Phone : 2350-5687,
2354-3853
Fax : (033)2350-5687

RAMMOHAN COLLEGE

(Formerly City College W.Dept.)
102/1, Raja RammohanSarani, Kolkata – 700009
E-mail :rmc.tic85b@yahoo.in, rmc.principal@gmail.com
Accredited B^{++} Grade by NAAC

Ref. ..... Date.....20

ECOSYTEM FOR INNOVATION IPR AND INCUBATION CENTRE FOR CREATION AND TRANSFER OF KNOWLEDGE

Session: 2018-2023

Phone : 2350-5687,
2354-3853
Fax : (033)2350-5687

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Ref. ..... Date.....20

Introduction:

The primary vision of our college is to create an environment that facilitates an education system ensuring quality and quantitative resources for the students to enable them to tackle the changes and challenges of the technology-driven world along with the proliferating possibilities of academia. The educators being facilitators, we always put our effort into promoting each student to build up his or her own identity in the special field of interest.

The IQAC of the college has taken upon itself the responsibility of creating an environment that is conducive to innovative research and transfer of knowledge to students and society and also for industry-academia interactions.

Institutional "Innovation ecosystem" has been maintained and governed by Research Committee now renamed as Research Development Cell to sustain a Research hub in the college and to develop self reliant set up of mind among the students.

Objective:

- Facilitate faculties, research scholars and students with necessary infrastructural support for promoting innovative idea regarding basic and applied science
- Provide intra- and inter institutional collaborative support for the transformation of innovative basic ideas into realistic application leading to societal benefits
- Provide necessary infrastructure as well as mental/financial support for the development of productive skills required for entrepreneurship
- Facilitate intellectual growth to create an ecosystem for reliable, impactful, and sustained output

S Sanyal
Principal
Rammohan College
Kolkata-9

Phone : 2350-5687,
2354-3853
Fax : (033)2350-5687

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E-mail :rmc.tic85b@yahoo.in, rmc.principal@gmail.com
Accredited B^{++} Grade by NAAC

Ref. ..... Date.....20

Rammohan College, Kolkata

Innovation and Incubation Centre cell (IICC)

Dr. Saswati Sanyal	**Principal and Secretary**
Prof. Pritiprava Dutta	**Convener**
Dr. Krishnendu Sarkar	**IQAC Coordinator**
Dr. Samiran Mondal	**IQAC member**
Dr. Sucharita Roy	**Teacher Member**
Dr. Sonali Ghosh	**Teacher Member**
Prof. Trina Kundu	**Teacher Member**
Dr. Moumita Dutta	**Teacher Member**
Prof. Chayanika Roy	**Teacher Member**
Dr. Sumitra Chandra	**Teacher Member**
Dr. Debapriya Das	**Teacher Member**

S Sanyal
Principal
Rammohan College
Kolkata-9

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E-mail :rmc.tic85b@yahoo.in, rmc.principal@gmail.com
Accredited B^{++} Grade by NAAC

Ref. ..... Date.....20

Functional units:

Unit A: Research hub and CCSEA registered Animal House

Unit B: Intellectual Property Rights Cell and activity

Unit C: Self-reliance and capacity building hub

Unit A: Research hub and CCSEA registered Animal House

This unit currently played a significant role for developing and strengthening the research ecosystem within the college, aligned with the provisions of NEP-2020.

Research Grant

The institution received research grants from the Government in the last several years in the form of major and minor projects. A sizable volume of papers has been published in UGC Care Listed as well as non-listed but blind peer-reviewed and Scopus indexed journals with authenticated impact factors by our teaching faculty members. Book chapters and books with ISBNs have also been published.

Status of receives grants from Government and non-government organizations

2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
23,70,200/-	5,24,393/-	4,19,720/-	14,85,761/-	2,10,000/-

Principal
Rammohan College
Kolkata-9

GOVERNMENT OF WEST BENGAL
Department of Science & Technology
Bikash Bhawan, 4th floor

Tel: 25693717
Fax:

Memo No : 198(Sanc.)/ST/P/S&T/9G-45/2017

Date: 21/03/2018

Sanction Order for Grant-in-Aid

Demand No. : 70 Department Code : ST Financial Year : 2017 - 2018

1. Sanctioning Authority: Higher Education, Science & Technology and Biotechnology(Sci. & Tech.)
2. Name of the Grantee Institution: Rammohan College.
3. Address of the Grantee Institution: 120/1, Raja Rammohan Sarani, Kol-09.
4. Category of Grantee Institution: Education Institution
5. Amount Sanctioned: 932800 (in words Rs. Nine Lakh Thirty Two Thousand Eight Hundred Only.)
6. Name of the DDO: Registrar & DDO, Higher Education Department
7. Department Code: ST-Higher Education, Science & Technology and Biotechnology(Sci. & Tech.)
8. Name of the Treasury/PAO:Pay & Accounts Officer-III, PAO-III
9. Nature of Grant
   (a) Recurring or Non-recurring: Recurring
   (b) Capital or Revenue: Revenue
10. Condition of Grant Utilisation Certificate required: Yes
11. Category of Grant : Education Institution
12. Purpose of Grant : R&D project entitled- Study on calcium carbids generated acctylene mediated alterationin pulmonary tissues and its protection by Hexadecanoic acid, ethyl ester an in vivo stydy.
13. An amount of Rs 932800 is hereby allotted for this period in favour of the Registrar & DDO, Higher Education Department From the head of account 3425-60-200-SP-001-31-02-V from the budget provision of the financial year,2017 - 2018 under Demand No.70 Department Code ST and payable to Grantee Institution or by A/c payee cheque/By-Transfer Credit / ECS.
14. Head of Account Code :3425-60-200-SP-001-31-02-V
15. Name of the Scheme :Financial Assistance to other Scientific Bodies for undertaking Scientific Projects/Surveys/Research/Training and Science Awareness & Science Popularisation programme (State Share)
16. The amount will be drawn in T.R. from No.31/32/43 (As applicable as per WBTR)
17. The sanctioned amount will be payable to Rammohan College. by Transfer Credit to the Head of Account of the LF/PL/Deposit Account of the Grantee Institution or by A/C payee Cheque / ECS as applicable.
18. Remarks: Present release is the 1st installment of the total project cost of Rs. 19,99,600/- sanctioned for 3 year (s) work. Rs. 9,32,800/- will be transferred through e-Pradan system to Rammohan College UGC Grant. A/C No.-00250100005293 (SB), IFSC CODE-BARBOCOLKAL, Mobile No.-9831602417.
19. Total released amount is within the Budget Provision of the above mentioned head of account during 2017 - 2018
20. This order issues in exercise of the power delegated under Finance Department Memo. No. nullwith the concurrence of Finance Deptt. vide Gr. F.A. Branch U.O. No. 211 F.A./Education Date 06/02/2018

Sd/-

OSD & E.O. DEPUTY SECRETARY

Higher Education, Science & Technology and Biotechnology(Sci. & Tech.)

Memo No:198(Sanc.)/ST/P/S&T/9G-45/2017 Memo Date:21/03/2018

Copy forwarded for information and necessary action to:-

1. The Principal Accountant General (A&E), Treasury Buildings, Kolkata-700001
2. The Principal Accountant General (Audit), Treasury Buildings, Kolkata-700001
3. The Principal Accountant General (Receipt, Works &Local Bodies Audit),CGO Complex at Salt Lake,Kolkata-700091
4. Registrar & DDO, Higher Education Department
5. *Pay & Accounts Officer-III, PAO-III*
6. *J.S. (Budget), Deptt. Of HE, S&T and BT.*
7. *PSO, Science & Technology.*
8. Shri S. Roy, SSO, Science & Technology.
9. Principal, Rammohan College, 120/1, Raja Rammohan Sarani, Kol-09. 11) *Shri Soumyajit Mukherjee, SSO, Science & Technology.*
10. Dr. Kaustav Dutta Chowdhury, P.I. of the project, Rammohan College, 120/1, Raja Rammohan Sarani, Kol-09. (Strictly follow annexture-A). 12) Guard File.

OSD & E.O. DEPUTY SECRETARY

Government of West Bengal
Department of Higher Education, Science & Technology and Biotechnology
"Vigyan Chetana Bhavan", Salt Lake,
DD 26/B, Sector-I,
Kolkata - 700064.

Annexure –A

File No.: ST/P/S&T/9G-45/2017
Name of the P.I. with Institute: Dr. Kaustav Dutta Chowdhury, P.I. of the project, Rammohan College.
General Guideline must be followed by the P.I.:

1. The selection of JRF/SRF shall be made as per guidelines of this Deptt. (Science & Technology).
2. The remuneration to the JRF/SRF & project Asstt. Should be disbursed as per FD Memo No. 6261-F(Y) dt. 27.06.2011.
3. Follow FD Memo No. 5400-F(Y) dt. 25.06.2012 and Memo No. 3060-F(Y) dt. 11.06.2014 where applicable.
4. The UC along with the audited statement of expenditure should be obtained within prescribed time limit / before release of further installment of grant.
5. Follow the Budget break-up given below:

SUMMARY (in Rupees)

Sl no.	Item	BUDGET			
		1ST year	2nd year	3rd year	Total
A.	**Non Recurring - Minor Permanent equipment:**				
	i) Cold centrifuge	209500			
	ii) Trinocular phase contrast microscope with microscopy camera	141500	0	0	351000
B.	**Recurring**				
1.	Remuneration of two JRF: @ 16000/- per month + 15% HRA= 2400/- per month + medical allowance Rs. 300/- per month = Rs. 18700/- X 2 per month for two years, and two SRF on the third year @ 18000/- per month + 15% HRA= 2700/- per month + medical allowance Rs. 300/- per month =21000/- X 2 per month, if the same JRF continues or for a JRF who has completed two years.	448800	448800	504000	1401600
2.	Consumables				
	i) Glass goods & Plastic wares	50000	20000	10000	80000
	ii) Chemicals & Reagents	60000	23000	10000	93000
3.	Outsourcing of sample analysis & other primary & secondary data	10000	20000	5000	35000
4.	TA for field work sampling (conference/ seminar travel not allowed)	5000	5000	5000	15000
5.	Reprography, photocopy etc.	2000	2000	2000	6000
6.	Postage & Stationary	2000	2000	2000	6000
7.	Report preparation & auditing of project	2000	2000	2000	6000
8.	Miscellaneous/ special expenditure	2000	2000	2000	6000
	TOTAL	**932800**	**524800**	**542000**	**1999600**

Officer on Special Duty

All communications are to be addressed to the Joint Secretary by designation and not by name

UNIVERSITY GRANTS COMMISSION
EASTERN REGIONAL OFFICE
LB 8 Sector III Salt Lake, Kolkata 700 098
Phone : (033) 2335 4767
Fax : (033) 2335 0586

No. F.PSW-113/15-16 (ERO)

To

The Principal,
Rammohan College
102/1 Raja Ram Mohan Sarani, Kolkata
West Bengal-700009

Subject : Approval of financial assistance to Dr./Mr./Ms DR. SONALI GHOSH, Department of Biochemistry of your college for Minor Research Project regarding.

Sir/Madam,

1. The University Grants Commission has approved the proposal of Minor Research Project mentioned hereinabove as per the recommendations of the Expert Committee and has also approved an allocation of ₹ 460000/- for the project as per details given below :

Non-Recurring Items :	Amount (In ₹)
Books and Journals	40000/-
Equipment	200000/-
Recurring Items :	
Travel and Field Work	30000/-
Hiring Services	30000/-
Chemicals and Consumables	100000/-
Contingency (including special needs)	60000/-
Total :	**460000/-**

2. The terms and conditions of the grant will be as per the Guidelines of the scheme.
3. A sanction letter (100% of non-recurring and 50% of recurring grant) is enclosed herewith.
4. The college is requested to submit 'Acceptance Certificate' duly signed by the Principal and The Principal Investigator after receiving this letter.
5. The date of implementation will be the date of receipt of the first instalment by the college and it may be intimated in the Acceptance Certificate. The tenure of the Project will be for two years for all subjects.

Yours sincerely,

(Dr. Mohammad Arif)
Joint Secretary

Copy forwarded for information & necessary action to;

1. The Registrar, Calcutta University
2. The Director, Higher Education, Government of West Bengal state, state Secretariat
3. Dr./Mr./Ms DR. SONALI GHOSH, department of Biochemistry
4. Guard File

(Vinod Sharma)
Under Secretary

All communications are to be addressed to the Joint Secretary by designation and not by name

UNIVERSITY GRANTS COMMISSION
EASTERN REGIONAL OFFICE
LB 8 Sector III Salt Lake, Kolkata 700 098
Phone : (033) 2335 4767
Fax : (033) 2335 0586

No. F.PSW-112/15-16 (ERO)

To

The Principal,
RAMMOHAN COLLEGE
102/1 Raja Ram Mohan Sarani, Kolkata
West Bengal-700009

Subject : Approval of financial assistance to Dr./Mr./Ms DR. SAMIRAN MONDAL, Department of Biochemistry of your college for Minor Research Project regarding.

Sir/Madam,

1. The University Grants Commission has approved the proposal of Minor Research Project mentioned hereinabove as per the recommendations of the Expert Committee and has also approved an allocation of ₹ 465000/- for the project as per details given below :

Non-Recurring Items :	Amount (In ₹)
Books and Journals	5000/-
Equipment	210000/-
Recurring Items :	
Travel and Field Work	15000/-
Hiring Services	10000/-
Chemicals and Consumables	200000/-
Contingency (including special needs)	25000/-
Total :	**465000/-**

2. The terms and conditions of the grant will be as per the Guidelines of the scheme.
3. A sanction letter (100% of non-recurring and 50% of recurring grant) is enclosed herewith.
4. The college is requested to submit 'Acceptance Certificate' duly signed by the Principal and The Principal Investigator after receiving this letter.
5. The date of implementation will be the date of receipt of the first instalment by the college and it may be intimated in the Acceptance Certificate. The tenure of the Project will be for two years for all subjects.

Yours sincerely,

(Dr. Mohammad Arif)
Joint Secretary

Copy forwarded for information & necessary action to;

1. The Registrar, Calcutta University.
2. The Director, Higher Education, Government of West Bengal state, state Secretariat,
3. Dr./Mr./Ms DR. SAMIRAN MONDAL, department of Biochemistry
4. Guard File

(Vinod Sharma)
Under Secretary

Government of West Bengal
Department of Science & Technology and Biotechnology
"Vigyan Chetana Bhavan", Salt Lake,
DD 26/B, Sector-I
Kolkata - 700064.

Annexure-A

File No.: ST/P/S&T/15G-20/2019
Name of the P.I. with Institute: Dr. Naznin Ara Begum, P.I. of the Project, Visva-Bharati University.
General Guideline must be followed by the P.I.:

1. The selection of JRF/SRF shall be made as per guidelines of this Deptt. (Science & Technology).
2. The Remuneration to the JRF/SRF & project Asstt. should be disbursed as per FD Memo No. 6261-F(Y) dt. 27.06.2011.
3. Follow FD Memo No. 5400-F(Y) dt. 25.06.2012 and Memo No. 3060-F(Y) dt. 11/06/2014 where applicable.
4. The UC along with the audited statement of expenditure should be obtained within prescribed time limit/before release of further instalment of grant.
5. Follow the Budget Break-up given Below:

SUMMARY (in Rupees)

Sl. No.	Item	Cost in Rs.			
		1st Year	2nd Year	3rd Year	Total
A. Non-Recurring					
1	Permanent Equipment		-	-	-
Total Non-Recurring (A)		**0**			**0**
B. Recurring					
1	Research Fellow-1No. @Rs. 18,700/- pm (JRF) in the 1st & 2nd year and @Rs. 21,000/- pm (SRF) in the 3rd year				0
2	Consumables	200000	100000	100000	400000
3	Other Costs	5000	10000	5000	20000
4	Travel	5000	3000	2000	10000
Total Recurring (B)		**210000**	**113000**	**107000**	**430000**
Grand Total (C = A + B)		**210000**	**113000**	**107000**	**430000**
Total Project cost (Rupees): Four lakhs thirty thousand only for 3 years					

Assistant Secretary to the Govt. of W.B.

GOVERNMENT OF WEST BENGAL

Science & Technology and Biotechnology DEPARTMENT

Tel:

Fax:

Memo No : 1934(Sanc.)/ST/P/S&T/15G-20/2019 Date: 25/02/2020

Sanction Order for Grant-in-Aid in Cash

Demand No. : 76 Department Code : BS Financial Year : 2019 - 2020

1. Sanctioning Authority: Science & Technology and Biotechnology
2. Recipient of Grant: Siksha Bhavana (Institute), Visva-Bharati
3. Category of the recipient of Grant: Grantee Institution
4. Amount Sanctioned: Rs.210000/-

   Rupees Two Lakh Ten Thousand Only.
5. DDO Code :- CAFSTA003
6. DDO Designation: Sec. Officer, Science & Technology & Biotechnology Dept.
7. Department Code: BS-Science & Technology and Biotechnology
8. Head of Account Code :76-3425-60-200-011-31-02-V
9. Scheme Name : West Bengal State Council of Science & Technology
10. Name of the Treasury/PAO & Accounts office: Pay & Accounts Officer-III, Calcutta PAO-III
11. Type of Grant:- Recurring
12. Utilization Certificate Required or Not: Yes
13. Purpose of Grant : Unfolding the role of small molecule based fluorescent antioxidants towards the misfolding of amyloid proteins: A study to detect and inhibit amyloid aggregations.
14. Applicable T.R Form No:- TR Form No.31
15. An amount of Rs.210000/-(Rupees Two Lakh Ten Thousand Only.) is hereby sanctioned for payment of Grant to the recipients as per Sl.No.2 from the Head of Account as stated in Sl.No.8 above against the Budget Provision of the Financial Year 2019 - 2020. The sanctioned amount will be payable through Transfer Credit into the LF/PL/Other Deposit Account/ECS/Cheque, as the case may be following the order issued by Finance Department in this regard.
16. Total released amount is within the Budget Provision of the Financial Year. 2019 - 2020
17. This order issues in exercise of the power delegated under Finance Department Memo. No. 1854-F.B. dated-26.03.2019 & 550-F.B. dated-30.07.2019 with the concurrence of Finance Deptt. vide Gr. F.A. Branch U.O. No. 245-
18. The Principal Accountant General (A&E), West Bengal and Pay & Accounts Officer/Treasury Officer and other concerned are being informed.
19. Remarks: Present release Rs. 2,10,000/- is the 1st installment of the total project cost of Rs. 4,30,000/- sanctioned for 3 year (s) work, will be transferred through e-Pradan system to Registrar, Visva-Bharati University. A/C No.-0826050001858(Current), IFSC CODE- UTIBI0BOBC42, Mobile No.- 9434431810.

Sd/-

ASSISTANT SECRETARY

Science & Technology and Biotechnology

Memo No:1934(Sanc.)/ST/P/S&T/15G-20/2019 Memo Date:25/02/2020

Copy forwarded for information and necessary action to:-

1. The Principal Accountant General (A&E), Treasury Buildings, Kolkata-700001
2. The Principal Accountant General (Audit), Treasury Buildings, Kolkata-700001
3. The Principal Accountant General (Receipt, Works &Local Bodies Audit),CGO Complex at Salt Lake,Kolkata-700091
4. Sec. Officer, Science & Technology & Biotechnology Dept.
5. Pay & Accounts Officer-III, Calcutta PAO-III
6. PSO.
7. Shri. A.K.Kalidaha, SSO.
8. Assistant Registrar (Accounts), Visva-Bharati University, Santiniketan-731235.
9. Dr. Naznin Ara Begum, P.I. of the Project, Siksha-Bhavana, Visva-Bharati University, Santiniketan-731235.
10. Shri Soumyajit Mukherjee, SSO. 11.Guard File.

Sarder

ASSISTANT SECRETARY

Your Research Fund application

funding <shared> <funding@rsc.org> Thu, Aug 26, 2021 at 8:55 PM
To: "samiran1985@gmail.com" <samiran1985@gmail.com>

Dear Dr Mondal,

Thank you for your recent application for a RSC Research Fund grant (R21-3846200522) and for your patience as we finalised some of our decisions. Following assessment by our reviewers, I am pleased to inform you that your application has been successful and you have been awarded £4000 for your project "Search for a regulatory mechanism of biflavone based SARS-CoV-2 main protease inhibition and immune modulation".

We notice that your project involves the use of animals, humans or biological samples. Your grant is awarded on the condition that you are able to provide evidence of the necessary ethical approvals and considerations. Please provide statements outlining:

- the relevant laws and/or institutional guidelines you are following (naming the country and/or institute)
- the (named) institutional committee(s) that approved (or will be asked to approve) the study and evidence of approval (if it has already been granted)
- confirmation that informed consent was (or will be) obtained for any experimentation with human subjects

If you are still awaiting ethical approval, we will pay your grant once your approval has been obtained.

We will be happy to pay your grant directly to your institution's bank account by BACs. **Please confirm your acceptance of this grant as soon as possible and provide us with the payment details using the online form:**

https://www.smartsurvey.co.uk/s/Payment-information

The funds provided should only be spent on those items listed in your application and should not be used to support coursework or other persons within your institution.

Please note that a condition of the Research Fund is that you send a report on the work undertaken and results obtained. We will be in touch with you about this around September 2022.

We would also be very grateful if you could complete the following diversity monitoring form:

https://www.smartsurvey.co.uk/s/A7EG38/

You may have already filled out this anonymous form after your grant application. However, by completing this again, you will help us to monitor the diversity of our grant recipients as well as applicants. All responses are strictly confidential and all questions are optional.

