstract**

The concept of preservation is included with the maintenance of libraries and archives since ancient times. Libraries need to preserve its collection in order to protect and preserve the history and culture of a nation for the posterity. Preservation is considered as the fundamental and an important task of the libraries. Traditionally some organic and natural methods were used to keep the books and other materials physically usable for a long time by slowing down or preventing their decay. Then we developed a more advanced way of preserving the materials in digital format. Though digital preservation needs constant attention still it is a long-term storage of information. This study is a review work from the Library and Information Science Abstract [LISA]. The study aims to know about the various traditional and digital methods of preservation and to identify the principal language of the research works and the journal in which maximum works were done.

**Keywords:** Preservation, LISA, Traditional Preservation, Digital Preservation

**INTRODUCTION**

Preservation is a branch of library and information science concerned with maintaining or restoring access to artifacts, documents and records through the study, diagnosis, treatment and prevention of decay and damage [9].

It is the protection of cultural property through activities that minimize chemical and physical deterioration and damage and that prevent loss of informational content. The primary goal of preservation is to prolong the existence of cultural property [1].

**NEED FOR PRESERVATION**

Preservation is a fundamental role and responsibility of the library. Libraries and information centers do not just collect materials; they also provide access and bring together various documents and research materials that are scattered worldwide while protecting the originals.

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So, preservation is needed to assure the long-term uninterrupted access to the intellectual content of the library's collections, either in original or in re-formatted form. Preservation allows for the continuity of the past with the present and the future [9, 10]. It is an ongoing activity that is a part of the normal workflow. Awareness of this & a sense of individual responsibility must be fostered. Library and archival collections represent an investment that preservation can protect.

In today's digital age the society is using digital technologies to create knowledge and share it.

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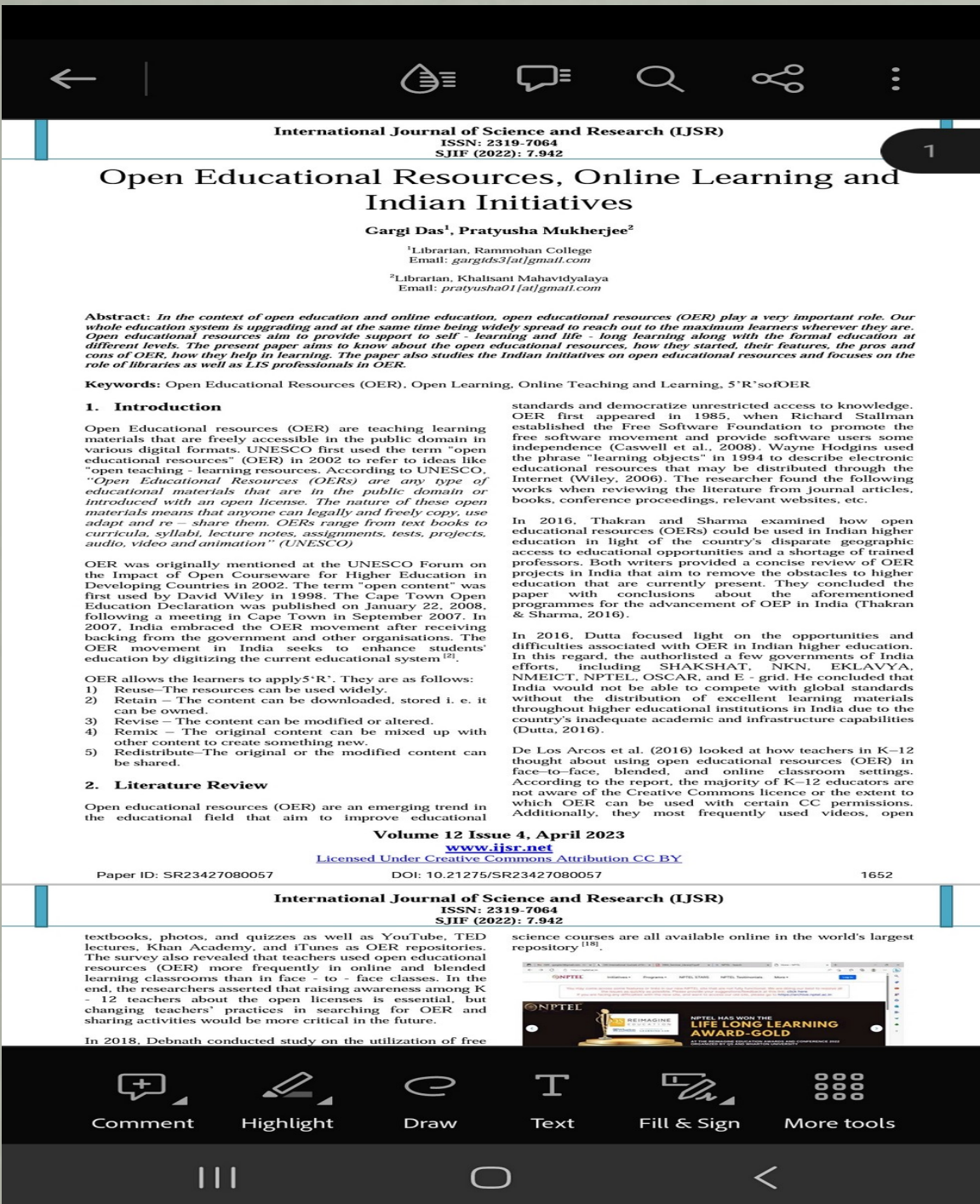
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Date ..... 20.....