When acknowledging your Research Fund grant in any publication, please use your application ID (R21-3846200522).

Congratulations on your successful application!

Kind regards,

Yuandi Li

Mr Yuandi Li MChem MRSC
Programme Manager, Grants
Royal Society of Chemistry

T: +44 (0) 1223 432453 | www.rsc.org

GOVERNMENT OF WEST BENGAL
Science & Technology and Biotechnology DEPARTMENT

Tel:

Fax:

Memo No : 1352(Sanc.)/STBT-11012(25)/46/2021-ST SEC Date: 21/03/2022

Sanction Order for Grant-in-Aid in Cash

Demand No. : 76 Department Code : BS Financial Year : 2021 - 2022

1. Sanctioning Authority: ASSISTANT SECRETARY,Science & Technology and Biotechnology
2. Recipient of Grant: Rammohan College.
3. Category of the recipient of Grant: Grantee Institution
4. Amount Sanctioned: Rs.435000/-

   Rupees Four Lakh Thirty Five Thousand Only.
5. DDO Code :- CAFSTA003
6. DDO Designation: Sec. Officer, Science & Technology & Biotechnology Dept.
7. Department Code: BS-Science & Technology and Biotechnology
8. Head of Account Code :76-3425-60-200-010-31-02-V
9. Scheme Name Financial Assistance to other Scientific Bodies for undertaking Scientific
10. Name of the Treasury/PAO & Accounts office: Pay & Accounts Officer-III, Calcutta PAO-III
11. Type of Grant:- Recurring
12. Utilization Certificate Required or Not: Yes
13. Purpose of Grant : R&D project entitled- Modulating protein-protein interactions by small molecules: A quest for novel cancer theranostics.
14. Applicable T.R Form No:- TR Form No.31
15. An amount of Rs.435000/-(Rupees Four Lakh Thirty Five Thousand Only.) is hereby sanctioned for payment of Grant to the recipients as per Sl.No.2 from the Head of Account as stated in Sl.No.8 above against the Budget Provision of the Financial Year 2021 - 2022. The sanctioned amount will be payable through Transfer Credit into the LF/PL/Other Deposit Account/ECS/Cheque, as the case may be following the order issued by Finance Department in this regard.
16. Total released amount is within the Budget Provision of the Financial Year. 2021 - 2022
17. This order issues in exercise of the power delegated under Finance Department Memo. No. 250-FB Dt 30.07.2021with the concurrence of Finance Deptt.vide Gr. F.A. Branch U.O. No. 281/FA Date 07/03/2022
18. The Principal Accountant General (A&E), West Bengal and Pay & Accounts Officer/Treasury Officer and other concerned are being informed.
19. Remarks: Present release Rs. 4,35,000/- is the 1st installment of the total project cost of Rs. 13,65,000/- sanctioned for 3 year (s) work, will be transferred through e-Pradan system to Rammohan College UGC Grant, A/C No.-00250100005293 (SB), IFSC CODE-BARBOCOLKAL, Mobile No.-9674732743.

ASSISTANT SECRETARY

Science & Technology and Biotechnology

Memo No: 1352(Sanc.)/STBT-11012(25)/46/2021-ST Memo Date:21/03/2022
SEC

Copy forwarded for information and necessary action to:-

1. The Principal Accountant General (A&E), Treasury Buildings, Kolkata-700001
2. The Principal Accountant General (Audit), Treasury Buildings, Kolkata-700001
3. The Principal Accountant General (Receipt, Works &Local Bodies Audit),CGO Complex at Salt Lake,Kolkata-700091
4. Sec. Officer, Science & Technology & Biotechnology Dept.
5. Pay & Accounts Officer-III, Calcutta PAO-III
6. PSO.
7. Shri Amiya Kr. Kalidaha, SSO.
8. Principal, Rammohan College, 120/1, Raja Rammohan Sarani, Kol-09.
9. Samiran Mondal, P.I. of the project, Rammohan College, 120/1, Raja Rammohan Sarani, Kol-09. (Strictly follow annexure-A).
10. Guard File. / Uploading this G.O. in the portal.

ASSISTANT SECRETARY

Received on 25/03/2022 S. Sanyal

Principal
RAMMOHAN COLLEGE
Kol-9

RAMMOHAN COLLEGE Kol-9

Government of West Bengal
Department of Science & Technology and Biotechnology
"Vigyan Chetana Bhavan", Salt Lake,
DD 26/B, Sector-I,
Kolkata - 700064.

Annexure-A

File No.: STBT-11012(25)/46/2021-ST
Name of the P.I. with Institute: Samiran Mondal, P.I. of the project, Rammohan College.
General Guideline must be followed by the P.I.:

1. The selection of JRF/SRF shall be made as per guidelines of this Deptt. (Science & Technology).
2. The remuneration to the JRF/SRF & project Asstt. Should be disbursed as per FD Memo No. 6261-F(Y) dt. 27.06.2011.
3. Follow FD Memo No. 5400-F(Y) dt. 25.06.2012 and Memo No. 3060-F(Y) dt. 11.06.2014 where applicable.
4. The UC along with the audited statement of expenditure should be obtained within prescribed time limit / before release of further installment of grant.
5. Follow the Budget break-up given below:

SUMMARY (in Rupees)

Sl. No.	Item	Cost in Rs.			
		1st Year	2nd Year	3rd Year	Total
A. Non-Recurring					
1	Permanent Equipment		-	-	
Total Non-Recurring (A)		0			0
B. Recurring					
1	Research Fellow-1No. @Rs. 25,000/- pm (JRF) in the 1st & 2nd year and @Rs. 30,000/- pm (SRF) in the 3rd year	300000	300000	360000	960000
2	Consumables	100000	100000	50000	250000
3	Other Costs	25000	50000	50000	125000
4	Travel	10000	10000	10000	30000
Total Recurring (B)		**435000**	**460000**	**470000**	**1365000**
Grand Total (C = A + B)		**435000**	**460000**	**470000**	**1365000**
Total Project cost (Rupees): Thirteen lakhs sixty five thousand only for 36 months					

Assistant Secretary to the Govt. of W.B.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH
HUMAN RESOURCE DEVELOPMENT GROUP
(Extra Mural Research Division)
CSIR Complex, Library Avenue, Pusa,New Delhi-110012
Tele:25842074/25841701/25842729/25842704
http://www.csirhrdg.res.in

File No:**08/0749(0001)/2019-EMR-I** Date: **06/02/2023**

EXTENSION MEMORANDUM

Subject: Extension of **The SENIOR RESEARCH FELLOWSHIP (SRF)-NET**

Sir/Madam,

On the basis of satisfactory research progress of **MS PAYEL DAS** as assessed and recommended by three member assessment committee on completion of Sanction tenure as **SRF-NET**, the Head - Human Resource Development Group(CSIR) has been pleased to accord his approval to the extension of fellowship as **SRF-NET** with effect from **01/01/2023** to **31/12/2023** with a stipend of Rs. **35000**/- per month.

The SENIOR RESEARCH FELLOWSHIP (SRF)-NET Fellowship is subject to the existing terms & conditions governing CSIR fellowship which inter-provides that the total tenure of JRF and SRF (from all sources)combined is limited to Five years.

Head, HRDG, CSIR has further been pleased to sanction the following additional grant towards the stipend contingency for the period commencing from **01/01/2023** to **31/12/2023**

Stipend Rs **420000**/- PA Contingency Rs **20000**/- PA Total: Rs **440000**/- PA

The claim may be limited to the period of current financial year. For the period beyond that the claim may be submitted at the start of next financial year. No separate renewal sanction will be issued next year.

The expenditure will be debited to the budget head grant in aid Fellowships P - 81101 for the current finncial year.

You are kindly advised to visit the HRDG (CSIR) website (www.csirhrdg.res.in) for rules/regulations governing the fellowship/associateship. You are also advised to submit Annual Progress Report alongwith other requisite documents well in time. Non-compliance of CSIR norms for submission of annual progress report alongwith other requisite documents within six months after completion of yearly tenure may result in termination of fellowship/associateship.

Yours faithfully,
SECTION OFFICER EMR-I
Date:**06/02/2023**

To,
MS PAYEL DAS
Project Guide
Dr. Sahana Sen Mazumder
Department of Physiology
Rammohan College 102, 1, Raja Ram Mohan Sarani, Baithakkhana Kolkata West Bengal 700009 Kolkata WEST BENGAL, Pincode:

Copy To:
1. **Dr. Sahana Sen Mazumder**
   Through Project Guide
2. Director, **Rammohan College 102, 1, Raja Ram Mohan Sarani, Baithakkhana Kolkata West Bengal 700009 Kolkata WEST BENGAL**, Pincode:
3. F&AO (EMR)
4. Bill File
5. Office Copy

Note: This is a computer generated document and signature is not required.

GOVERNMENT OF WEST BENGAL
Science & Technology and Biotechnology DEPARTMENT

Tel:

Fax:

Memo No: 760 (Sanc.)/ STBT-11012(15)/7/2020-ST SEC Date: 27/01/2021

Sanction Order for Grant-in-Aid in Cash

Demand No. 76 Department Code : BS Financial Year 2020 - 2021

1. Sanctioning Authority: ASSISTANT SECRETARY,Science & Technology and Biotechnology
2. Recipient of Grant: Rammohan College
3. Category of the recipient of Grant: Grantee Institution
4. Amount Sanctioned: Rs.419720/-

   Rupees Four Lakh Nineteen Thousand Seven Hundred Twenty Only.
5. DDO Code : - CAFSTA003
6. DDO Designation: Sec. Officer, Science & Technology & Biotechnology Dept.
7. Department Code: BS-Science & Technology and Biotechnology
8. Head of Account Code :-76-3425-60-200-010-31-02-V
9. Scheme Name : Financial Assistance to other Scientific Bodies for undertaking Scientific
10. Name of the Treasury/PAO & Accounts office: Pay & Accounts Officer-III, Calcutta PAO-III
11. Type of Grant :- Recurring
12. Utilization Certificate Required or Not: Yes
13. Purpose of Grant : R&D project entitled-Search for new strategy for the use of Nano-technology in combination with medicinal plants neem (Azodiracta indica) and tulsi (Ocimum sanctum) for the prevention of growth and destruction of Multi-Drug Resistant microbial pathogens.
14. Applicable T.R Form No:- TR Form No.31
15. An amount of Rs.419720/-(Rupees Four Lakh Nineteen Thousand Seven Hundred Twenty Only.) is hereby sanctioned for payment of Grant to the recipients as per Sl.No.2 from the Head of Account as stated in Sl.No.8 above against the Budget Provision of the Financial Year 2020 - 2021. The sanctioned amount will be payable through Transfer Credit into the LF/PL/Other Deposit Account/ECS/Cheque, as the case may be following the order issued by Finance Department in this regard.
16. Total released amount is within the Budget Provision of the Financial Year 2020 - 2021
17. This order issues in exercise of the power delegated under Finance Department Memo. No. nullwith the concurrence of Finance Deptt.vide Gr. F.A. Branch U.O. No. 43/ F.A. Date 30/12/2020
18. The Principal Accountant General (A&E), West Bengal and Pay & Accounts Officer/Treasury Officer and other concerned are being informed.
19. Remarks: Present release Rs. 4,19,720/- is the 3rd & final installment of the total project cost Rs. 12,82,800/- (revised) sanctioned for 3 year (s) work. will be transferred through e-Pradan system to Rammohan College A/C U.G.C Grants , A/C No.-0025010000293 (Current), IFSC CODE-BARB0COLCAL, Mobile No.-9830170834.

ASSISTANT SECRETARY

Science & Technology and Biotechnology

BUDGET ESTIMATION OF THE PROJECT

Search for the new strategy for the use of nano-technology in combination with medicinal plants Neem (Azadirachta indica) and Tulsi (Ocimum sanctum) for the prevention of growth and destruction of Multidrug resistant microbial pathogen

File No.: ST/P/S&T/1G-14/2015

SUMMARY (in Rupees)

Sl no.	Item	BUDGET			
		1ST year	2nd year	3rd year	Total
A.	**Non Recurring - Minor Permanent equipment:**				
	I) Rotary Shaker (for making Bacterial culture)	10000			
	II) pH meter	6000			
	III) Clinical centrifuge	5000			
	IV) Micropipettes a. 1 – 10 µl b. 10 – 200 µl c. 100 – 1000 µl	 4000 4000 4000			50000
	V) Water bath	8000			
	VI) Autoclave	8000			
	VII) Soxhlet extraction apparatus	1000			
B.	**Recurring**				
1.	Remuneration of one JRF: @ 16000/- per month + 15% HRA= 2400/- per month + medical allowance Rs. 300/- per month = Rs. 18700/- per month for two years, and one SRF on the third year @ 18000/- per month + 15% HRA= 2700/- per month + medical allowance Rs. 300/- per month =21000/- per month, if the same JRF continues or for a JRF who has completed two years.	224400	224400	252000	700800
2.	Remuneration for one project assistant – II (HS) @ Rs. 3,700/- p.m. (fixed) for three years	44400	44400	44400	133200
3.	Daily labour for collecton of microbial strain and laboratory maintenance @ Rs. 193/- per day (fixed) for 20 days a month for a period of 12 months per year for three years for one person	46320	46320	46320	138960
4.	Consumables	80000	60000	60000	200000
5.	TA for visit and car hiring for sampling (travel)	15000	15000	10000	40000
6.	Postage, Stationary and miscellaneous expenses	5000	5000	5000	15000
7.	Report preparation, submission, and communication cost for scientific literature	1000	1840	2000	4840
	TOTAL (A+B)	466120	396960	419720	1282800
	Rs. 12,82,800/- only for 3 years				

The budget may please be reapproved due to enhancement of salary As per **Order 1657/ST/P/S&T/Misc-2/2006(Pt-I) dated 31.01.2017.

The project is on its 2nd year.

Except remuneration component all other components are as per previous approved budget (NSP - 3).

Present release will be [Rs. 3,96,960/- (2nd year's fund) + Rs. 27,600/- (remuneration of JRF to be drawn as arrear for the 1st year after revision of the budget from 01.02.2017)] = Rs. 4,24,560/-

Synopsis submitted for the PhD registration under University of Calcutta

Title:

"Study on destruction and prevention of growth of MDR *Staphylococcus aureus* by the combined use of nanoparticles, noble plants along with different antibacterial drugs."

Submitted by

Kartik Shaw

Department of Physiology, Rammohan College

University of Calcutta

Address for communication: 85A, Raja Rammohan sarani, Kolkata – 700009

Supervisor

Dr. Sahana Mazumder

Associate professor, Department of Physiology

Rammohan College, University of Calcutta

Associate Supervisor

Prof. (Dr.) Somnath Gangopadhyay

Professor and Head, Department of Physiology

University of Calcutta

Approved

08/8/2019

Prof. Dr. Somnath Gangopadhyay
Convenor
Ph.D. Research Advisory Committee
Department of Physiology
University of Calcutta

Sahana Mazumder

(Signature of the Supervisor)

Dr. Sahana Mazumder (Sen), Ph.D.
Associate Professor
Department of Physiology
Rammohan College
University of Calcutta

11/7/2019

(Signature of the Associate Supervisor)

Kartik Shaw

(Candidate's Signature)

Dr. Somnath Gangopadhyay
Professor & Head
Dept. of Physiology
University of Calcutta
92, APC Road, Kolkata-9

08/08/19

08/8/19

08/8/19

FD Diary No. 6547
Dated: 01.11.2021

UNIVERSITY GRANTS COMMISSION
BAHADURSHAH ZAFAR MARG
NEW DELHI-110002

F. No.6-170/2019(TG)

Dated: November, 2021

The Under Secretary (FD-III)
University Grants Commission
Bahadur Shah Zafar Marg
New Delhi-110 002

16 NOV 2021

Subject: Release of Grants-in-aid to **Principal, Rammohan College, 102/1, Raja Rammohan, Sarani, Calcutta–17 West Bengal** for the year 2021-2022 under Travel Grant Scheme (Plan).

Sir/Madam,

I am directed to convey the sanction of the University Grants Commission for payment of grant of **Rs.1,17,846/- (Rupees One lakh seventeen thousand eight hundred forty six only)** as Travel Grant reimbursement to **The Principal, Rammohan College, 102/1, Raja Rammohan, Sarani, Calcutta–17 West Bengal** in respect of **Dr. Madhab Ghosh, Assistant Professor**, Department of **Education** to visit **London** from **31st July-2nd August, 2019** for the 2021-2022 (Plan) expenditure incurred during 2021-2022.

Name of the Item	Head of Account	Grant now being Sanctioned	Grant already Sanctioned	Total Grant
Reimbursement of Travel Grant	3(A) 19 (V) 31	1,17,846/-	--	1,17,846/-

1. The **sanctioned** amount is debitable to **3(A) 19 (V) 31** and is valid for payment during the financial year 2021-2022 only.

2. The University/Institution shall ensure that all the payment of approved items to the beneficiary/vendors shall be made only through the Expenditure Advance Transfer (EAT) Module of PFMS.

3. The amount of the grant shall be drawn by the Under Secretary (Drawing and Disbursing Officer) UGC on the grants-in-aid bill and shall be disbursed to and credited to **The Principal, Rammohan College, 102/1, Raja Rammohan, Sarani, Calcutta–17 West Bengal** through Electronic mode as per the following details:

   a. Details (Name & Address) of Account Holder : **The Principal, Rammohan College, 102/1, Raja Rammohan, Sarani, Calcutta–17 West Bengal**
   b. Account No: **00250100005293**
   c. Name & address of Bank branch: **Bank of Baroda, College Street Branch, Kolkata-700 006**
   d. MICR Code: **700012011**
   e. IFSC Code: **BARB0COLCAL**
   f. Type of Account: **Saving Bank**

4. The Grant is Subject to the adjustment on the basis of Utilization Certificate in the prescribed Performa submitted by the University/Institution.
5. The University / Institution shall maintain proper accounts of the expenditure out of the Grants which shall be utilized only on the approved items of expenditure.
6. The University / Institution may follow the General Financial Rules, 2017 and take urgent necessary action to amend their manuals of financial procedures to bring them in conformity with GFRs, 2017 and those don't have their own approved manuals on financial procedures may adopt the provisions of GFRs, 2017 and instructions/guideline there under from time to time.

7. The Utilization Certificate to the effect that the grant has been utilized for the purpose for which it has been sanctioned shall be furnished to UGC as early as possible after the close of current financial year.
8. The assets acquired wholly for substantially out of University Grants Commission's Grant shall not be disposed or encumbered or utilized for the purposes other than those for which the grants was given without proper sanction of the UGC and should at any time the University ceased to function, such assets shall revert to the University Grants Commission.
9. A Register of Assets acquired wholly or substantially out of the grant shall be maintained by the University in the prescribed Performa.
10. The grantee institution shall ensure the utilization of grants-in-aid for which it is being **sanctioned** / paid. In case of non-utilization/part utilization thereof, simple interest @ 10% per annum, as amended from time to time on the unutilized amount from the date of drawl to the date of refund as per provisions contained in General Financial Rules of Govt. of India, will be charged.
11. The University / Institution shall follow strictly the Government of India / UGC's guidelines regarding implementation of the reservation policy [both vertical (for SC, ST & OBC) and horizontal (for persons with disability etc.)] in teaching and non-teaching posts.
12. The University / Institution shall fully implement the Official Language Policy of Union Government and comply with the Official Language Act,1963 and Official Languages (Use for Official Purposes of the Union) Rules,1976 etc.
13. The sanction is issued in exercise of the delegation of powers vide UGC Order No. 130/2013 [F.No. 10-11/12 (Admn. IA & B)] dated 28/5/2013.
14. The University /Institution shall strictly follow the UGC Regulations on curbing the menace of Ragging in Higher Education Institutions, 2009.
15. The University / Institution shall take immediate action for its accreditation by National Assessment & Accreditation Council (NAAC).
16. The accounts of the University / Institution will be open for audit by the Comptroller & Auditor General of India in accordance with the provisions of General Financial Rules, 2017.
17. The annual accounts i.e. balance sheet, Income and expenditure statement and statement of receipts and payments are to be prepared strictly in accordance with the Uniform Format of Accounting prescribed by Government.
18. Funds are available under the scheme.
19. This issues with the concurrence of IFD vide Diary No.**029** dated **01.04.2021**.
20. This issues with the approval of Joint Secretary vide Diary No.**97156** dated **22.10.2021**.

Yours faithfully,

(Shashi Malik)
Under Secretary

शशी मलिक / Shashi Malik
अवर सचिव / Under Secretary
विश्वविद्यालय अनुदान आयोग
University Grants Commission
शिक्षा मंत्रालय, भारत सरकार
Ministry of Education, Govt. of India
नई दिल्ली-110 002 / New Delhi-110 002

Copy forwarded for information and necessary action for:-

1. The Registrar, **University of Calcutta, 87/1, College Street, Kolkata-700 073**
2. The Principal, **Rammohan College, 102/1, Raja Rammohan, Sarani, Calcutta-17 West Bengal**
3. **Dr. Madhab Ghosh, Assistant Professor, Department of Education, Rammohan College, 102/1, Raja Rammohan, Sarani, Calcutta-17 West Bengal**
4. Office of the Principal General of Audit, Central Revenues, AGCR Building, I.P. Estate, New Delhi.
5. The Accountant General, Govt. of West Bengal, Calcutta.
6. Guard File.

(Daisy Sobti)
Assistant

WEST BENGAL BIODIVERSITY BOARD
(Department of Environment, Government of West Bengal)

Memo No. 929 /5K(Bio)- 9/2017 Date: 21/12/2022

From: Dr. S. N. Ghosh
Sr. Research Officer

To: The Principal
Rammohan College,
102/1, Raja Rammohan Sarani,
Kolkata – 700009

Sub.: Financial assistance for the project entitled 'Monitoring of Migratory Birds at selected waterbodies of Murshidabad district of West Bengal.'

Sir,

With reference to your letter (vide memo no. 2098/RMC dated 07/09/2022), I like to inform you that the full and final installment of financial assistance for the project entitled 'Monitoring of Migratory Birds at selected waterbodies of Murshidabad district of West Bengal' of **Rs. 1,20,000/-** (Rupees One lakh twenty thousand only) has been transferred by NEFT dated 16/12/2022 via Allahabad Bank, Ultadanga.

You are requested to acknowledge receipt of the same and kindly submit all the required documents, if any.

Thanking you,

Yours faithfully,

(S. N. Ghosh)

Prani Sampad Bhawan (5th Floor), Block: LB-2, Sector: III, Salt Lake City,
Kolkata- 700 106, West Bengal, India
Phone: 033 2335 2731/5954, Telefax: 033 2335 2763, Email: biodiversity.wbbb@gmail.com, biodiversity.wbbb@nic.in
Website: www.wbbb.wb.gov.in

GOVERNMENT OF WEST BENGAL
Department of Science & Technology
Bikash Bhawan, 4th floor

Tel: 25893717
Fax:
Date: 24/03/2018

Memo No : 234/Sanc./ST/P/S&T/1G-32/2017

Sanction Order for Grant-in-Aid

Demand No: 70 Department Code: ST Financial Year: 2017 - 2018

1. Sanctioning Authority: Higher Education, Science & Technology and Biotechnology(Sci. & Tech.)
2. Name of the Grantee Institution: Rammohan College
3. Address of the Grantee Institution: 102/1 Raja Rammohan Sarani, Kol-09
4. Category of Grantee Institution: Education Institution
5. Amount Sanctioned: 512400 (in words Rs. Five Lakh Twelve Thousand Four Hundred Only.)
6. Name of the DDO: Registrar & DDO, Higher Education Department
7. Department Code: ST-Higher Education, Science & Technology and Biotechnology(Sci. & Tech.)
8. Name of the Treasury/PAO:Pay & Accounts Officer-III, PAO-III
9. Nature of Grant (a) Recurring or Non-recurring: Recurring
   (b) Capital or Revenue: Revenue
10. Condition of Grant Utilisation Certificate required: Yes
11. Category of Grant : Education Institution
12. Purpose of Grant : R&D project entitled- Development of digital key for Neuroptera (Insecta) associated with Aphids (Homoptera: Aphididae) of West Bengal: A Numerical Taxonomic approach
13. An amount of Rs 512400 is hereby allotted for this period in favour of the Registrar & DDO, Higher Education Department From the head of account 3425-60-200-SP-001-31-02-V from the budget provision of the financial year 2017 - 2018 under Demand No 70 Department Code ST and payable to Grantee Institution or by A/c payee cheque/By-Transfer Credit / ECS.
14. Head of Account Code: 3425-60-200-SP-001-31-02-V
15. Name of the Scheme :Financial Assistance to other Scientific Bodies for undertaking Scientific Projects/Surveys/Research/Training, and Science Awareness & Science Popularisation programme (State Share)
16. The amount will be drawn in T.R. from No.31/22/43 (As applicable as per WBTR)
17. The sanctioned amount will be payable to Rammohan College by Transfer Credit to the Head of Account of the LF/PL/Deposit Account of the Grantee Institution or by A/C payee Cheque / ECS as applicable.

18. Remarks: Present release is the 1st installment of the total project cost Rs. 10,49,800/- sanctioned for 3 year (s) work. Now Rs. 5,12,400/- will be transferred through e-Pradan system to Rammohan College A/C UGC Grant, A/C No.- 00250100006293 (SB), IFSC CODE-BARBOCOLKAL, Mobile No.-9434071520.

19. Total released amount is within the Budget Provision of the above mentioned head of account during 2017 - 2018
20. This order issues in exercise of the power delegated under Finance Department Memo. No. nulledth the concurrence of Finance Deptt. vide Gr. F.A. Branch U.O. No. 218 F.A./Education Date 08/02/2018

Sd/-
OSD & E.O. DEPUTY SECRETARY
Higher Education, Science & Technology and Biotechnology(Sci. & Tech.)

WEST BENGAL BIODIVERSITY BOARD
(Department of Environment, Government of West Bengal)

Memo No /5K(Bio) 19/2017 Date: 12/02/2021

From: Dr. S. N. Ghosh
Senior Research Officer

To: Dr. Mitu De
Associate Professor, Dept. of Botany
Gurudas College, 1/1 Suren Sarkar Road,
Narkeldanga, Kolkata 700054

Madam,

I am directed to inform you that the Board is pleased to accept your proposal on preparation of a manuscript for publication of your recently completed project work "Documentation and Development of Database of indigenous Mango (*Mangifera indica* L.) varieties of Murshidabad and Malda districts: Towards establishment of Mango Orchard Network and ex situ conservation initiative".

You are requested to follow the guidelines, as suggested by the Chairman.

Please acknowledge and send acceptance in this regard.

Thanking you,

Yours sincerely,

Sd/-

(Dr. S. N. Ghosh)

Copy forwarded for information to:

Memo No.: 164 /5K(Bio)-19/2017 Date: 12/02/2021

1 Dr. Santi Ranjan Dey, Dept. of Zoology, Rammohan College, 102/2, Raja Rammohan Sarani, Kolkata, W. B., PIN – 700009

(Dr. S. N. Ghosh)

F:\WBBB Letterhead 2018 newest BW.doc

Prani Sampad Bhawan (5th Floor), Block: LB-2, Sector: III, Salt Lake City, Kolkata- 700 106, West Bengal, India
Phone: 033 2335 2731/5954, **Telefax:** 033 2335 2763, **Email:** biodiversity.wbbb@gmail.com, biodiversity.wbbb@nic.in
Website: www.wbbb.wb.gov.in

WEST BENGAL BIODIVERSITY BOARD
(Department of Environment, Government of West Bengal)

Memo No. 149 /SK(Bio)-1/2018 Date 08/02/2021

From: Member Secretary
WB Biodiversity Board

To: Dr. Santi Ranjan Dey
Department of Zoology
Rammohan College
102/1, Raja Rammohan Sarani
Kolkata – 700 009

Sub.: Monitoring of Migratory Birds at selected water bodies of Murshidabad district— regd.

Sir,

Considering your expertise and experience regarding monitoring of migratory water birds in West Bengal, I am hereby informing you that the Board is pleased to engage you for the afore-mentioned study in the districts of Murshidabad (excluding the areas/wetlands surveyed by other agency/ies), during the winter of 2020-21. In this connection financial assistance of **Rs. 50,000.00** (Rupees fifty thousand only) has been sanctioned as **one time grant** under the following terms and conditions:

- **Name of the Project:**
  Monitoring of Migratory Birds at selected water bodies of Murshidabad district.

- **Scope of the Project**
  a) Identification of important wetlands for migratory birds across the district. Monitoring the status and condition of wetlands.
  b) Monitoring the population of migratory bird species.
  c) Finding out the area-specific threats that the migratory birds are facing.
  d) Analyses of the condition of waterbodies, as well as, migratory birds in relation to the previous studies upto March, 2021.
  e) Popularize interests in migratory water birds among the common people especially students.
  f) Compilation & submission of data sheet as per AWC Format.

- **Duration of the Project**
  Upto March, 2021

- **Financial Assistance for the Project**
  Rs. 50,000.00 inclusive of all. No additional payment will be made for any other purpose what so ever.

Contd. to Page 2

Prani Sampad Bhawan (5th Floor), Block: LB-2, Sector: III, Salt Lake City, Kolkata- 700 106, West Bengal, India
Phone: (033 2335 2731/5664, Telefax: (033 2335 2763, Email: biodiversity.wbbb@gmail.com, biodiversity.wbbb@nic.in
Website: www.wbbb.wb.gov.in

WEST BENGAL BIODIVERSITY BOARD
(Department of Environment, Government of West Bengal)

Memo No.: 43 / SK(Bio) - 1/2018 Date: 17 /01/2023

From: Smt. Tripti Sah, IFS
Member Secretary

To: Dr. Santi Ranjan Dey
Dept. of Zoology, Rammohan College,
102/2, Raja Rammohan Sarani,
Kolkata - 700009

Sub.: Approval for the project entitled 'Monitoring of Migratory Birds at selected waterbodies of Murshidabad district during the winter season of 2022 – 23.

Sir,

Considering your expertise and experience regarding monitoring of migratory water birds in West Bengal, the Board is pleased to engage you for the afore-mentioned study during the winter of 2022-23. In this connection financial assistance of **Rs. 90,000/-** (Rupees Ninety thousand only) has been sanctioned as **one time grant** under the following terms and conditions.

Name of the Project: Monitoring of Migratory Birds at selected waterbodies of Murshidabad district

Scope of the Project:

a) Identification of important wetlands for migratory birds across the district/areas. Monitoring the status and condition of wetlands.
b) Monitoring the population/ diversity of migratory waterbirds.
c) Finding out the area-specific threats that the migratory birds are facing.
d) Analysis of the condition of waterbodies, as well as, migratory birds in relation to the previous studies upto March, 2022.
e) Generating awareness on migratory birds in waterbodies among the common people, especially students.
f) Submission of Report in prescribed format.

Duration of the Project: Upto March, 2023

Financial Assistance for the Project:
Rs. 90,000/- inclusive of all. No additional payment will be made for any other purpose.

Contd. Pg 2.

Prani Sampad Bhawan (5th Floor), Block: LB-2, Sector: III, Salt Lake City,
Kolkata- 700 106, West Bengal, India
Phone: 033 2335 2731/5954, **Telefax:** 033 2335 2763, **Email:** biodiversity.wbbb@gmail.com , biodiversity.wbbb@nic.in
Website: www.wbbb.wb.gov.in

WEST BENGAL BIODIVERSITY BOARD
(Department of Environment, Government of West Bengal)

Memo No. 929 /SK(Bio)- 9/2017 Date: 21/12/2022

From: Dr. S. N. Ghosh
Sr. Research Officer

To: The Principal
Rammohan College,
102/1, Raja Rammohan Sarani,
Kolkata – 700009

Sub.: Financial assistance for the project entitled 'Monitoring of Migratory Birds at selected waterbodies of Murshidabad district of West Bengal.'

Sir,

With reference to your letter (vide memo no. 2098/RMC dated 07/09/2022), I like to inform you that the full and final installment of financial assistance for the project entitled 'Monitoring of Migratory Birds at selected waterbodies of Murshidabad district of West Bengal' of **Rs. 1,20,000/-** (Rupees One lakh twenty thousand only) has been transferred by NEFT dated 16/12/2022 via Allahabad Bank, Ultadanga.

You are requested to acknowledge receipt of the same and kindly submit all the required documents, if any.

Thanking you,

Yours faithfully,

(S. N. Ghosh)

Prani Sampad Bhawan (5th Floor), Block: LB-2, Sector: III, Salt Lake City,
Kolkata- 700 106, West Bengal, India
Phone: 033 2335 2731/5954, Telefax: 033 2335 2763, Email: biodiversity.wbbb@gmail.com, biodiversity.wbbb@nic.in
Website: www.wbbb.wb.gov.in

Phone : 2350-5687,
2354-3853
Fax : (033)2350-5687

RAMMOHAN COLLEGE

(Formerly City College W.Dept.)
102/1, Raja Rammohan Sarani, Kolkata – 700009
E-mail :rmc.tic85b@yahoo.in, rmc.principal@gmail.com
Accredited B^{++} Grade by NAAC

Ref. ..... Date.....20

The academic and research expertise of Rammohan College contributes to creating an ecosystem for the sharing of knowledge through collaborations and innovations through motivation and establishing necessary infrastructure. The college has entered into Memorandum of Understanding (MoU) with institutions for sharing of knowledge (both on traditional and competitive), library resources, and research works which include:-

1. Victoria Institution (College) Kolkata
2. Umesh Chandra College, Kolkata
3. City College, Kolkata
4. Scottisch Church College, Kolkata
5. Vivekananda College (Thakurpukur)
6. Vidyasagar College for Women, Kolkata
7. Women's College (Bagbazar), Kolkata
8. Bangabasi College, Kolkata
9. Maharani Kasiswari College, Kolkata
10. Surendranath College for Women
11. National Vocational Academy of India, Kolkata
12. George Telegraph, Kolkata
13. Roy's Institute of Competitive Examination (RICE), Kolkata
14. Bose Institute, Kolkata

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15. Raja N L Khan College, Medinipur
16. University of Kolkata, Kolkata
17. Netaji Subhas Eastern Regional Centre (Sports Authority of India), Kolkata
18. Kalyani University, Kalyani
19. National Institute of Cholera and Enteric Diseases: ICMR, Kolkata
20. CSIR-Indian Institute of Chemical Biology (CSIR-IICB), Kolkata
21. Institute of Post Graduate Medical Education & Research, Kolkata
22. Chittaranjan National Cancer Institute (CNCI), Kolkata
23. Ramakrishna Mission Vivekananda Educational and Research Institute, Narendrapur, Kolkata
24. Visva-Bharati, Santiniketan
25. St. Xavier's College
26. Institute of Reproductive Medicine, Kolkata
27. Shri Balaji Institute of Medical Science, Raipur, Chhattisgarh
28. Ramkrishna Mahavidyalaya, Unakoti, Tripura

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Establishment of central instrumentation facility

The college has developed an institutional Central Instrumentation Facility and has installed various sophisticated instruments with financial support from UGC Major Projects, BOOST (Dept. of Zoology), Department of Science and Technology and Biotechnology and RUSA, Govt, of India.

One short-listed names of the instruments are the following:-

i. UV Vis spectrophotometer
ii. ELISA Microplate reader
iii. Horizontal and vertical gen running system
iv. Gel Doc
v. Trans-Blot Turbo Transfer System
vi. Egg incubator
vii. Cold centrifuge
viii. pH meter
ix. BOD incubator
x. Laminar Hood and culture system
xi. Double distilled water purification system

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Their use by multiple departments ensures optimal utilization. Teachers are encouraged to undergo professional development programmes and organize and participate in conferences, seminars, and workshops.

Outcome:

Molecular Biology Techniques and In-Silico Drug Discovery

All-faculty and non-teaching staff members of Department of Zoology organized and conducted the 35 hours duration workshop (16.05.2023-23.05.2023) on Molecular Biology Techniques and *in silico* drug discovery based on theory and practical classes with hands-on training. There were a total of forty-three (43) registered participants, such as UG and PG students, research scholars and technical officers from different Colleges, Universities (Calcutta University, Presidency University), Indian Council of Medical Research and Chittaranjan National Cancer Institute, Kolkata.

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Glimpses of Workshop





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Intra Departmental collaboration and collaboration among Institutes for Research facilities

Rammohan College, Kolkata
Research and Development Cell (RDC)

Research Advisory Council
Dr. Saswati Sanyal, ***Principal, Rammohan College***

Convenor: Dr. Samarendra Nath Banerjee

Committee 1: Finance and Infrastructure

Prof. Tapas Narayan Roy
Dr. Santi Ranjan Dey

Committee 2: Research Programme, Policy Development

Dr. Gouri Prosad Datta
Dr. Sahana Majumder (Sen)
Dr. Sonali Ghosh
Dr. Ranajit Mandal

Committee 3: Collaboration and Community

Dr. Samiran Mondal
Dr. Md Ahmadullah
Dr. Samik Acharjee

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Committee 4: Product Development, Monitoring and Commercialization

Dr. Kaustav Dutta Chowdhury
Dr. Moumita Datta
Dr. Shibu Das

Committee 5: IPR, Legal and Ethical Matters

Dr. Krishnendu Sarkar
Dr. Ashesh Garai
Prof. Jayanti Sen

The above mentioned five bodies work together to direct, promote, collaborate, envision and conduct fruitful research both inside and outside of the college.

The purpose of collaboration is to put in place a robust mechanism for developing and strengthening the research ecosystem within institute/among institutes. Intra-departmental research collaboration and publication has been done in the Departments of Physiology and Zoology. Two students of the Department of Physiology have successfully awarded the degree of Ph.D. under the guidance of a faculty member of the Zoology department. Currently college have five registered supervisors under whom a number of PhD works have been going on with already a good number of awarded PhDs.

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Ref. ..... Date.....20

1. Dr .Gouri Prasad Datta [Faculty, Department of Physiology]

Sl no	Name of the research scholar	Status	Current position
1.	Dr. Subhashree Basu	Awarded (2017)	Assist Prof., Dept. of Physiology, Tamralipta Mahavidyalaya
2.	Dr. Anurupa Sen	Awarded (2018)	SACT, Dept. of Physiology, City College
3.	Dr. Moumita Das	Awarded (2019)	Assist. Prof., Dept. of Applied Nutrition and Dietetics, Sister Nivedita University, Newtown
4.	Dr. Abhishek Bannerjee	Awarded (2021)	Senior Scientific Officer, Dept. of Sports and Youth Services, Bhubaneswar.
5.	Dr. Mousumi Mitra	Awarded (2022)	SACT, Dept. of Physiology, Raja N L Khan Women's College (Autonomous)
6.	Mr. Surojit Sarkar	Submitted	High Performance Analyst, NSNIS, Patiala
7.	Ms. Monalisa Debnath	Submitted	Deputy Manager-Dietetics HCL Healthcare Pvt. Ltd., Bengaluru
8.	Ms. Pritha Roy	Ongoing	SACT, Dept. of Nutrition, Amta Ramsaday College, Howrah

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2. Dr. Sahana Majumder (Sen) [Faculty, Department of Physiology]

Sl no	Name of the research scholar	Status	Current position
1.	Dr. Sujoy Bhattacharya	Awarded (2002)	Research-In-Charge, Department of Molecular Biochemistry, University of Tennessee, Knoxville, TN 37996, USA
2.	Dr. Meghamala Dutta	Awarded (2003)	Consultant, Pepper Content, Times Square Building, Gamdevi, Marol, Andheri East, Mumbai, Maharashtra 400059
3.	Dr. Debipriya Banerjee	Awarded (2016)	Research Assistant, Simon Fraser University, 111-1110 Howie Avenue Coquitlam BC, Canada V3J 1V1
4.	Dr. Jayanta Saha	Awarded (2019)	Assistant Professor, Shri Balaji Institute of Medical Sciences, Mowa, Raipur, Chhattisgarh 492001
5.	Upasana Chowdhury	Submitted	
6.	Kartik Shaw	Submitted	
7.	Tapomoy Chatterjee	Prepared for final submission	
8.	Tamal Ghorai	Preparing to submit	
9.	Payel Das	On going	
10.	Dipankar Mahapatra	On going	

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3. Dr. Samarendra Nath Banerjee (Faculty, Department of Zoology)

Sl no	Name of the research scholar	Title of the thesis	Status	Current position
1.	Dr. Srabantika Mallick (MSc in Human Physiology, doing PhD in Department of Zoology)	Antiangiogenic therapy for treatment of cancer: effect of 2 methoxyestradiol in combination with cyclophosphamide on experimental tumour growth in mouse	Awarded (2018)	Post Doc. in Department of Zoology, Rammohan College
2.	Dr. Sudipta Chowdhury (MSc in Human Physiology, doing PhD in Department of Zoology)	Genotoxic and carcinogenic potential of ethanolic extract of betel nut on experimental induced tumour in mice	Awarded (2023)	Assistant Professor in Gopsai Avinandan Sangha (Goroup of Instituion)
3.	Dr. Anasua Banerjee (MSc in Human Physiology, doing PhD in Department of Zoology)	Evaluation of anti-proliferative and anti-cancer activity of pomegranate extract and 2-methoxyestradiol in combination on sarcoma-180 ascitic tumour bearing mice	Awarded (2023)	Post Doctoral Research Fellow, Boston University, Commonwealth Ave, Boston, MA 02215, United States

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4. Dr. Kaustav Dutta Chowdhury

Sl no	Name of the research scholar	Title of the thesis	Status
1.	Pujita Ghosh	Determination of signalling network associated with pulmonary angiogenesis after calcium carbide exposure in mice-an *in vivo* study	On going
2.	Soumi Banerjee	Mechanistic analysis on cell death and associated tissue damages after Calcium Carbide exposure in mice - an in vivo study	On going

5. Dr. Samiran Mondal

Sl no	Name of the research scholar	Title of the thesis	Status
1.	Suvankar Karmakar	Modulating protein-protein interactions by small molecules: A quest for novel cancer theranostics	On going

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Glimpses of Research Advisory Council meetings (formerly known as Research Committee)

RAMMOHAN COLLEGE

NOTICE

The meeting of Research committee will be held on 11.09.2018 at 9.30 a.m. in the Rector's room of college. All members are requested to attend.