Name of the teacher: Mrs. Gargi Das

Title of paper: Open Educational Resources, Online Learning and Indian Initiatives



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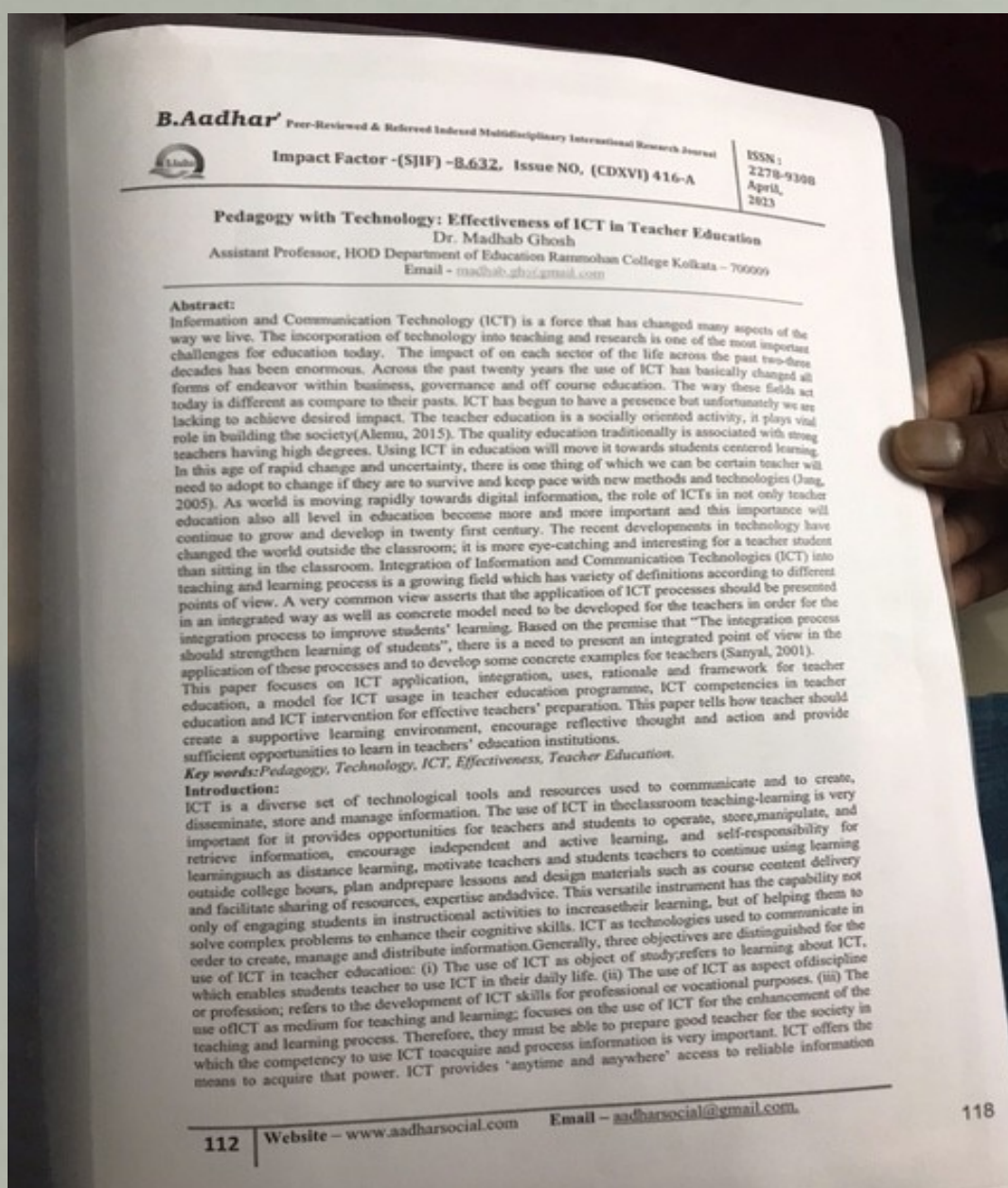
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## **Pedagogy with Technology: Effectiveness of ICT in Teacher Education**