Convener 4/09/18
Research Committee
Rammohan College
Kolkata – 700009

S. Sanyal
Principal
Rammohan College
Kolkata - 700009

Agenda :

1. *Confirmation of the Proceedings of the Research Committee meeting dated 16.08.2017.* (taken out).
2. *Project proposal for approval in the meeting.*
3. *Application from Dr. G. P. Dutta, Dept. of Physiology, Rammohan College.*
4. *Miscellaneous.*

1. Principal : Sunanda Sanyal 11/9/18.
2. Shantanu Das. 11/9/18
3. Ashok Garai – 11/9/18
4. Sahana Majumder – 11.9.18
5. 11/9/18
6. 11/IX/18.
7. Sant Ranjan Dey 11/9/18
8. Samiran Mondal 11/9/18 – SM 11/09/18

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RAMMOHAN COLLEGE
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Proceedings of the Research Committee Meeting held on 11th September, 2018

Dr. Saswati Sanyal, Principal conducted the meeting as Chairperson.

1. Proceeding of the last meeting of Research Committee held on 16.08.2018 was read and confirmed with some minor corrections.

2. **Approval of Research Project** – Four Research projects were placed in the meeting for approval and submission to the Department of Science and Technology, Govt. of West Bengal. All members of the Research Committee approved these Projects.

3. It was unanimously resolved that one faculty or Teacher can apply for two Research Projects as Principal Investigator and four Research Projects as Co-Investigator. Moreover, one faculty member can conduct two research projects (one major and one minor) simultaneously as Principal Investigator and two Research Projects Co-Investigator to carry out the Research. However at the time one faculty member can only conduct two research projects as co-investigator.

4. **Research Time**: It was suggested by few members that the Research timing of the Research Scholars / Students should be made after class hour of the departments (from 11.50 a.m. to 5.30 p.m.). But other teachers suggested as no research can be conducted within fixed time schedule though by no way the UG / PG classes to be hampered.

The Convener was requested to place the issue for thorough discussion in the next meeting.

The meeting was ended with a vote of thanks to the Chair and from the Chair.

Dr. Saswati Sanyal
Principal
Rammohan College

Dr. Samarendra Nath Banerjee
Convener
Research Committee
Rammohan College

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RAMMOHAN COLLEGE
NOTICE

Research Committee meeting will be held on 03.05.2019 (Friday) at 11.00 a.m. in the Rector's Room. All members are requested to be present.

29-04-2019

Convener
Research Committee
Rammohan College
Kolkata – 700009

Agenda:

4. Confirmation of the proceedings of last two meetings dated 11.09.2018 & 29.03.2019.
5. Discussion about Research timing of Research Scholars / Students.
6. Miscellaneous.

1. S Sanyal 03/05/19
2. Shantanu Sen 3/5/19
3. 03/5/19
4. 03/05/19
5. Jayanta Sen 03/05/19
6. Sandi Ranjan Dey 03/05/19
7. Kaustav Dutta Chowdhury 03/05/19

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RAMMOHAN COLLEGE

102/1, Raja Rammohan Sarani, Kolkata – 700009

Proceedings of the Research Committee Meeting held on 3rd May, 2019

Dr. Saswati Sanyal, Principal conducted the meeting as Chairperson.

Members present in the meeting.

1. Dr. Saswati Sanyal
2. Dr. Samarendra Nath Banerjee
3. Dr. Shantanu Das
4. Dr. Gouri Prasad Dutta
5. Prof. Jayanti Sen
6. Dr. Kaustav Dutta Chowdhury
7. Dr. Santi Ranjan Dey

Agenda No. 1. Proceedings of the last two meetings of Research Committee held on 11.09.2018 and 29.03.2019 were read and confirmed with some minor corrections.

The following modification of the proceedings of the meeting dated 11.09.2018 was done by the Principal which is stated as follows:

In the item No. 3, the sentence "however, at a time one faculty member can only conduct two research project as co-investigator" to added.

Agenda No. 2. **Research timing :** After thorough discussion regarding the duration of research activities, it was unanimously resolved that entry time of the research scholars should be flexible and obviously need based. But the laboratory should be closed within 5.30 p.m. on working days. If any unavoidable delay occurs suddenly due to some technical problems, Principal should be informed immediately so that the experiment can be successfully completed.

Regarding experiment / animal care on Sunday and holidays permission from the Principal should be taken by the faculty member. Moreover, the faculty member should be present in the College campus / in the laboratory on those days. No research scholar can be permitted to enter into the Laboratory / Animal House without the presence of their supervisor.

Miscellaneous : Project Proposal : Five project proposals and two proposals for organizing seminars were placed in the meeting and forwarded to the Principal for necessary action.

The meeting was ended with a vote of thanks to the Chair and from the Chair.

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Project List forwarded by Research Committee

Name of Project	PI/CO_PI	Funding Agency	Remark
No-Farm Activity and Economic Independence of Women in Rural West Bengal	Dr. Sucharita Roy (PI)	DST-SERB/DSIR	Approved
Diversity and Abundance of Aquatic Macrobenthos in Fresh waters of Murshidabad and Nadia	Chayanika Roy (PI)	WBBDB	Approved
Study of Population Dynamics of Aquatic Macroinvertebrates of 24 Parganas	Sanjay Kumar Paul (PI)	WBBDB	Approved
Role of Bioactive Honokiol against cellular damage and sterility	Dr. Santi Ranjan Dey (CO-PI)	DST-SERB	Approved
Convergence of antineoplastic platinum compound against prostate cancer	Dr. Santi Ranjan Dey (CO-PI)	DST-SERB	Approved
Seminar proposal I Recent advancement of Biological Science towards sustainable development	Dr. Santi Ranjan Dey (Convenor)	DST-SERB	Approved
Seminar proposal II Recent advancement of conservation science towards sustainable ecosystem	Dr. Santi Ranjan Dey (Convenor)	DSTWB and WBBDB	Approved

3/5/17

3/5/17

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Research Sub committee Meeting
18/11/2022

An emergency Research Sub committee meeting was held on 18-11-2022 (Friday) at 9.00 am in the Library.
Agenda : Research Proposal
Members attended the meeting :

1. Principal – S Sanyal 18/11/2022
2. Secretary (SAHANA MAJUMDER SEN) 18/11/22
3. [signature] (S.N. BANERJEE) 18/11/22
4. [signature] (SHANTANU DAS) 18/11/22.

RAMMOHAN COLLEGE
102/1, Raja Rammohan Sarani, Kolkata – 700009.

Proceedings of the Research Committee meeting, Rammohan College dated 18.11.2022 (Friday) in the 9.00 a.m. in the Principal's chamber.

Members Present :

1. Dr. Saswati Sanyal, Principal
2. Dr. Samarendra Nath Banerjee, Department of Zoology
3. Dr. Sahana Sen Majumder, Department of Physiology
4. Dr. Shantanu Das, Department of Zoology

Agendum No. 1 Research Proposal

Project Proposal of Dr. Samik Acharjee, Assistant Professor, Department of Zoology
Title of the Proposal: Study of melatonin mediated receptor activity in modulation of immune function during heavy metal toxicity in mice.

One project proposal was placed in the meeting and approved by all members. But Principal asked about the scholars' timing and duration of research activities. The laboratory should be closed within 5.30 pm on working days. The Principal should be informed earlier if scholars come during a holiday. Research scholars may be permitted to enter college premises after prior permission from the Principal on that day.
The meeting ended with a vote of thanks to and from the chair.

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Research Sub Committee Meeting Dated : 25-04-2023

An emergency research Subcommittee meeting will be held on 25-04-23 at 10.30 am in the room in front of the chamber of Principal madam. All honourable members are requested to attend the meeting.

[signature] 18/04/23
Convenor, Research Subcommittee, Rammohan College, Kolkata

1. S. Sanyal 25/04/2023
2. [signature] ([illegible]) 25-04-2023
3. Santi Ranjan Dey 25.04.21
4. Kaustav Dutta Chowdhury 25.04.21
5. [illegible] Majumder 25/4/23
6. Dipankar [illegible] 25/04/23
7. Md Ahmadullah 25/04/23
8. [signature] 25/iv/23.
9. Sonali Ghosh 25/4/23
10. Ashesh Gorai
11. Sanuwar Mondal 25/4/23
12. Sumita [illegible] 25/4/23

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Research subcommittee Meeting : Date of meeting: 25 – 04 – 2023

Research Project proposal

Sl. No.	Project Title	PI & Co-PI
1.	Determination of effective dose of Honokiol to ameliorate chronic low dose of chromium induced cellular damage in ovary leading to female sterility in mice. Remark :	PI: Dr Samik Acharjee (Department of Zoology, Rammohan College) Co-PI: Dr Kaustav Dutta Chowdhury Co-PI: Santi Ranjan Dey Co-PI: Sharmistha Chanda (Department of Physiology, Sister Nibedita Govt. Degree college
2.	Development of inhaler by using naturally available flavonoid and carbazole based small molecule scaffold that inhibit MDM2 / P^{53} interaction : A theragnostic approach to prevent lung cancer Remark	PI : Dr. Samiran Mondal Co-PI: Dr. Santi Ranjan Dey Co-PI: Dr. S.Ghosh
3.	Numerical Taxonomy approach towards Neuroptera (insecta) of India for development of digital key Remark:	PI: Dr. Santi Ranjan Dey
4.	Development of AI based digital platform for assessment of improvement in decision making of ASD children after intervention to decreseparental depression. Remark :	PI: Dr. Madhab Ghosh Co-PI: Santi Ranjan Dey
5.	Assessing the repurposing possibility of approved drugs with human lactate dehydrogenase – a inhibitory potential : a step towards future cancer therapy Remark :	PI: Dr Kaustav Dutta Chowdhury Co-PI: Dr. Santi Ranjan Dey Co-PI: Sri Sanjay Paul
6.	The effect of cadmium exposure on female reproductive function and its implication in developing PCOS	PI : Dr. Sonali Ghosh Co-PI: Dr. Santi Ranjan Dey Co-PI: Dr. Sarmistha Chanda.

6. 7. Development of chemotherapeutic agent by using naturally available flavonoid and carbazole based small molecules scaffolds that inhibit MDM2/p53 interaction : A theragnostic approach to prevent liver cancer

PI: Dr. Samiran Mondal
Co-PI: Dr. S. R. Dey
Co. PI: Dr. Sonali Ghosh

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An emergency Research subcommittee meeting will be held on 14-12-2023 (Thursday) at 10.00 am in the Room in front of the chamber of Principal. All honourable members are requested to attend the meeting.

14/12/23

Convener, Research subcommittee, Rammohan College, Kolkata.

Date: 12-12-2023

Agendum

1. Research proposal

Members Present in the Meeting :

1. S Sanyal 14/12/23
2. (S.N Bagchi) 14/12/23
3. Md Ahmadullah 14/12/2023
4. Sonali Ghosh 14/12/23
5. S Dey
6. Kaushik Dutta Chowdhury 14/12/23
7. Krishnendu Sarwar 14/12/23

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Ref. ..... Date.....20

Proceedings of the Research committee meeting, 14th December, 2023

The research committee meeting was held in the Principal's chamber at 10 A.M. on 14th December, 2023. The meeting was chaired by Dr. Saswati Sanyal, Principal, Rammohan College, Kolkata-09.

Proceedings of the meeting:

- At zero hour of the meeting, Principal madam advised that a project proposal for approval in the Research Committee meeting may be placed at least 7 days before the commencement of the meeting.
- After completion of tenure of the project by Project Fellow/Candidate he/she can continue his/her laboratory work up to further 2 years. After this period, he/she will not be permitted to work in the laboratory of the college.
  Principal madam also advised in the meeting to submit Research Proposals from the faculty members of Arts, Science and Commerce section of the college.
- Dr. Shanti Ranjan Dey proposed the name of Dr. Sonali Ghosh, Assistant Professor, Department of Physiology to act as convenor of the Research Committee because the present convenor Dr. Samarendra Nath Banerjee will retire on 31th December, 2023 other members accepted the proposal of Dr. Santi Ranjan Dey. But Principal madam suggested that the selection of name of the convenor should be approved in the next formal meeting.

Research proposal submitted for approval:

1. Title of the Project: Remedial efficacy of Stiilbenoids on inhalation induced pulmonary alteration-an in vivo study.

Principal investigator: Dr. Kaustav Dutta Chowdhury, Department of Zoology, Rammohan College

The project proposal was placed in the meeting for approval. All honourable members unanimously accepted the proposal.

The meeting ended with vote of thanks to the chair and from the chair.

S. Sanyal
14/12/2023

Convener. R.C.

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Ref. ..... Date.....20

Collaboration with Sports Authority of India, Kolkata
and
Sports and Excersice Physiology Laboratory, Department of Physiology,University of Calcutta

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eMail : phdcaluni@yahoo.co.in

Letter: 10232/Ph.D.(Sc.) Dated: 30.Dec.2022

TO WHOM IT MAY CONCERN

This is to certify that **Sri Surojit Sarkar** of **57/1, Shri Dhar Roy Road; Kolkata-700039** bearing **Aadhaar** card no **2856 1791 1882** has submitted a thesis entitled

"Effect Of Antioxidant Vitamin Supplementation On High-Intensity Training Induced Alteration In Muscle Damage, Oxidative Stress And Fitness Profile Parameters In Post-Adolescent Male Endurance Athletes."

on **28th December 2022** under **Ph.D. Regulations 2016** of University of Calcutta for consideration of the University for award of the Ph.D. degree in **Physiology**

Name of Supervisor:	**Dr. Gouriprosad Datta, Associate Professor, Rammohan College, Kolkata.**
Name of Joint Supervisor:	**Dr. Swapan Kumar Dey, Consultant Scientist, Sports Authority Of India, Kolkata.**
Name of Associate Supervisor:	**Dr. Amit Bandyopadhyay, Assistant Professor, C.U.**

30.12.22
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Dated: 21st April 2022

Letter: 02712/Ph.D.(Sc.)Pro

To
Dr. Gouriprosad Datta
Dept. of Physiology,
Rammohan College,
102/1, Raja Rammohan Sarani, Kolkata-700009.
eMail: dattagp@yahoo.co.in

Subject : Inclusion of Joint Supervisor

Dear Sir / Madam,
This is in reference to your letter dated 3rd February 2022, regarding Inclusion of Joint Supervisor for the Ph.D. programme in "Physiology", being carried out by Smt Pritha Roy.

In this connection, I am desired to inform you that Dr. Amit Bandyopadhyay has been appointed Joint Supervisor for the said Ph.D. programme under your supervisorship.

Yours faithfully,

Sd/-

Deputy Registrar (Acting)

Letter No: 02713/Ph.D.(Sc.)Pro dated 21st April 2022
Copy forwarded to: Dr. Amit Bandyopadhyay
Dept. of Physiology, C.U; 92, A.P.C.Road, Kolkata-700009; eMail: bamit74@gmail.com; bamit74@yahoo.co.in.

Sd/-
Deputy Registrar (Acting)

Letter No: 02714/Ph.D.(Sc.)Pro dated 21st April 2022
Copy forwarded to: **Smt Pritha Roy**
Krishna Apt., Block-B, Flat No.-203; 17/5, Ramcharan Sett Road, Ramrajatala; Howrah-11104.

Deputy Registrar (Acting)

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University of Calcutta
Senate House, Kolkata - 700073

Date of Enrollment : 13th August 2019
Registration Number : 07435/Ph.D.(Sc.)Proceed/2021
Date of Registration : 24th November 2021
Date of Letter : 8th December 2021
(Please quote the above Number and Date in all future Correspondence)

From:
Deputy Registrar (Acting)
University of Calcutta

To:
Smt Pritha Roy
Krishna Apt., Block-B, Flat No.-203,
17/5, Ramcharan Sett Road, Ramrajatala,
Howrah-11104.

Madam,

I am desired to inform you that you have been granted registration for the Ph.D. programme under this University in **Physiology** in terms of **6.6** of the Regulations for the Degree of Doctor of Philosophy (Ph.D.), C.U., framed under UGC Guidelines, **2016.**

This registration shall remain valid for next six years with effect from the date of enrolment as indicated above.

You are to comply with the usual rules of migration in case you have passed the qualifying examinations for the Ph.D. programme from a University/Institute other than the University of Calcutta.

Title of Thesis
"Comparative Study Of Orphan And Non-Orphan Children: A Socio-Physiological And Nutritional Approach."

Name of the Supervisor : **Dr. Gouriprosad Datta**
Name of the Joint Supervisor : **X**
Name of the Associate Supervisor : **X**

Yours faithfully,

Deputy Registrar (Acting)
Deputy Registrar (Acting)
University of Calcutta

N.B. Please see the instructions overleaf.

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Ref. ..... Date.....20

Collaboration with Department of Physiology, Raja Narendra Lal Khan Women's College, Medinipur, West Bengal
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Sports and Excersice Physiology Laboratory, Department of Physiology,University of Calcutta

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University of Calcutta
Senate House, Kolkata - 700073

Date of Enrollment : **25th August 2017**
Registration Number : **01880/Ph.D.(Sc.)Proceed/2019**
Date of Registration : **12th March 2019** Date of Letter : **20th March 2019**
(Please quote the above Number and Date in all future Correspondence)

From:
By The Registrar
University of Calcutta

To:
Smt Mousumi Mitra
A/2, Safal Bhaban,
Mithumasjid Road, Habibpur,
Paschim Medinipur, Pin-721101.

Madam,

I am desired to inform you that you have been granted registration for the Ph.D. programme under this University in **Physiology** in terms of **6.6** of the Regulations for the Degree of Doctor of Philosophy (Ph.D.), C.U., framed under UGC Guidelines, **2016.**

This registration shall remain valid for next six years with effect from the date of enrolment as indicated above.

You are to comply with the usual rules of migration in case you have passed the qualifying examinations for the Ph.D. programme from a University/Institute other than the University of Calcutta.

Title of Thesis
Green Synthesis Of Gold Nanoparticles Using Bark Extract Of *Terminalia arjuna* And Its Protection Against Hepato-Renal Dysfunctions On Experimentally Induced Rats.

Name of the Supervisor : **Dr. Gouriprosad Datta**
Name of the Joint Supervisor : **Dr. Dilip Kumar Nandi**
Name of the Associate Supervisor : **Dr. Amit Bandyopadhyay**

Yours faithfully,

By Registrar

N.B. Please see the instructions overleaf.

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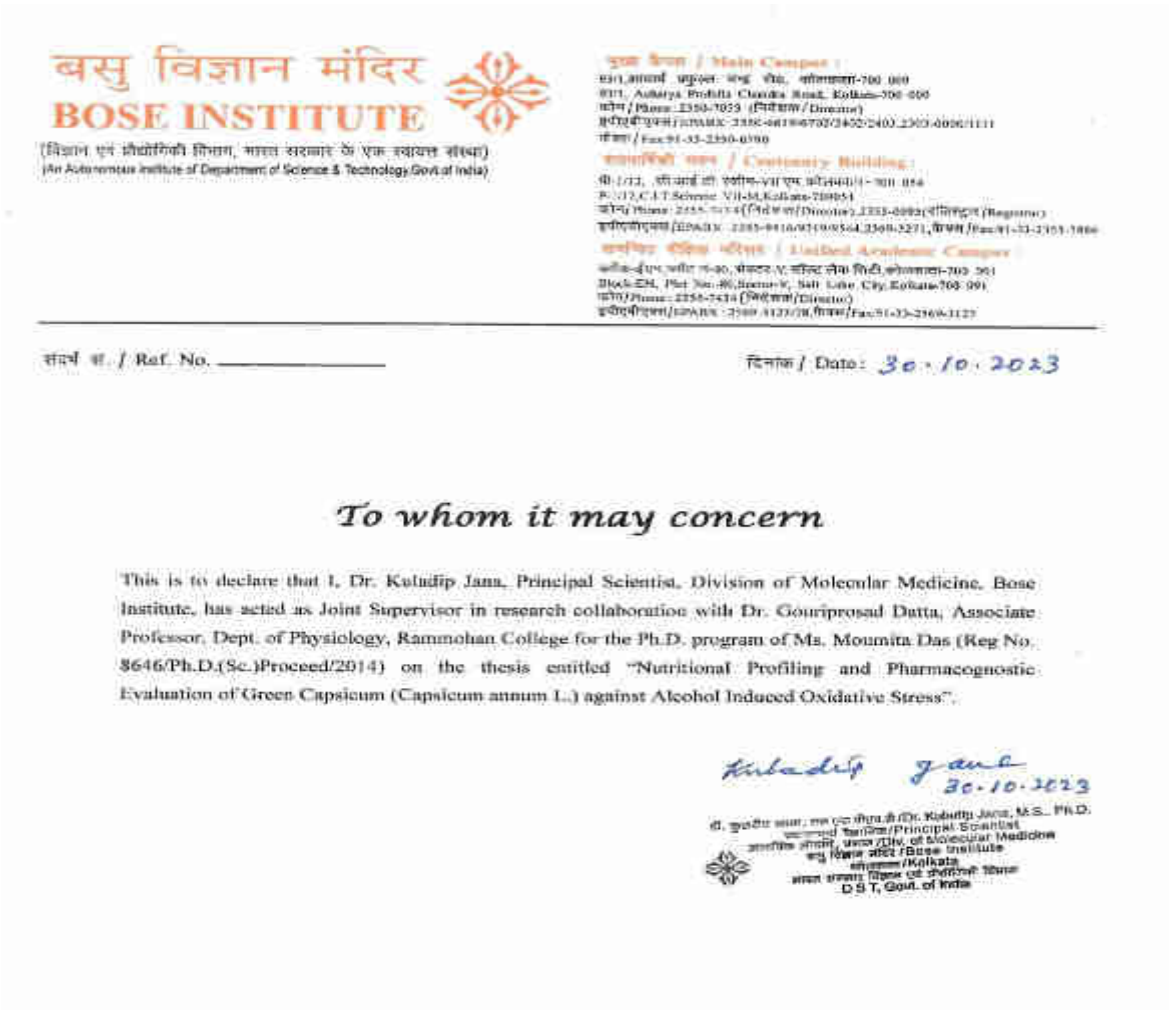
Collaboration with BOSE INSTITUTE, Kolkata



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(An Autonomous Institute of Department of Science & Technology,Govt.of India)

संदर्भ सं. / Ref. No. _____ दिनांक / Date: 30.10.2023

To whom it may concern

This is to declare that I, Dr. Kuladip Jana, Principal Scientist, Division of Molecular Medicine, Bose Institute, has acted as Joint Supervisor in research collaboration with Dr. Gouriprosad Datta, Associate Professor, Dept. of Physiology, Rammohan College for the Ph.D. program of Ms. Moumita Das (Reg No. 8646/Ph.D.(Sc.)Proceed/2014) on the thesis entitled "Nutritional Profiling and Pharmacognostic Evaluation of Green Capsicum (Capsicum annum L.) against Alcohol Induced Oxidative Stress".

Kuladip Jana 30.10.2023

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Collaboration with Department of Physiology, University of Calcutta, Kolkata

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Date: 20th October 2023.

To whom it may concern

This is to declare that I, Dr. Amit Bandyopadhyay, Assistant Professor, Sports and Exercise Physiology Laboratory, Department of Physiology, University of Calcutta, have acted as an Associate Supervisor in research collaboration with Dr. Gouriprosad Datta, Associate Professor, Dept. of Physiology, Rammohan College for the Ph.D. programme of Mr. Surojit Sarkar, Ms. Monalisa Debnath, and Ms. Mousumi Dutta.

Also, I am presently associated as a Joint Supervisor in research collaboration with Dr. Gouriprosad Datta, Associate Professor, Dept. of Physiology, Rammohan College for the Ph.D. programme of Ms. Pritha Ray (Reg No. 07435/Ph.D.(Sc.)Proceed/2021), on the thesis entitled "**Comparative Study of Orphan and Non-Orphan Children: A Socio-Physiological and Nutritional Approach**"

(Amit Bandyopadhyay)

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Ref. [illegible] Date 11/01/2021

TO WHOM IT MAY CONCERN

It is my delight pleasure to give my utmost possible recommendation for **Mousumi Mitra**, D/O Shri Subrata Mitra and Smt. Monika Mitra, will submit her final copy of thesis in next few days under our Guidance. She had successfully completed her pre-submission seminar of Ph.D work in September 2020. The title of her Thesis is **"Green synthesis of gold nanoparticles using bark extract of *Terminalia arjuna* and its protection against hepato-renal dysfunctions on experimentally induced rats"**. I have gone through her whole thesis which is hereby being **approved for submission**.

She had also achieved as JRF a major research project under Department of Science and technology, Government of west Bengal, under my supervision. She had finished her work under scheduled time by fulfilling ethical guidelines. She possesses potential ability to read the literature by herself and produce appealing hypothesis with problem solving capabilities. She had published several research articles in different international and national journals. She has brilliant communication skills with clear and concise view. Moreover, she is a disciplined, studious, hard working, reliable, well mannered, person with pleasant personality with good team work skill.

I wish her a successful life ahead.

Dr. Dilip Kumar Nandi
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Raja N. L. Khan Women's College (Autonomous), Midnapore, West Bengal.
Residential Address: Barmanikpur, Midnapore, Paschim Medinipur,721101
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Collaboration with Sports Authority of India, Kolkata and Sports and Excersice Physiology Laboratory, Department of Physiology,University of Calcutta

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Sports Medicine and Health Science xxx (xxxx) xxx

Contents lists available at ScienceDirect

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Sports Medicine and Health Science

journal homepage: www.keaipublishing.com/en/journals/sports-medicine-and-health-science/

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

Surojit Sarkar [a], Swapan Kr Dey [b], Gouriprosad Datta [a], Amit Bandyopadhyay [a,*]

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ARTICLE INFO

Keywords:
Sprint interval training
Lipid profile
Haematological indices
Haemolysis
Athletes

ABSTRACT

High intensity interval training (HIIT) causes oxidative stress and hematological 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 (35 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_{max})) followed by 1 min active recovery (60%–70% HR_{max}) 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 supplemental groups. Supplementation of vitamin C and E confers 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.[1] 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 increases oxygen consumption leading to the generation of mitochondrial reactive oxygen species (ROS).[2,3] Studies depict that high-intensity exercises elicit detrimental effects on skeletal muscle[4,5] and increase circulatory proinflammatory cytokines (interleukin-6 [IL-6] and tumour necrosis factor-alpha [TNF-α]) in proportion to ROS generation.[6,7]

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 increased leukocyte count, increased platelet count, and platelet-to-leukocyte ratio (PLR) due to the effect of HIIT.[8] 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.[9,10]

Vitamin C and vitamin E are the most prevalent vitamin supplements

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E-mail address: abpfys@caluniv.ac.in (A. Bandyopadhyay).

https://doi.org/10.1016/j.smhs.2023.03.006
Received 19 March 2022; Received in revised form 15 March 2023; Accepted 24 March 2023
Available online xxxx
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Please cite this article as: Sarkar S et al., Vitamin C and E supplementation and high intensity interval training induced changes in lipid profile and haematological variables of young males, Sports Medicine and Health Science, https://doi.org/10.1016/j.smhs.2023.03.006

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ORIGINAL ARTICLE

TRENDS in Sport Sciences
2023; 30(1): 21-28
ISSN 2299-9590
DOI: 10.23829/TSS.2023.30.1-3

Reference interval for oxidative stress markers in young football and hockey players

SUROJIT SARKAR[1], SWAPAN KUMAR DEY[2], GOURIPROSAD DATTA[1], AMIT BANDYOPADHYAY[3]

Abstract

Introduction. Malondialdehyde (MDA), superoxide dismutase (SOD), glutathione (GSH), and glutathione peroxidase (GPx) are widely accepted as biological markers for checking the redox balance and antioxidant status. *Aim of study.* The purpose of the study was to frame the reference interval for antioxidant variables (MDA, SOD, GSH and GPx) in the young athletic population of various sports discipline. *Material and Methods.* 190 young male players [i.e., football (n = 89), and hockey (n = 101)] were recruited for the study (mean age = 18.3 ± 2.91 yrs). Assay of MDA, SOD, GSH and GPx was done by using the standard enzymatic protocol. 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. *Results.* Serum MDA range was from 23.78-36.19 µmoles/100ml serum with mean of 30.29 ± ± 3.24 µmoles/100 ml serum and median around 30.43. Serum SOD ranged from 0.05-0.14 U/min/mg protein with mean of 0.08 ± 0.01 U/min/mg protein and median around 0.08. The GSH was ranging from 43.21-68.89 mg/100 ml serum with mean of 46.43 ± 2.41 mg/100 ml serum and median around 46.10. The GPx was ranging from 9.04-14.33 µmol/min/mg protein with mean of 11.38 ± 1.38 µmol/min/mg protein and median around 11.08. *Conclusions.* Present study confers 24.88-35.88 µmoles/100 ml serum, 0.06-0.13 U/min/mg protein, 45.27-81.86 mg/100 ml serum, and 9.07-14.12 µmol/min/mg protein as the reference interval values for MDA, SOD, GSH, and GPx respectively. The present finding will guide the researchers to avoid misinterpretation of antioxidant biomarker values during any phase of competitive training of sports person.

KEYWORDS: lipid peroxidation, glutathione, reference interval, antioxidant biomarkers, endurance team-game.

Received: 30 August 2022
Accepted: 13 March 2023

Corresponding author: [illegible]

[1] *Rammohan College, Department of Physiology, Kolkata, India*
[2] *University of Calcutta, Department of Sports Science, Kolkata, India*
[3] *University of Calcutta, University College of Science and Technology, Department of Physiology, Sports and Exercise Physiology Laboratory, Kolkata, India*

Introduction

An exercise-induced oxidative stress condition following a high-intensity training session was (i.e., eccentric or resist works) hypothesized to be metabolic, mechanical or both in nature during the temporary hypoxic condition that leads to excess reactive oxygen species (ROS) generation [17, 23]. The exercise-induced overproduction of ROS creates oxidative stress and challenge redox equilibrium, which further disrupts cellular homeostasis and leads to a rise in lipid peroxidation [18, 23]. The presently studied summary data of MDA, SOD, GSH, and GPx in reference to endurance team-games such as football and hockey have no game specific references in terms of antioxidant variables, which might due to the nature of energy requirements for the game and the high demand of recovery with a higher level of endurance capacity with a high burst of intense energy for short running sprints [1, 17]. However, a single high-intensity exercise and/or even a long duration moderate-high intensity training of endurance team-game such as football and hockey were observed to induce oxidative stress via

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RESEARCH ARTICLE

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International Journal of
PHYSICAL EDUCATION, FITNESS AND SPORTS

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

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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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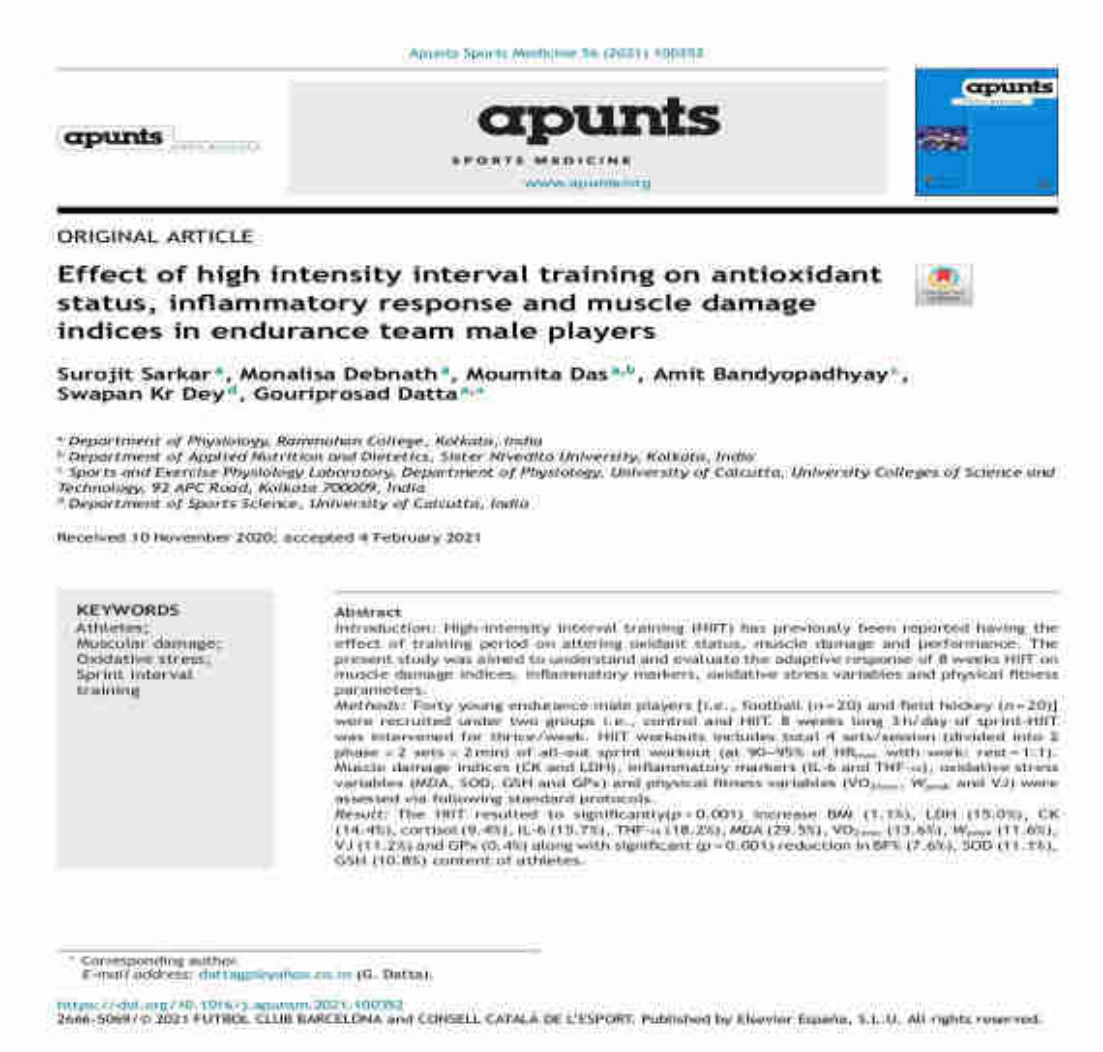

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ORIGINAL ARTICLE

Effect of high intensity interval training on antioxidant status, inflammatory response and muscle damage indices in endurance team male players

Surojit Sarkar[a], Monalisa Debnath[a], Moumita Das[a,b], Amit Bandyopadhyay[c], Swapan Kr Dey[d], Gouriprosad Datta[a,*]

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Received 10 November 2020; accepted 4 February 2021

KEYWORDS
Athletes;
Muscular damage;
Oxidative stress;
Sprint interval training

Abstract
Introduction: High-intensity interval training (HIIT) has previously been reported having the effect of training period on altering oxidant status, muscle damage and performance. The present study was aimed to understand and evaluate the adaptive response of 8 weeks HIIT on muscle damage indices, inflammatory markers, oxidative stress variables and physical fitness parameters.
Methods: Forty young endurance male players [i.e., football (n = 20) and field hockey (n = 20)] were recruited under two groups i.e., control and HIIT. 8 weeks long 3 h/day of sprint-HIIT was intervened for thrice/week. HIIT workouts includes total 4 sets/session (divided into 2 phase = 2 sets × 2 min) of all-out sprint workout (at 90–95% of HR_{max} with work: rest = 1:1). Muscle damage indices (CK and LDH), inflammatory markers (IL-6 and TNF-α), oxidative stress variables (MDA, SOD, GSH and GPx) and physical fitness variables (VO_{2max}, W_{max} and VJ) were assessed via following standard protocols.
Result: The HIIT resulted to significantly($p < 0.001$) increase BW (1.1%), LDH (15.0%), CK (14.4%), cortisol (9.4%), IL-6 (19.7%), TNF-α (18.2%), MDA (29.5%), VO_{2max} (13.6%), W_{max} (11.6%), VJ (11.2%) and GPx (0.4%) along with significant ($p = 0.001$) reduction in BF% (7.6%), SOD (11.1%), GSH (10.8%) content of athletes.

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Collaboration with Tamralipta Mahavidyalaya, Bose Institute and City college, Kolkata

SPECIAL ISSUE ORIGINAL ARTICLE

Food Biochemistry WILEY

Renoprotective effect of *Capsicum annum* against ethanol-induced oxidative stress and renal apoptosis

Moumita Das[1] | Subhashree Basu[2] | Bhaswati Banerjee[3] | Kuladip Jana[3] | Anurupa Sen[4] | Gouriprosad Datta[1]

Abstract

Practical applications

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Collaboration with Raja N L Khan Women's College and Department of Physiology, University of Calcutta, Kolkata

Journal of
Nanomedicine & Nanotechnology
Research Article   Open Access

Protective Role of Green Synthesized Gold Nanoparticles Using *Terminalia arjuna* against Acetaminophen Induced Hematological Alterations in Male Wistar Rats

Mousumi Mitra[1], Amit Bandyopadhyay[2], Gouriprasad Datta[1] and Dilip K Nandi[3*]

Abstract

Background:

Methods:

Results:

Conclusions:

Keywords: *Terminalia arjuna*; Gold nanoparticles; FESEM; HRTEM; Hematological indices

Introduction

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Collaboration with Sports Authority of India and Department of Physiology, University of Calcutta

DOI 10.26773/smj.191012

SportMont

ORIGINAL SCIENTIFIC PAPER

Prediction of Athletic Performance through Nutrition Knowledge and Practice: A Cross-Sectional Study among Young Team Athletes

Monalisa Debnath[1], Subhra Chatterjee[2], Amit Bandyopadhyay[3], Gouriprosad Datta[4] and Swapan Kumar Dey[5]
[1]Department of Sports Science, Sports Authority of India, Salt Lake City, Kolkata, India, [2]Sports Authority of India, New Delhi, India, [3]University of Calcutta, University Colleges of Science and Technology, Sports and Exercise Physiology Laboratory, Department of Physiology, Kolkata, India, [4]Department of Physiology, Rammohan College, Kolkata, India, [5]Sports Authority of India, Salt Lake City, Kolkata, India

Abstract

The present study was conducted to assess the nutrition knowledge, practice, and status and to identify the nutritional and body composition factors predicting athletes' performance. Young team athletes including 40 footballers and 50 hockey players were recruited in this study (age 16.48±1.5) to assess the nutrition knowledge (NK), nutrition practice (NP), and 24-hour dietary recall using a semi-structured questionnaire. Physical characteristics, including height, weight and body mass index (BMI), along with static strength- handgrip and relative back strength, were recorded. Fat mass (FM), fat-free mass (FFM), muscle mass (MM), basal metabolic rate (BMR) and glycogen store was determined using a bioelectrical impedance analyser. Aerobic capacity (VO_2max) was measured with a beep test. The majority of the athletes with good NK scores were found to have good NP scores as well and vice versa ($\chi 2$=23.861, p=0.000). Their mean recorded scores for NK and NP were found to be 11.13±3.6 and 7.30±2.0 out of a total of 20 and 12, respectively. Daily consumption of protein (β=0.336; p value=0.004), sodium (β=0.273; p value=0.006) and dietary fibre (β=0.220; p value=0.002) were found to be the best predictors for nutritional practice. Nutrition knowledge and practice had significant positive correlation with BMR (0.314***; 0.419***), calcium intake (0.248*; 0.482***), iron intake (0.303***; 0.221*) and VO_2max (0.331***; 0.428***), respectively. Daily calorie consumption (β=0.144, p=0.029), BMR (β=0.304, p<0.001***), MM (β=0.213, p=0.020), calcium (β=0.275, p=0.001) and iron intake (β=0.240, p=.001) were the significant predictors of athletic performance. Therefore, good nutrition knowledge may improve the nutritional habits and dietary pattern of athletes. Body composition and nutrient intake can predict athletic performance. Intervention studies should emphasize nutrition education aiming for improved athletic performance.

Key words: *basal metabolic rate, bioelectrical impedance analysis, body composition, dietary pattern, aerobic capacity*

Introduction

Optimal fuelling is an essential requisite for athletes to excel to their best ability (Maughan & Burke, 2011; Kerksick et al., 2008). Apart from nutrition playing an influential role in enhancing on-field performance; it also promotes muscle growth, prevents injury, accelerates recovery, and supports rehabilitation (Mahan & Stump, 1998). Undoubtedly, athletes' daily diet and fluid intake affect their health, body composition, and substrate availability during exercise as well as recovery time (American Dietetic Association, 2009). Adequate nutrition, which can be reached through sufficient nutrition knowledge (NK), is an integral part of a training programme

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Collaboration with Tamralipta Mahavidyalaya, Bose Institute and City college, Kolkata

Journal of Ethnopharmacology

Hepatoprotective effects of green *Capsicum annum* against ethanol induced oxidative stress, inflammation and apoptosis in rats

Moumita Das, Subhashree Basu, Bhawati Banerjee, Anurupa Sen, Kuladip Jana, Gouriprosad Datta

ARTICLE INFO

ABSTRACT

1. Introduction

Ethanol has long been consumed by most people of all socio-economic strata in the form of alcohol. It is a commonly consumed recreational beverage of modern society and when in excess, is responsible for causing Alcoholic Liver Disease (ALD). Study of literature suggests that the underlying mechanism of ethanol induced hepatotoxicity is oxidative stress and cytokinin mediated activation of hepatic

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SPECIAL ISSUE ORIGINAL ARTICLE

Food Biochemistry WILEY

Renoprotective effect of *Capsicum annum* against ethanol-induced oxidative stress and renal apoptosis

Moumita Das[1] | Subhashree Basu[2] | Bhaswati Banerjee[3] | Kuladip Jana[3] | Anurupa Sen[4] | Gouriprosad Datta[1]

Abstract

The present study explored the amelioration potency of aqueous extract of Capsicum annum (AqCA) against oxidative imbalance and renal toxicity induced by ethanol. Randomly grouped male Wistar rats (n = 6), were marked as ethanol-treated (2 g/kg bw, i.p.), CA_{125} (125 mg/kg bw, i.p.), CA_{250} (250 mg/kg bw, i.p.), ethanol pre-treated with CA (similar doses), and control (0.5 ml normal saline, i.p.) and treated for 30 consecutive days. Biochemical analysis of tissue and serum parameters was performed, along with histopathological and histochemical studies. Also, we performed TUNEL assay and western blotting for our experimental groups. Statistical analysis revealed significant ($p < .05$) alteration in the levels of antioxidant enzymes, serum urea, creatinine, pro-inflammatory cytokines, and cleaved caspases, along with histopathological alterations in the ethanol-treated group. Prior treatment with AqCA prevented ethanol-induced alterations in tissue and serum parameters. These findings indicate that the extract of CA can protect renal cells from ethanol-induced damage by inhibiting oxidative stress, inflammatory response, and apoptosis.