Dr. Madhab Ghosh

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### **Abstract:**

Information and Communication Technology (ICT) is a force that has changed many aspects of the way we live. The incorporation of technology into teaching and research is one of the most important challenges for education today. The impact of on each sector of the life across the past two-three decades has been enormous. Across the past twenty years the use of ICT has basically changed all forms of endeavor within business, governance and off course education. The way these fields act today is different as compare to their pasts. ICT has begun to have a presence but unfortunately we are lacking to achieve desired impact. The teacher education is a socially oriented activity, it plays vital role in building the society (Alemu, 2015). The quality education traditionally is associated with strong teachers having high degrees. Using ICT in education will move it towards students centered learning. In this age of rapid change and uncertainty, there is one thing of which we can be certain teacher will need to adopt to change if they are to survive and keep pace with new methods and technologies (Jung, 2005). As world is moving rapidly towards digital information, the role of ICTs in not only teacher education also all level in education become more and more important and this importance will continue to grow and develop in twenty first century. The recent developments in technology have changed the world outside the classroom; it is more eye-catching and interesting for a teacher student than sitting in the classroom. Integration of Information and Communication Technologies (ICT) into teaching and learning process is a growing field which has variety of definitions according to different points of view. A very common view asserts that the application of ICT processes should be presented in an integrated way as well as concrete model need to be developed for the teachers in order for the integration process to improve students' learning. Based on the premise that "The integration process should strengthen learning of students", there is a need to present an integrated point of view in the application of these processes and to develop some concrete examples for teachers (Sanyal, 2001). This paper focuses on ICT application, integration, uses, rationale and framework for teacher education, a model for ICT usage in teacher education programme, ICT competencies in teacher education and ICT intervention for effective teachers' preparation. This paper tells how teacher should create a supportive learning environment, encourage reflective thought and action and provide sufficient opportunities to learn in teachers' education institutions.