Practical applications

Chronic alcohol consumption is a major public health concern that leads to various diseases and social problems as well. It affects both the affluent and non-affluent society equally. Alcohol (ethanol) is a renowned hepato-toxicant and a well-documented risk factor for oxidative stress, with less known effect on the kidney. Thus, it is essential to investigate the effect of alcohol metabolism on the kidney to find a remedy to prevent it. The present investigation depicts the anti-oxidative and anti-inflammatory role of Capsicum annum against ethanol-induced renal damage. The outcome of this study can be utilized in the future for phytotherapeutic herbal drug formulation. Besides, the bioactive components identified in the study can be further explored by researchers or pharmaceutical corporates for potential therapeutic purpose against renal impairment.

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Research Article

PROTECTIVE ROLE OF CRUDE EXTRACT OF *AMORPHOPHALLUS CAMPANULATUS* AGAINST ETHANOL-INDUCED OXIDATIVE RENAL DAMAGE

SUBHASHREE BASU[1,2], MOUMITA DAS[3], ANURUPA SEN[4], GOURIPROSAD DATTA[1]*
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ABSTRACT

Objective: The current study investigates the nephroprotective effect of *Amorphophallus campanulatus* against chronic alcohol-induced oxidative stress and tissue damage.

Methods: The rats were simultaneously supplemented with ethanolic extract of *A. campanulatus* along with ethanol (40% v/v)(3 g/kg body weight/day) for 30 days to evaluate the nephroprotective effect against alcohol toxicity. Renal antioxidant enzymes, serum urea, creatinine, and pro-inflammatory cytokines were assayed biochemically. Histomorphological and histochemical alterations were detected by Hematoxylin and Eosin, periodic acid Schiff and Bridges and Picrosirius stain, respectively. The degree of apoptotic cell death was examined by terminal deoxynucleotidyl transferase dUTP nick end labeling (TUNEL) assay technique.

Results: Serum urea, creatinine, pro-inflammatory cytokines, tissue TBARS, and activity of glutathione metabolizing enzymes were significantly ($p<0.01$) elevated, whereas cytosolic and mitochondrial superoxide dismutase, catalase, and levels of reduced glutathione were significantly ($p<0.001$) decreased in the EtOH group compared to control. However, ethanolic extract of *A. campanulatus* (ACE) supplementation to the EtOH rats reversed these effects to normal levels. Furthermore, degenerative changes in renal cells with alcohol treatment were minimized to near-normal architecture by ACE supplementation. Glycogen and deoxyribonucleic acid depletion, excess fibrosis due to collagen deposition, and increased apoptotic cell number were also restricted by ACE supplementation, with the higher dose being more promising.

Conclusion: Thus ethanol-induced nephrotoxicity was attenuated by ACE treatment by the antioxidative and antiapoptotic property of the extract. Such effects of the extract may be due to the probable presence of different bioactive components in the tuber. Hence, it can be used as a regular nutrient or therapeutic agent to protect the renal cells.

Keywords: Apoptosis, Fibrosis, Nephrotoxicity, Oxidative stress, Pro-inflammatory cytokines, TUNEL.

INTRODUCTION

Consumption of alcoholic beverages is considered as a social habit in most societies around the world. Alcoholism is a serious human health ailment that can disturb the important defense systems in the body including kidney tissue. The liver is the primary organ responsible for the oxidation of ingested alcohol, but other tissues (including the kidney and intestine) also contribute to alcohol metabolism as well [1]. Regular alcohol consumption raises the blood pressure, which per se is a risk factor for renal damage [2]. Besides, excess alcohol intake increases free radical or reactive oxygen species (ROS) production and causes oxidative stress by compromising the antioxidant defense system, perturbation of the reactive product malondialdehyde, damage to mitochondria, and altered cytokine production [3-5]. ROS induced altered antioxidant system causes continued damage to the vital biomolecules, and this condition ultimately gives way to impaired kidney function [6].

In the recent time, many natural products are being used to protect the tissues from various drugs or chemical-induced toxicities. The use of plants in food and medicinal remedies since ancient times is partially attributed to the biological efficacy of secondary metabolites that possess antioxidant activities such as phenolic compounds, Vitamins C and E, and carotenoids [7].

Currently, research interest has been focused on the role of antioxidants as well as antioxidant enzymes, in the treatment and prevention of the diseases mentioned above. The most commonly used antioxidants at present are vitamins, butylated hydroxyanisole, butylated hydroxytoluene, propyl gallate, and tert-butylhydroquinone. However, they are suspected of being responsible for liver damage and acting as carcinogens in laboratory animals. Therefore, the development and utilization of more effective antioxidants of natural origin are desirable [8].

In Southeast Asian countries, besides vegetables, tuber crops also contribute to a major part of the staple diet. They are of immense importance because of their high calorific value. One such popular tuberous crop in India, especially the south and eastern region, is *Amorphophallus campanulatus* commonly known as "suran" in Sanskrit and elephant yam in English. *A. campanulatus* has its mention in Ayurveda.

Recently, from our laboratory, we reported the in vitro antioxidant potential of a hydroethanolic extract of *A. campanulatus* against DPPH, hydroxyl, and superoxide radical [9]. Besides, we have also studied the various bioactive components in the extract by GC-MS analysis and found that the extract had several bioactive components with antioxidant property along with good source of components such as benzofuranone, acid and its methyl and ethyl esters, heptadecanoic acid, linoleic acid and its ester, oleic acid, oleamide, 1, 2, 3, benzenetriol, 4H-pyran-4-one, 2, 3-dihydro-3, 5 – dihydroxy-6-methyl-, squalene, and Vitamin E [10]. Since the less hepatoprotective activity of the hydroethanolic extract against ethanol-induced oxidative stress in albino rats has also revealed an upregulation of in vivo antioxidant defense system and simultaneous attenuation in the level of lipid

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To Whom It May Concern

This is to declare that Dr. Kaustav Dutta Chowdhury, Assistant Professor (Stage-II), Dept. of Zoology, Rammohan College, Kolkata, West Bengal, India, is doing collaborative research with my research group since 2018 on alteration in pulmonary tissues and its protection by Hexadecanoic acid, ethyl ester. The facilities of both institutions are utilized for this purpose.

The collaboration helps us to exchange our scientific idea/s. Till date, the association has produced 4 international paper/s in reputed journal/s.

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Effect of Calcium Carbide Exposure Through Inhalation in Lungs of *Mus musculus*

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ABSTRACT

Study on occupational injuries indicates the industrial exposure to air-pollutants, asthmagens, carcinogens, and noise for extended hours as leading risk factors directing to death. This exposure generally occurs by inhalation, ingestion, or via dermal contact. Out of which inhalation is the most rapid route of uptake through breathing in the air that is contaminated with particulate matter/dust, vapours of volatile or semi-volatile contaminants and aerosols due to outdoor and indoor industrial activities. Irritational lung injury, asphyxia, respiratory depression, tachycardia, pulmonary edema may develop as long-lasting systemic effects even after completion of the working life of a worker.Most occupational lung diseases are caused by repeated, long-term exposure. Therefore, our study was conducted to analyze the effect of 40 days of chronic calcium carbide exposure in a close chamber through inhalation in lung of Swiss-albino mice. ALT, AST, SOD and catalase activities were estimated spectrophotometrically. Spectrofluorimetric estimation was performed for reactive oxygen species determination. Flow cytometric analysis was performed to examine cell death and cell cycle. Pro-apoptotic and anti-apoptotic protein levels were estimated by immunoblot. Data demonstrated altered body homeostasis as marked by AST/ALT assay. 3gm CaC_2 exposure indicated activation of antioxidant enzymes, increased cell death causing sustained animal survivability. 5gm and significantly 7gm CaC_2 exposure displayed antioxidant enzymatic activities along-with decreased cell death and animal survivability. While in 9gm CaC_2 exposure total antioxidant enzymes were collapsed with increased cell death leading to probably maintenance of animal survivability to some-extent in the said group.

KEY WORDS: CAC2, CELL DEATH, LUNGS, MICE, ROS.

INTRODUCTION

Recent time witnessed an increase in respiratory distress due to environmental pollution, lifestyle as well as occupational exposures. In this context, the lung is the most affected organ due to its delicate endothelial network being constantly involved in gaseous exchange with the environment. Report suggests that 1 in 20 people suffers from chronic respiratory diseases (CRDs) globally, attributing CRDs as the third leading cause of death in the world (Montazmanesh et al., 2019).

Amongst all other causes of CRDs, professional hazard (i.e.,breathing in chemicals, dust or noxious gases in industrial zones), is the most overlooked and neglected one. Occupational lung diseases may take a long time to develop and may have lasting effects on lungs even after the worker stops working. According to the World Health Organization (WHO), 125 million people worldwide are exposed to asbestos at work. According to global estimates, at least 90,000 people die each year from asbestosis, asbestos-related lung cancer and mesothelioma (Chen et al., 2022). Despite all efforts to prevent silicosis, it still afflicts tens of millions of workers and kills thousands of people every year, all over the world (Hoy et al., 2022).

Calcium carbide (CaC_2) also known as calcium acetylide being a source of acetylene and other noxious gases is considered as hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). It is mainly used to manufacture acetylene and other industrial compounds. Pure CaC_2

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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-Cofiliin mediated metastasis

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ARTICLE INFO

Keywords:
Decylubiquinone
ROCKII
E-cadherin
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_{10} 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 unbecoming of related signal cochetera 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 [3]. 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 metalloproteinase activity leading to extravasation [4]. 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: Duh, 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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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
pROCKIISer1366
MMP9
Smad complex
VEGF regulatory axis
RO-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 RO-025 indicated dual wielding 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 elevated 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^{1366} as an activation of the same was imprinted essential for oncogenic molecular ingredients leading to histo-architectural change of pulmonary tissue with extracellular matrix degradation as a consequence of invasion. Direct correlation of pROCKIISer^{1366} with MMP9 as well as VEGF expression in vivo studies due to demonstrate the importance of pROCKIISer^{1366} 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, the associated protein kinase or rho-associated coiled-coil kinase; STAT, signal transducer and activator of transcription; TGFβ, tumour growth factorβ; 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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Combinational Impact of Chelerythrine and S-Allyl Cystine on *Metastasis melanoma* of liver : An *In vivo* Analysis

Sujan Chatterjee[1], Debajyoti Patra[1], Pujita Ghosh[2], Soumi Banerjee[2], Pratip Chakraborty[3], Kaustav Dutta Chowdhury[3], Anupam Basu[4] and Gobinda Chandra Sadhukhan[5*]

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ABSTRACT

Metastatic melanoma, the highly fatal and aggressive disease, has yet to any effectual remedies. Several evidences suggested delicate responsibility of oxidative/cytotoxic stress in the modulation of tumor microenvironment leading to metastasis. Therefore, conditioning of reactive oxygen species in tumour and its adjacent arena may play a guardian role for restricting metastatic melanoma. Well-known active biocomponents like S-allyl Cysteine and Chelerythrine as nontoxic dietary phytochemicals are recently documented as potential anti-tumorigenic and anti-inflammatory therapeutics but their role in metastatic melanoma still remains elusive. Therefore, present study was carried out to investigate the efficacy of S-allyl Cysteine and Chelerythrine against metastatic melanoma to the hepatic tissue. Status of liver function was estimated by performing ALT, AST, GGT and ALKP assay. ROS accumulation was determined by estimating the altered DCF fluorescence in hepatic tissue lysates. GSH and TBARS content were measured as a marker of anti-oxidant and cytotoxicity level after the treatment. Analysis on the marker proteins like Caspases, CytochromeC, BCl$_2$, Bax, VEGF, MMP9 and NF-κβ depicted the triggering of p-p53 nuclear translocation and significant increase in Bax expression that in-turn induced CytochromeC-Caspase9-Caspase3 apoptotic axis after drug administration. Data also illustrated notable reduction in tumor nodules at liver along with normalization of liver function as demarcated by the level of biomarkers in the treated groups. Restoration of enzymatic and non-enzymatic anti-oxidants as well as suppression of VEGF and MMP9 expression as an effect of attenuated NFkb nuclear localization by S-allyl Cysteine and Chelerythrine effectively inhibited extracellular matrix remodeling as well as angiogenesis, two major prerequisites for metastasis. Combinatorial administration of S-allyl Cysteine and Chelerythrine further portrayed better efficacy in metastatic tumor regression and tissue restoration by sustaining ROS/antioxidant balance and stabilization of p53 through its phosphorylation, that can be considered as future directives for the development of novel remedial strategy against metastatic melanoma in vivo.

KEY WORDS: METASTATIC MELANOMA, ROS, ANTIOXIDANT, S-ALLYL CYSTEINE, CHELERYTHRINE

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INTRODUCTION

Melanoma, a predominant skin cancer, originates from melanocyte. Surgical removal followed by popular therapies with chemo/radiation-based drugs can cure primary melanomas. Due to its high aggressive nature and lack of complete effective therapeutic strategy, it can able to metastasize into local as well as distant organ following invasion and this in turn reduces the chances

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Cathepsin B mediated scramblase activation triggers cytotoxicity and cell cycle arrest by andrographolide to overcome cellular resistance in cisplatin resistant human hepatocellular carcinoma HepG2 cells

Kaustav Dutta Chowdhury[a], Avik Sarkar[b], Sujan Chatterjee[c], Debajyoti Patra[c], Dipanwita Sengupta[d], Soumi Banerjee[e], Pratip Chakraborty[e], Gobinda Chandra Sadhukhan[f,*]

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ARTICLE INFO

Keywords:
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ABSTRACT

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1. Introduction

Resistance is an evolutionary attributable cellular self-defense to protect cells from environmental stress and toxic effects (Pfeifer and Singh, 2018). Hepatocellular carcinoma (HCC) with its diversity in origin in biological and clinical characteristics thwarted the efficacy of chemotherapy (Samonakis and Koumbi, 2017) in part caused by multidrug resistance (MDR). Several mechanisms including vital roles of drug efflux pump, epithelial mesenchymal transition (EMT), hypoxia-inducible factor1-α (HIF1-α) signaling and DNA damage repair govern MDR induction, in chemo-resistance of HCC (Wei et al., 2016). Combined chemotherapy based on cisplatin, recommended by international cancer organizations has become a potential line of chemotherapy against liver cancer in recent times (Buchella and Herrera, 2015) and continued to be a mainstay to treat HCC (Kim et al., 2017). Widespread use of platinum drugs led to a gradual design of escape route for tumor cell to build up resistance that reduces the effect of chemotherapy to a significant extent developing intense modifications at both molecular and cellular levels about cell survival/death, endocytosis, gene activation/silencing by regulating methylation and acetylation as well as mutations mediated by transcription factors/ miRNAs (Shinde et al., 2018). Hence, the concept of using phytomedicines warrants immediate attention to overcome drug resistance.

Protein phosphatase 2 A (PP2 A) play dual role in keeping both pro-survival as well as pro-apoptotic signaling networks in check, maintaining a crosstalk with protein kinase A (via mitogen activated protein

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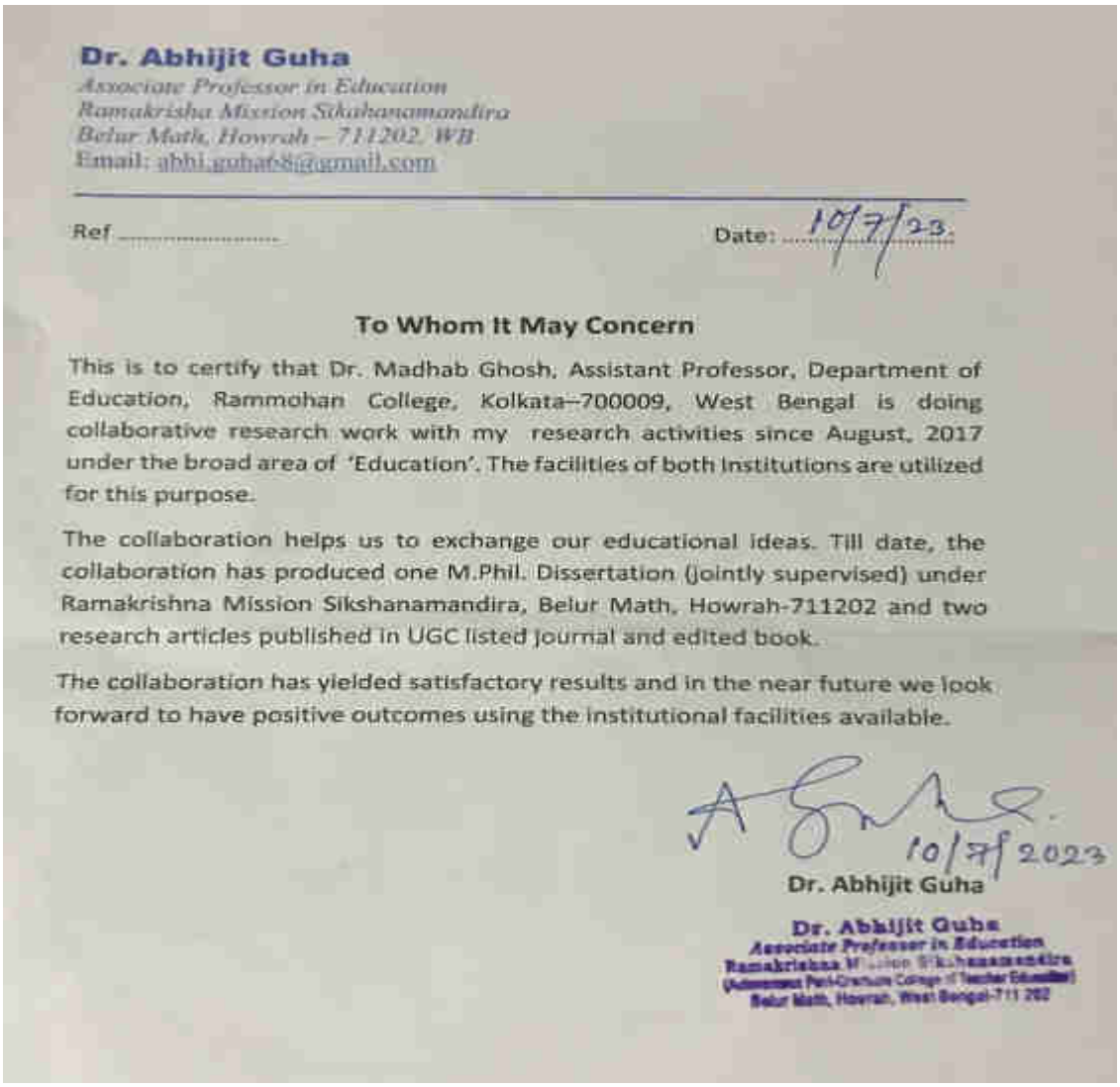
Collaboration with Ramakrishna Mission Sikahanamandira, Belur Math, Howrah



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To Whom It May Concern

This is to certify that Dr. Madhab Ghosh, Assistant Professor, Department of Education, Rammohan College, Kolkata–700009, West Bengal is doing collaborative research work with my research activities since August, 2017 under the broad area of 'Education'. The facilities of both institutions are utilized for this purpose.

The collaboration helps us to exchange our educational ideas. Till date, the collaboration has produced one M.Phil. Dissertation (jointly supervised) under Ramakrishna Mission Sikshanamandira, Belur Math, Howrah-711202 and two research articles published in UGC listed journal and edited book.

The collaboration has yielded satisfactory results and in the near future we look forward to have positive outcomes using the institutional facilities available.

10/7/2023
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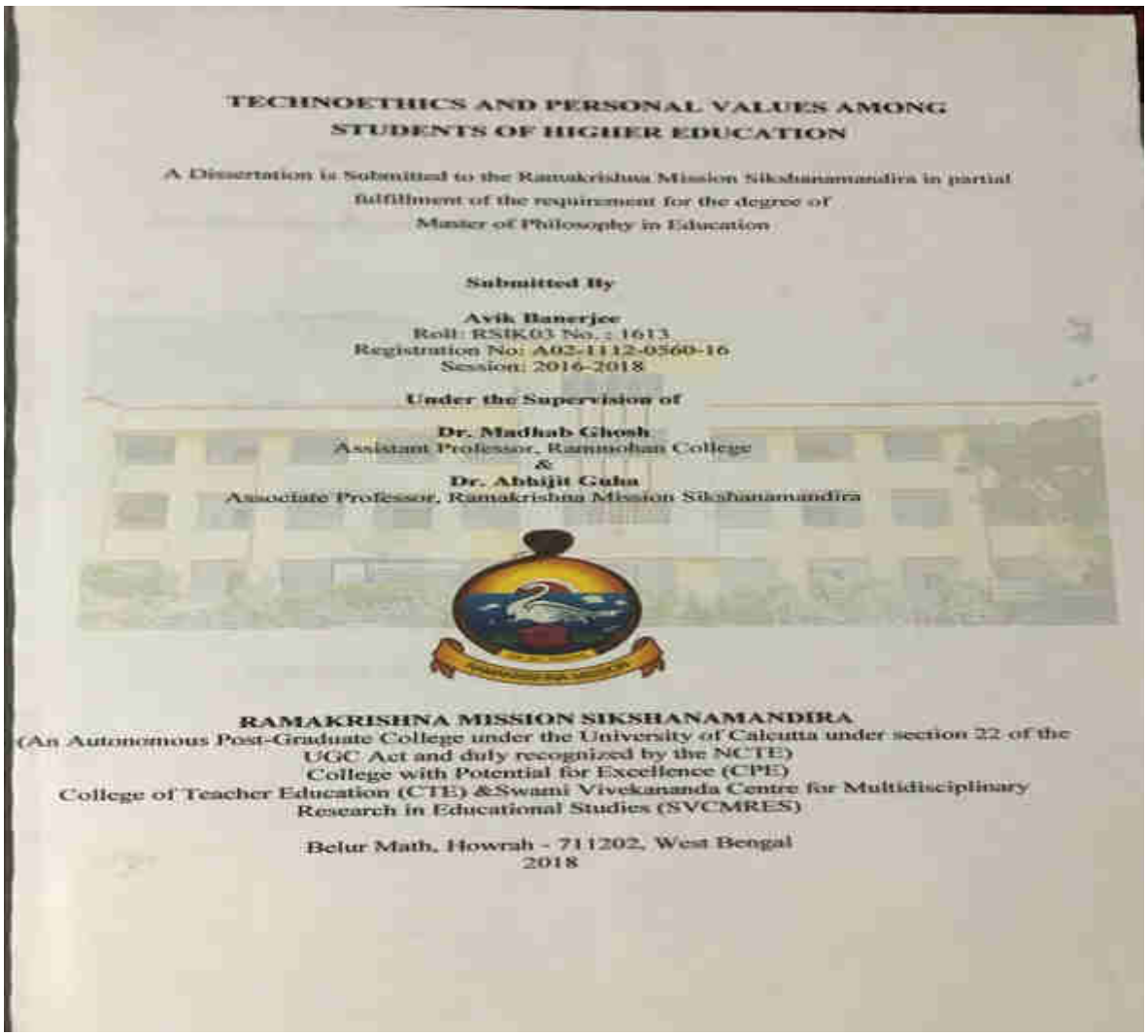

TECHNOETHICS AND PERSONAL VALUES AMONG STUDENTS OF HIGHER EDUCATION

A Dissertation is Submitted to the Ramakrishna Mission Sikshanamandira in partial fulfillment of the requirement for the degree of Master of Philosophy in Education

Submitted By

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Under the Supervision of

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Functioning of School Management Committee (SMC) in Gangtok, Sikkim

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Abstract: 'School Management Committee (SMC)' means 'The Committee managing the school'. It is necessary for a school to have a School Management Committee. The SMC play a pivotal role in school governance to enhance the quality of education offered. In bringing together representatives of different stakeholders, it lays the groundwork for broadened and shared decision-making. The new relationship between teachers and community has to be based not on the power of control but on the power of mutual trust. This paper focuses on structure of SMC in schools located in Gangtok city, intends to explore the role of SMCs in Elementary level government schools pertaining to the different aspects under investigation, like academic, non-academic and development of physical infrastructures, and to ascertain whether school management committee is functioning in accordance to the guidelines laid down by Right to Education Act (RTE), 2009. A survey method was adopted for the study. 60 teachers were randomly selected from elementary level of schools in Gangtok city. The self-developed questionnaire was adopted for the study. Interview schedule for headmaster, other teachers and documentary analysis techniques was adopted for the study. The investigator collected data through interview with the Headmaster and other teachers. Data were analysed by using qualitative data analysis techniques. The major findings included the SMC involvement in enrolment, holding PTA & MTA meetings to know the causes of absence of children and pursuing them for attendance. Supervised MDM system in the schools, encouraged brilliant students for study with financial assistance, convened meeting to discuss and resolve issues of the schools both academic and non-academic with head and teachers for developing awareness in the in the community for smoothed functioning of the schools along with non-academic activities of prominent days celebration weeks and other developmental activities related to infrastructures, teaching-learning practice and innovative practices.

Keywords: SMC, RTE Act 2009, PTA, MTA, MDM

Introduction

"Destiny of India is being shaped in her classrooms" — Kothari Commission (1964-66)

Article 21(A) of the Right of Children to Free and Compulsory Act, 2009 (RTE-2009) enunciates the constitution of school management committee in every school, other than unaided school and reconstituted in every two years period. The Right to Education Act envisions the school management committee as the basis unit of a decentralized model of governance with active involvement of parents in the schools functioning. SMCs are primarily composed of parents, teachers, head teachers and local authorities. Active parental participation has the potential and the capability to improve the efficiency of a school as parents have the highest incentive to demand a better quality of education for their children.

The school management committee plans, monitors and implements SSA schemes as per the RTE Act of 2009. A school management committee shall be constituted in every school, other than unaided school, within its jurisdiction and reconstituted in every two years. The composition of school management committee as prescribed

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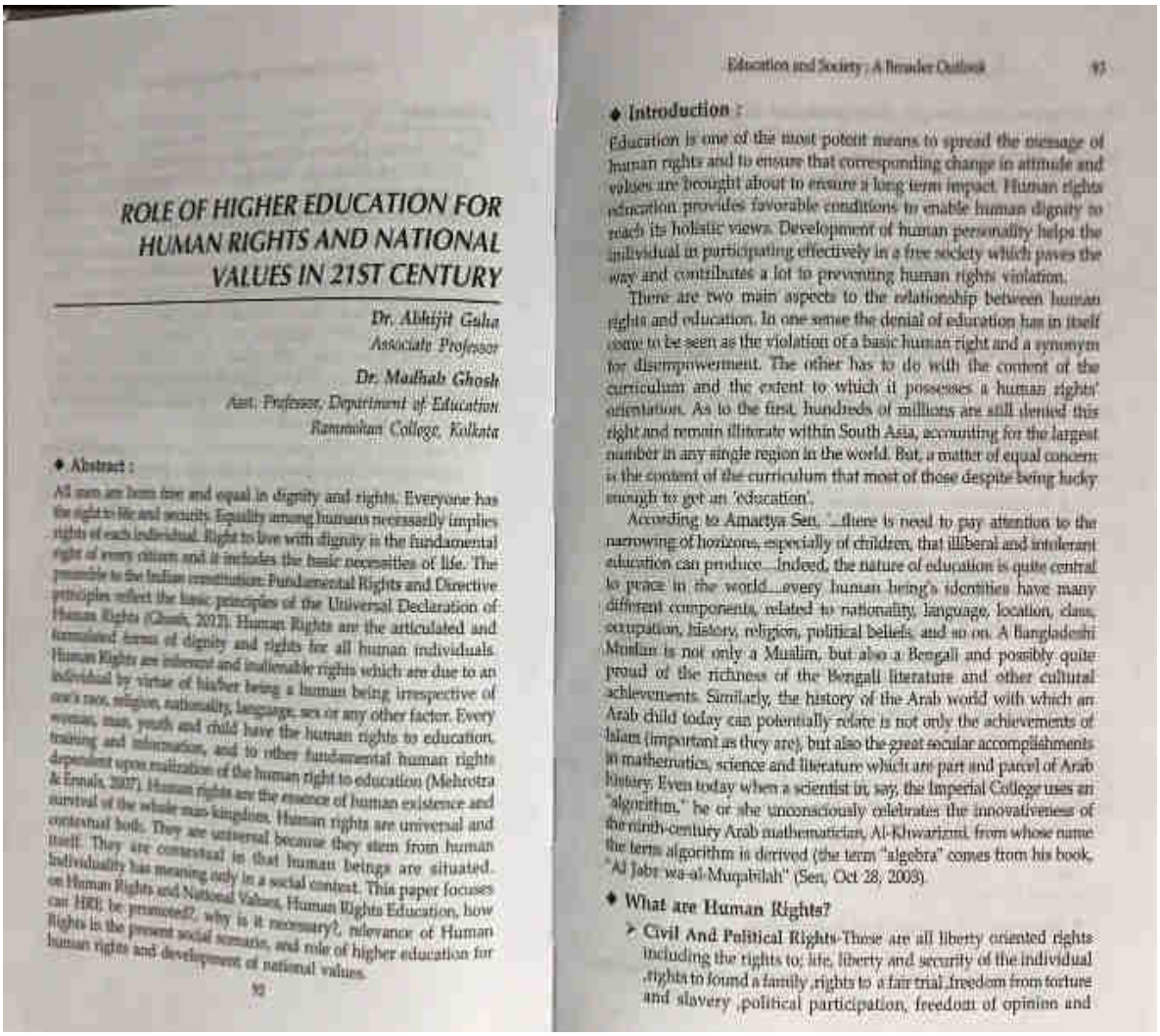

ROLE OF HIGHER EDUCATION FOR HUMAN RIGHTS AND NATIONAL VALUES IN 21ST CENTURY

Dr. Abhijit Guha
Associate Professor
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♦ **Abstract :**

All men are born free and equal in dignity and rights. Everyone has the right to life and security. Equality among humans necessarily implies rights of each individual. Right to live with dignity is the fundamental right of every citizen and it includes the basic necessities of life. The preamble to the Indian constitution: Fundamental Rights and Directive principles reflect the basic principles of the Universal Declaration of Human Rights (Ghosh, 2012). Human Rights are the articulated and formulated forms of dignity and rights for all human individuals. Human Rights are inherent and inalienable rights which are due to an individual by virtue of his/her being a human being irrespective of one's race, religion, nationality, language, sex or any other factor. Every woman, man, youth and child have the human rights to education, training and information, and to other fundamental human rights dependent upon realization of the human right to education (Mehrotra & Ennals, 2007). Human rights are the essence of human existence and survival of the whole man kingdom. Human rights are universal and contextual both. They are universal because they stem from human itself. They are contextual in that human beings are situated. Individuality has meaning only in a social context. This paper focuses on Human Rights and National Values, Human Rights Education, how can HRE be promoted?, why is it necessary?, relevance of Human Rights in the present social scenario, and role of higher education for human rights and development of national values.

♦ **Introduction :**

Education is one of the most potent means to spread the message of human rights and to ensure that corresponding change in attitude and values are brought about to ensure a long term impact. Human rights education provides favorable conditions to enable human dignity to reach its holistic views. Development of human personality helps the individual in participating effectively in a free society which paves the way and contributes a lot to preventing human rights violation.

There are two main aspects to the relationship between human rights and education. In one sense the denial of education has in itself come to be seen as the violation of a basic human right and a synonym for disempowerment. The other has to do with the content of the curriculum and the extent to which it possesses a human rights' orientation. As to the first, hundreds of millions are still denied this right and remain illiterate within South Asia, accounting for the largest number in any single region in the world. But, a matter of equal concern is the content of the curriculum that most of those despite being lucky enough to get an 'education'.

According to Amartya Sen, "...there is need to pay attention to the narrowing of horizons, especially of children, that illiberal and intolerant education can produce....Indeed, the nature of education is quite central to peace in the world....every human being's identities have many different components, related to nationality, language, location, class, occupation, history, religion, political beliefs, and so on. A Bangladeshi Muslim is not only a Muslim, but also a Bengali and possibly quite proud of the richness of the Bengali literature and other cultural achievements. Similarly, the history of the Arab world with which an Arab child today can potentially relate is not only the achievements of Islam (important as they are), but also the great secular accomplishments in mathematics, science and literature which are part and parcel of Arab history. Even today when a scientist in, say, the Imperial College uses an "algorithm," he or she unconsciously celebrates the innovativeness of the ninth-century Arab mathematician, Al-Khwarizmi, from whose name the term algorithm is derived (the term "algebra" comes from his book, "Al Jabr wa-al-Muqabilah" (Sen, Oct 28, 2003).

♦ **What are Human Rights?**

➢ **Civil And Political Rights**-These are all liberty oriented rights including the rights to; life, liberty and security of the individual ,rights to found a family ,rights to a fair trial ,freedom from torture and slavery ,political participation, freedom of opinion and

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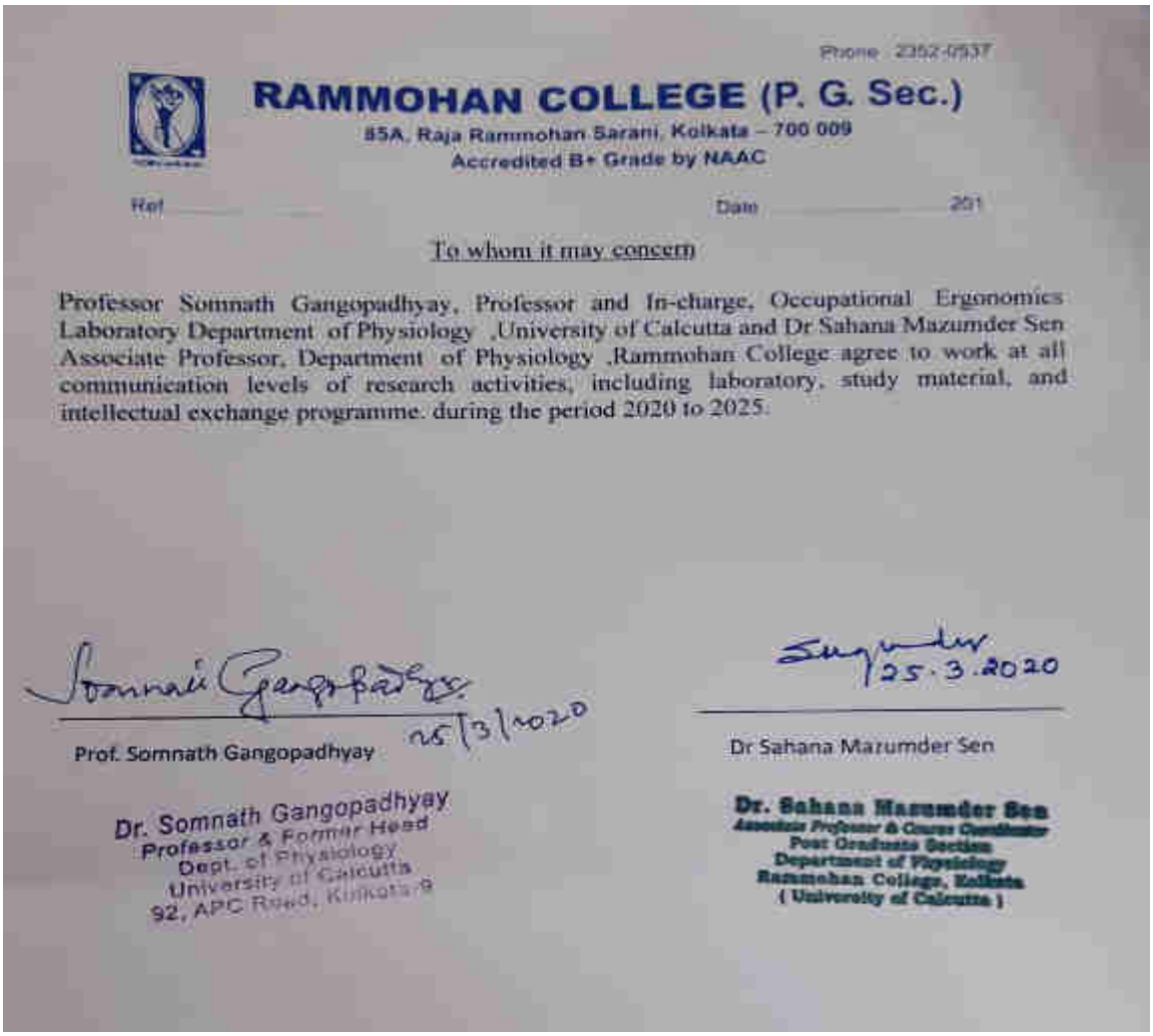

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To whom it may concern

Professor Somnath Gangopadhyay, Professor and In-charge, Occupational Ergonomics Laboratory Department of Physiology ,University of Calcutta and Dr Sahana Mazumder Sen Associate Professor, Department of Physiology ,Rammohan College agree to work at all communication levels of research activities, including laboratory, study material, and intellectual exchange programme. during the period 2020 to 2025.

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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 [1,], Payel Das [1], Tamal Ghoral [1], Tapomoy Chatterjee [2], Somnath Gangopadhyay [2], Sahana Mazumder [3]*

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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 there 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 (9–25 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, Cytotoxicity, MDR, MRSA, Staphylococcus aureus, Tulsi*

How to cite this article

Shaw K., Das P., Ghoral T., Chatterjee T., Gangopadhyay S., Mazumder S. 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. Int. J. Nano Dimens., 2023; 14(2): 178-190.

INTRODUCTION

From the origin of the concept of nanoparticles in 1954 by eminent scientist Paul Ehlrich [1] to the 21st 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 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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Study of Haemoglobin Level and Tumour Growth on Mouse Ascites Tumour in Response to Combination Effect of 2-Methoxyestradiol and Cyclophosphamide

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Original Research Article

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Abstract: S-180 tumour bearing mice were subjected to 2-Methoxyestradiol (2ME) and Cyclophosphamide (CP) monotherapy and 2ME and CP combination therapy on 7th day of ascetic tumour cell transplantation when the tumour growth was at log phase. Then, the effect has been studied on host's system in respect to dead cell – living cell frequency, tumour volume, haemoglobin percentage, and differential count of WBC. In 2ME and CP combination therapy, a steady increase in the dead cell or non-living cell population was noted with the steady decrease in tumour volume. Haematological studies from peripheral blood revealed a drastic depletion in neutrophil count and elevation of lymphocyte population on the 12th day and 16th day of tumour transplantation in combination therapy series. Moreover, the haemoglobin concentration is more or less stable in combination therapy treatment series. So, the 2ME and CP combination therapy provides some protective compensatory mechanisms in the body of the host.

Keywords: Combination therapy, Differential count, Viable cell, Haemoglobin Percentage, 2-Methoxyestradiol, Cyclophosphamide.

INTRODUCTION

Cancer is a complex multistage genetic disease in which a group of normal cells transforms into metastatic malignant cells. At present, surgery, radiation therapy and chemotherapy are common methods of cancer treatment. Among these, chemotherapy has become much popular due to some reasons. Firstly, it prevents cell proliferation by interfering with their ability to replicate DNA and secondly, it can induce apoptosis in cancerous cells [1–4].

But this type of treatment has some toxic side effects on normal cells. Many chemotherapeutic agents may induce cytological abnormalities (i.e. chromosomal aberrations) as well as haematological abnormalities. Use of combination treatment is a novel idea to treat cancer as combination therapies may induce less toxic side-effects at cytological and haematological level. Moreover, good combination may protect the host from some undesirable effects. In the present study, 2-Methoxyestradiol (2ME)–an anti-angiogenic, anti-neoplastic [5-10] agent has been used in combination with an alkylating anti-tumour drug cyclophosphamide (CP). CP has been used in different cancer patient as monotherapy and combination therapy [11-13]. Different types of cytological effects of 2ME and CP have been reported in different animal tumour model systems [9,10] but its effect on host's hemopoietic system during the period of treatment has not been studied yet. So, the present study has been oriented to find out the effect of monotherapy of 2ME, CP and combination therapy of 2ME and CP at haematological level during the course of treatment using Sarcoma180 tumour bearing mouse.

MATERIALS AND METHODS

Experimental animal

Swiss Albino adult mice (*Mus musculus*) with an average body weight of 20g were grouped and housed in normal laboratory condition for acclimatization at 24° - 25°C temperatures. Mice were provided standard mice food and water ad libitum.

Selection of animal tumour model

Sarcoma 180 (S-180), a well-known transplantable tumour, was maintained intraperitoneally in Swiss albino mice (1×10^6 cells/ animal). All experiments were done in accordance to the guideline of Institutional Animal Ethics Committee (IAEC).

S-180 tumour transplantation

Freshly aspirated S-180 tumour cells were diluted with 0.9% normal saline under sterile condition and were injected intraperitoneally to normal mice for induction of ascitic tumour [14-15] for pursuing our experiments.

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Provisional Ph.D. Certificate

No. Ph.D./Physio./SM/012(30)/2018 *December 19, 2018*

This is to certify that on the recommendation of the Board of Examiners, the thesis submitted by **Smt. Srabantika Mallick** *for the award of* **Ph.D. Degree** *of this University and on the performance of his/her Ph.D. Open Viva vide Reg.13 (D.D.) & Reg.14 (D.D.) (as per Regulation 2016, K.U.), he/she has been admitted to the aforesaid degree on* **13.12.2018** *in* **Physiology** *under the faculty of* **Science.**

The Ph.D. Degree has been awarded in accordance with the provisions of UGC (Minimum Standards and Procedure for Awards of M.Phil/Ph.D. Degree) Regulation, 2009.

Title of the Thesis:
"ANTIANGIOGENIC THERAPY FOR TREATMENT OF CANCER: EFFECT OF 2 METHOXYESTRADIOL IN COMBINATION WITH CYCLOPHOSPHAMIDE ON EXPERIMENTAL TUMOUR GROWTH IN MOUSE"

His/Her Degree will be conferred by the Hon'ble Chancellor at the next Convocation of this University.