**Key words:** Pedagogy, Technology, ICT, Effectiveness, Teacher Education.

### **Introduction:**

ICT is a diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information. The use of ICT in the classroom teaching-learning is very important for it provides opportunities for teachers and students to operate, store, manipulate, and retrieve information, encourage independent and active learning, and self-responsibility for learning such as distance learning, motivate teachers and students teachers to continue using learning outside college hours, plan and prepare lessons and design materials such as course content delivery and facilitate sharing of resources, expertise and advice. This versatile instrument has the capability not only of engaging students in instructional activities to increase their learning, but of helping them to solve complex problems to enhance their cognitive skills. ICT as technologies used to communicate in order to create, manage and distribute information. Generally, three objectives are distinguished for the use of ICT in teacher education: (i) The use of ICT as object of study; refers to learning about ICT, which enables students teacher to use ICT in their daily life. (ii) The use of ICT as aspect of discipline or profession; refers to the development of ICT skills for professional or vocational purposes. (iii) The use of ICT as medium for teaching and learning; focuses on the use of ICT for the enhancement of the teaching and learning process. Therefore, they must be able to prepare good teacher for the society in which the competency to use ICT to acquire and process information is very important. ICT offers the means to acquire that power. ICT provides 'anytime and anywhere' access to reliable information

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Title of paper: A roadmap to Teacher Education in National Education Policy

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Research Paper / Article / Review

## A roadmap to Teacher Education in National Education Policy 2020

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**Abstract:** Teacher education is no longer a privilege; it is the need of the hour. For a developing country like India, education is the topmost aspect of growth. We will fail as a country if proper quality education is still not being accessible to each and every individual by the best trained teachers in every corner of the country. In the last decade a number of experiments were done with the Teacher Education in India. Over the years, the Government of India came with various policies on teacher education such as the NCFTE - 2009, and NCTE Act - 2014. All the policies emphasized the development and modified the teacher education quality and other so many matters which are related with the same and abilities to access teacher education of all teachers, but still, the disparities and complications continued. After 34 years, finally we have our long waited National Education Policy (1). This paper is an attempt to discuss the new provisional changes for Teacher Education in National Education Policy (NEP) 2020. Now the NEP 2020 has recommended that, a new and comprehensive National Curriculum Framework for Teacher Education (NCFTE) will be formulated by the NCTE in consultation with NCERT in the country taking on board the real stake holders that is the Teacher Educators and the aspiring teachers as well. India being a young country with approximately 247853688 students and 9416895 Teachers and preparing such a big number of teachers is one of the biggest challenges (2). Thanks to the wonderful document of NEP - 2020 we now expect a healthy and strong teacher education system in the country. Teacher education has been the main focus of previous educational policies as well that is why Kothari Commission, way back in 1964-66, has laid great emphasis on teacher education by saying "the destiny of a nation is shaped in its class room". NEP - 2020 encourages schools to deal with a shortage of teachers by sharing teachers across campuses, especially for disciplines such as art, craft, music, and dance (2).

**Key Words:** Teacher Education, NCFTE - 2009, NCTE Act - 2014, NEP - 2020.

### 1. INTRODUCTION:

"The purpose of education is to make good human beings with skill and expertise. Enlightened human beings can be created by teachers. Changes in the education policy is a major way to provide the nation better students, professionals & better human being."  
- Dr. A.P.J. Abdul Kalam

Education is fundamental for achieving full human potential, developing an equitable and just society, and promoting national development. Providing universal access to quality education is the key to India's continued ascent, and leadership on the global stage in terms of economic growth, social justice and equality, scientific advancement, national integration, and cultural preservation. Universal high-quality education is the best way forward for developing and maximizing our country's rich talents and resources for the good of the individual, the society, the country, and the world. India will have the highest population of young people in the world over the next decade, and our ability. This National Education Policy 2020 is the first education policy of the 21st century and aims to address the many growing developmental imperatives of our country. This Policy proposes the revision and revamping of all aspects of the education structure, including its regulation and governance, to create a new system that is aligned with the aspirational goals of 21st century education, including SDG4, while building upon India's traditions and value systems. The National Education Policy lays particular emphasis on the development of the creative potential of each individual (3). It is based on the principle that education must develop not only cognitive capacities - both the 'foundational capacities' of literacy and numeracy and 'higher-order' cognitive capacities, such as critical thinking and problem solving - but also social, ethical, and emotional capacities and dispositions.

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