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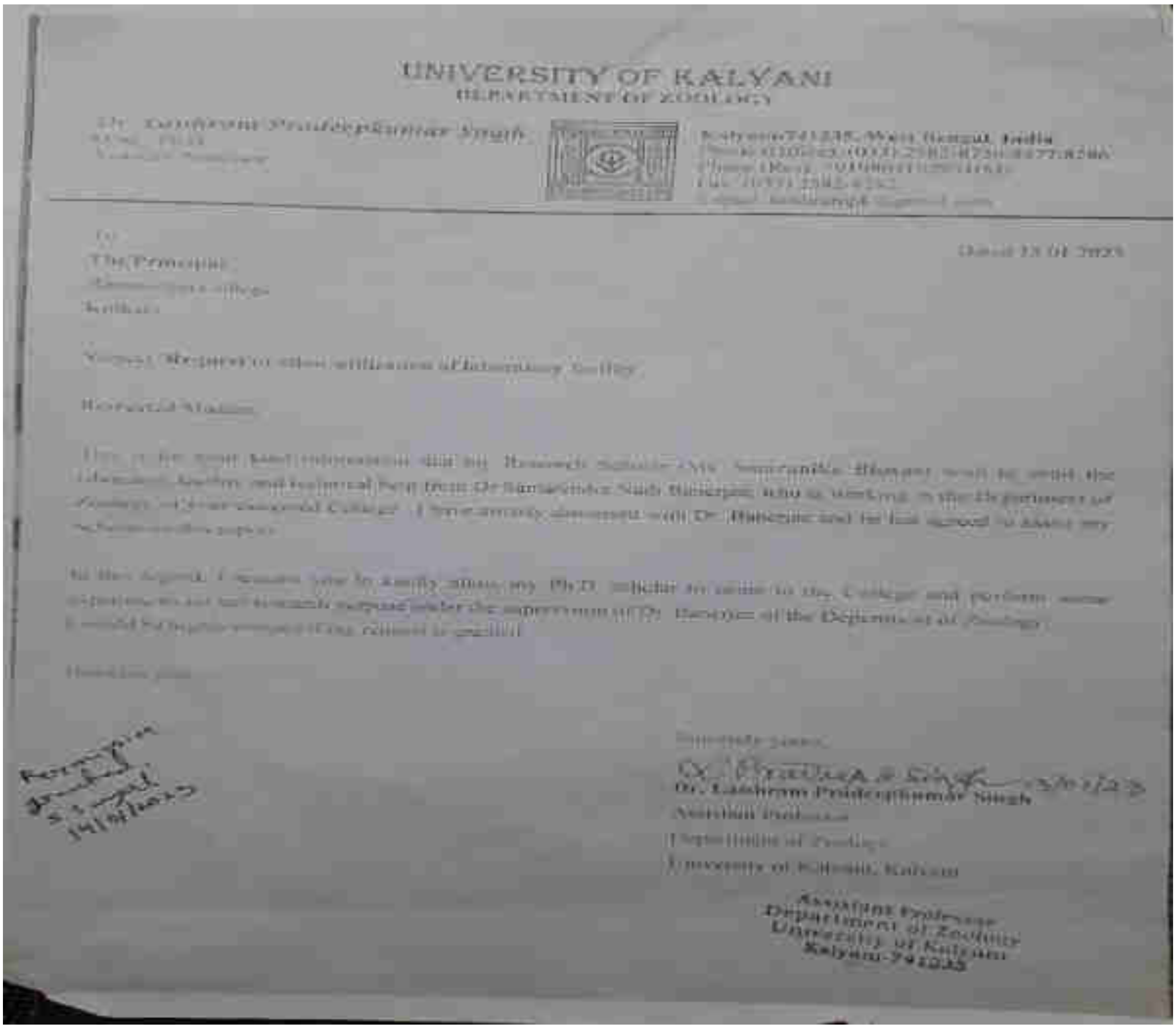

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To Whom It May Concern

This is to declare that Dr. Samik Acharjee, Assistant Professor, Department of Zoology, Rammohan College, Kolkata, West Bengal, India is doing collaborative research with my research group since 2022 on Biodiversity conservation and Proteomics studies in different freshwater fishes. The facilities of both institutions are utilized for this purpose.

The collaboration helps us to exchange our scientific idea/s. Till date, the association has produced 1 research paper in reputed journal.

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Research Article

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

Swati Sinha[1], Prasenjit Sinha[2], Samik Acharjee[1], Dipak Das[3*]

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Keywords: Ethno-medicine; Khudleigulli; 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 'Khudleigulli' 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. [1-3] Out of 450 tribes found in the country, about 225 of them hail from the region of Northeast India.[4] This magnificent region has the richest reservoir of plant diversity and it supports around 50% of India's biodiversity.[5] 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 themself after they lost control over Manipur to the rival clan of Meiteis. [6] 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, MaaDurga 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 'Khudleigulli' 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 decease 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 'khudleigulli' 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.

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The American Journal of Science and Medical Research Ethnomedicinal Knowledge of Bishnupriya Manipuri Community of Unakoti District of Tripura, North East India

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To Whom It May Concern

This is to declare that Dr. Samiran Mondal, Assistant Professor (Stage-II), Dept. of Chemistry, Rammohan College, Kolkata, West Bengal, India, and I, Dr. Naznin Ara Begum, Associate Professor, Dept. of Chemistry, Siksha-Bhavana, Visva-Bharati (A central University) are doing collaborative research on small-molecule-based drug development. The facilities of both institutions are utilized for this purpose. This collaboration helps us to exchange our scientific knowledge and expertise. This is highly important as it helps us understand small molecules' molecular functioning as drugs for cancer and other fatal diseases. Thus our collaborative endeavour will be noteworthy in the future in the field of Cancer Biology/Chemical Biology.

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RESEARCH ARTICLE

Curry Leaf and its Antioxidant Potential: A Systematic Study to Enhance its Activity in Aqueous Medium

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ARTICLE HISTORY

Received: April 10, 2018
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Abstract: *Background*: We have done a systematic study on the antioxidant activity of the methanol and petroleum ether (60-80oC) extracts (MEC and PEC respectively) of Curry leaves (*Murraya koenigii* Spreng. Family: Rutaceae) using various in-vitro chemical methods.

Method: Both of these two extracts were found to be highly efficient in the formation of Ag and Au nanoparticles. So we have explored their ability to form the nanoparticles to study their antioxidant activity. In all the assay systems, MEC showed higher activity over PEC in aqueous medium. This may be due the higher solubility of MEC and its active components, like polyphenols and flavonoids in the aqueous medium. PEC contains lesser amount of these water soluble active components but PEC was rich in carbazole types of alkaloids which are hydrophobic in nature. So, to enhance the antioxidant activity of PEC and its carbazole constituent, like 2-hydroxy carbazole and mahanimbine, we have encapsulated these in the biopolymeric matrix of the mucilage isolated from an edible vegetable, Abelmoschus esculentus L. (commonly known as Lady's finger, family: Malvaceae).

Result: It was interesting to note that, PEC and its carbazole component showed better antioxidant activity (ferrous ion chelation and ferric reducing antioxidant activity) in aqueous medium after this encapsulation process.

Conclusion: The protocols used in the present study were very simple and can be implemented in any lab set-up. In future, this work can be extended to evaluate antioxidant potentials of other plant based materials.

Keywords: *Abelmoschus esculentus* L., antioxidant activity, curry leaves, encapsulation, lady's finger, *Murraya koenigii* Spreng.

1. INTRODUCTION

Edible leaves of various medicinal plants have a long history of use in the traditional medicine of various countries, including India [1]. Locally available and edible plant-based sources, like fruits and leafy vegetables are thus note-worthy as these are low-cost, effective and have minimal side effects [2-4].

Curry leaves are widely used in Indian cuisine as spice and condiment. Moreover, there is a long history of the use of these leaves in the Indian traditional medicine [5]. These leaves show various pharmacological activities, such as, anti-tumorous, anti-viral, anti-inflammatory, anti-convulsant, diuretic and anticoxidant activities [5]. Curry leaves are collected from the Indian medicinal plant and Indian curry leaf plant (scientific name: *Murraya koenigii* Spreng., family: Rutaceae). It is a small tropical tree, widely cultivated in India and is famous for its aromatic leaves (commonly known as Curry leaves).

Curry leaves have been identified as rich sources of polyphenolics (e.g. myrecetin-3-galactoside, quercetin-3-cumaroside, quercetin-3-glucoside, kaempferol-3-O-caffeoylate, 5-caffeoyl-quinic acid, tannic acid, gallic acid, caffeic acid, cumaric acid, chlorogenic acid, ferric acid and vanilic acid *etc.*), five amino acids, carbazole alkaloids, flavonoids and terpenoids [5]. Leaves of these plants are the richest sources of carbazole alkaloids (e.g. mahanimbine, koenigine *etc.*) [5].

Aqueous extract of Curry leaves and the carbazole alkaloids isolated from these leaves show hepatoprotective activity, hypoglycemic activity along with antioxidant activity

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THE JOURNAL OF PHYSICAL CHEMISTRY B

Unfolding the Role of a Flavone-Based Fluorescent Antioxidant towards the Misfolding of Amyloid Proteins: An Endeavour to Probe Amyloid Aggregation

Abhijit Karmakar, Tamanna Mallick, Chandrani Fouzder, Alpana Mukhuty, Samiran Mondal, Anup Pramanik, Rakesh Kundu, Debabrata Mandal, and Naznin Ara Begum*

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ABSTRACT: 4′-*N*,*N*-Dimethylamino-3-hydroxyflavone (DMAHF), a synthetic fluorescent flavone analogue with potent antioxidant activity, was explored as a molecular rotor-like fluoroprobe for amyloid aggregations, a causative factor in Alzheimer's disease, Parkinson's disease, type-2 diabetes, etc. During its interactions with (human) insulin amyloid aggregation (IAA), its microenvironment was changed. This instigated a drastic change in its excited-state intramolecular proton transfer-based dual emission behavior, which was tracked to monitor its amyloid probing activity. Thus, the amyloid probing potential of DMAHF was originated from its interactions with IAA, which were studied by various spectroscopic techniques and molecular docking and quantum mechanical calculations. Morphological changes of the IAA in the presence of DMAHF were studied by scanning electron microscopy. DMAHF also probed efficiently the islet amyloid polypeptide deposition in the pancreatic β-cells of diabetic mice. DMAHF showed significant sensitivity and specificity towards amyloid aggregation without having any complexity in its photophysical behavior. This indicates its potential as an ideal bio-friendly and cost-effective fluoroprobe for amyloid proteins.

INTRODUCTION

Amyloid aggregation has long been suspected as a major key factor in various incurable neuro-degenerative and metabolic diseases, for example, Alzheimer's disease, Parkinson's disease, Type-2 diabetes, etc. Amyloids represent a broad class of proteins having minimal primary sequence similarity that can self-assemble into β-sheet-rich un-branched fibrillar structures, which are termed as amyloid plaques/fibrils.[1] Such misfolded amyloidic proteins are the pathological traits for these fatal diseases, like amyloid-β (Aβ) peptide and tau protein are related to Alzheimer's disease, whereas islet amyloid polypeptide (IAPP or amylin) and α-synuclein (α-s) are associated with type-2 diabetes and Parkinson's disease, respectively.[2,3]

Nowadays, researchers are struggling to shed light on the etiology of the amyloid aggregation related diseases. However, until now, we do not have drugs or therapeutic agents that can delay and/or prevent the progression of Alzheimer's or other amyloidosis-induced diseases.[4−6] The causes behind this lacuna may be the complexity in the amyloid structure and difficulty in understanding its mechanism of formation. Increased knowledge in this direction can immensely help to us develop the diagnostic and therapeutic tools for combating these incurable diseases. Scientists have taken various strategies to achieve such knowledge. One such strategy is based on the inhibition or reversal of the amyloid aggregation. But to achieve this goal, early detection/diagnosis of amyloid aggregation is necessary. It is noteworthy that the studies on the interactions of various small molecules with amyloid fibrils are extremely relevant and necessary in developing the efficient amyloid diagnostic probes as well therapeutic agents. In this context several small molecules having characteristic chromophoric/fluorophoric behavior, for example, dyes based on azobenzene, benzothiazole, and benzimidazole moieties, are put into trial for detecting amyloid oligomers, for example, Aβ and corresponding aggregates.[7−14] Over half a century, the most widely used amyloid fluorescence probe or fluoroprobe is Thioflavin T (ThT), which is a small molecule-based fluorescent molecular rotor having a benzothiazole framework (Figure 1).

The fluorescence responses of ThT in the presence of amyloid aggregations are monitored to probe the amyloid, and

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THE JOURNAL OF PHYSICAL CHEMISTRY B

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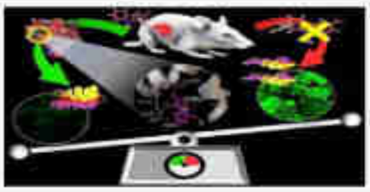
Exploring the Propensities of Fluorescent Carbazole Analogs toward the Inhibition of Amyloid Aggregation in Type 2 Diabetes: An Experimental and Theoretical Endeavor

Tamanna Mallick, Abhijit Karmakar, Alpana Mukhuty, Chandrani Fouzder, Jishu Mandal, Samiran Mondal, Anup Pramanik, Rakesh Kundu, and Naznin Ara Begum*

Cite This: https://doi.org/10.1021/acs.jpcb.1c06161 Read Online

ABSTRACT: Amyloid aggregation is a pathological trait observed in many incurable and fatal neurodegenerative and metabolic diseases associated with misfolding and self-assembly of various proteins. Noncovalent interactions between these structural motifs and small molecules can, however, prevent this aggregation. Herein, five structurally different synthetic (Cz1−Cz4) and naturally occurring (Cz5, mahanimbine) fluorescent carbazole analogs are explored for their comparative amyloid aggregation inhibitory activities. Cz3 inhibited the amyloid deposition on the pancreatic β-cells of diabetic mice. Moreover, Cz3 and Cz5 also showed efficacy as the fluorescent cell (MIN6) imaging agents. Further structural modifications of these carbazoles may lead to development of low-cost and non-toxic therapeutic agents for Type 2 diabetes and other amyloidosis-related diseases.



INTRODUCTION

Amyloid aggregation is a pathological trait observed in more than 30 serious neurodegenerative and metabolic diseases in human beings, e.g., Alzheimer's disease (AD), Parkinson's disease, Type 2 diabetes, etc. Misfolding and self-assembly of a wide range of proteins with little structural similarity in their primary sequence give rise to highly ordered (β-sheet rich) toxic fibrillar assemblies, known as amyloid aggregation. There is a quest for the novel therapeutic approaches, which can specifically target amyloid aggregation and delay or prevent its propagation.

Over the years, large numbers of research are being carried out to shed light on the etiology of Type 2 diabetes. Islet amyloid polypeptide (IAPP) or amylin is co-secreted with insulin from the pancreatic β-cells, and along with the insulin, it plays an important role in controlling blood glucose levels. However, apart from the body's insulin resistance, the misfolding of IAPP (triggered by factors like cellular oxidative stress, mitochondrial dysfunction, chromatin condensation, etc.) is considered as one of the key factors of Type 2 diabetes. The extracellular deposition of amyloid fibrils of IAPP on pancreatic β-cells causes their dysfunction. On the other hand, hyperinsulinemia is associated with Type 2 diabetes and other than IAPP, amyloids in the islet cells can also be formed by the excess secretion of insulin, which is amyloidogenic in nature. Thus, the identification of the external agents that can delay and prohibit the islet amyloid aggregation can be a potential therapeutic strategy for Type 2 diabetes.

Nowadays, small molecules of natural product origin (secondary metabolites) with remarkable structural diversity, intense biological activities, and reduced toxicity are showing efficacy in preventing the aggregation of various amyloidogenic proteins, viz., Aβ, IAPP, TTR, etc. In this connection, it is noteworthy that carbazoles have attracted great attention as Aβ amyloid aggregation inhibitors. However, extensive studies on their activity toward the inhibition/prevention of islet amyloid aggregation are still rare; despite this, several carbazole analogs, especially the carbazole alkaloids like mahanine, koenidine, and mahanimbine, isolated from the leaves of the plant *Murraya koenigii* Spreng. (commonly known as Indian Curry Leaf plant, Fam. Rutaceae), showed efficacy as antidiabetic agents in in vitro and in mice model. These naturally occurring carbazoles also showed efficiency toward the improvement of insulin resistance, i.e., activation of the insulin-stimulated glucose uptake pathway to control glucose homeostasis.

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Exploring the efficacy of naturally occurring biflavone based antioxidants towards the inhibition of the SARS-CoV-2 spike glycoprotein mediated membrane fusion

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SARS-CoV-2
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ABSTRACT

Molecular docking studies were done to show the inhibitory effect of two naturally occurring biflavone based anti-HIV agents, hinokiflavone and robustaflavone against the SARS-CoV-2 spike (S) protein mediated attack on the human ACE2 receptors via membrane fusion mechanism. Nelfinavir, a FDA approved drug, well-known as a serine protease inhibitor for MERS-CoV infection, was used as the reference compound. Both the biflavones, showed potential as inhibitors for SARS-CoV-2 S protein-mediated viral entry. The binding affinities of these naturally occurring biflavones for RBD-S2 subunit protein of SARS-CoV-2 were explored for the first time. Such binding affinities play a critical role in the virus-cell membrane fusion process. These biflavones are able to interact more strongly with the residues of heptad repeat 1 and 2 (HR1 and HR2) regions of S2 protein of SARS-CoV-2 compared to nelfinavir, and thus, these biflavones can effectively block the formation of six-helix bundle core fusion structure (6-HB) leading to the inhibition of virus-target cell-membrane fusion.

1. Introduction

By the end of 2019, scientists came to know about a novel Corona virus, SARS-CoV-2 (Severe Acute Respiratory Syndrome-Corona virus-2) causing COVID-19 (Corona Virus Disease-19). This initially affected people of Wuhan city of China. Later, this virus became the root cause of deaths and untold sufferings of millions of people around the globe due to the unavailability of specific medicine/vaccine or therapeutic strategies.

Corona viruses (CoVs) are a family of RNA viruses, responsible for mild as well as a range of severe respiratory disease outbreaks and epidemics in human in last two decades e.g. Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) (World Health Organization, 2019; Marcus, 2008; Cristina et al., 2018; Lu et al., 2015; WHO, 2004; WHO, 2019). Like, SARS-CoV and MERS-CoV, the very deadly SARS-CoV-2 belongs to β genus of CoVs containing positive-strand RNA (Wu et al., 2020). The size of the genome of SARS-CoV-2 falls in the range of ~30 kb involving 6 to 11 open ring frames (ORFs) (Song et al., 2019). Approximately, 67% of the entire genome is mainly located in the first ORF (ORF1a/ORF1b) which processes two polyproteins, pp1a and pp1ab and also encodes 16–17 non-structural proteins (NSPs) e.g. 3-chymotrypsin-like protease (3CL[pro]), papain-like protease (PL[pro]), helicase and RNA-dependent RNA polymerase (RdRp) (Dowling and Gao, 2020). The remaining ORFs encode accessory and structural proteins (Cui et al., 2019). Though SARS-CoV-2 genome has large size (characteristic of RNA virus), it genome encodes for fewer structural proteins; among which four major structural proteins are worth of mentioning: the structural spike (S) glycoprotein, small envelop (E) protein, nucleocapsid (N) protein and membrane (M) protein. These are essential for reproduction of a structurally complete virus particle (Dowling and Gao, 2020).

The spike (S) glycoprotein of CoVs, is responsible for the crown-like shape of the virus (Scheme 1 (A)) and belong to class I viral fusion proteins, which facilitates the viral entry process into host cells through the binding with the receptors of the host cells, host tropism and pathogenesis (Lu et al., 2015; Millet and Whittaker, 2014). The binding of viral S protein through its receptor-binding domain (RBD) to the host cells instigates various vital steps necessary for viral infections e.g. fusion of viral and host membranes (Li, 2016; Zhu et al., 2019). The S protein attacks the angiotensin-converting enzyme2 (ACE2) receptors of the host via its RBD and triggers a cascade of inflammation in the lower respiratory tract (Kuba et al., 2005; Kuba et al., 2005). Trimeric

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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 [NCIH1299] 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.

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 [1–3]. However, the disruption of the PPI network is the root cause of many human diseases, most commonly multiple forms of cancer [4]. Therefore, the identification and modulation, i.e., either inhibition or stabilization of the aberrant PPIs and associated transcription factors that regulate the signaling cascades [5–7], are essential for developing efficient anti-cancer therapeutic agents with lesser side effects.

The murine double minute 2 (MDM2) gene encrypts 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 suppresser 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 modulations 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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TO WHOM IT MAY CONCERN

This is to declare that I, Dr. Arpita Chandra working as Senior Scientific Officer in the department of In Vitro Carcinogenesis and Cellular Chemotherapy of Chittaranjan National Cancer Institute, Kolkata-700026, West Bengal and Dr. Samiran Mondal, Assistant Professor (Stage-II), of Department of Chemistry, Rammohan College, Kolkata-700009, West Bengal, are doing collaborative research on small-molecule-based drug development in the project entitled "Modulating protein-protein interactions by small molecules: A quest for novel cancer theranostics". The facilities of both the institute are utilized for the purpose. This collaboration helps us to exchange our scientific knowledge and expertise. This is highly important as it helps us to understand small molecules' molecular functioning as drugs various fatal diseases including cancer. Thus, our collaborative endeavour will be noteworthy in the future in the field of Cancer Biology/Chemical Biology.

Arpita Chandra

(DR. ARPITA CHANDRA)

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TO WHOM IT MAY CONCERN

This is to state that my lab is in active collaboration with **Dr. Sauli Ranjan Dey** and his group at Rammohan College, Kolkata and we are currently working on the following aspects:

1. Digital Key and database development for *Neuroptera*.
2. Mango Germplasm conservation using metagenomics approaches.
3. Computational Analysis of viral genomes having direct impact on crop yield.

Till date, the collaboration has yielded satisfactory results and in the near future we look forward to more fruitful outcomes using the institutional facilities available.

Date: 15th July 2023

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IN SEARCH OF CONSERVED RNA MOTIFS OF DENGUE GENOME OF ALL SEROTYPE: A BIOINFORMATIC APPROACH

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Abstract: RNA viruses use small genomes that contain information in both their core sequences and higher-order structures to hijack cellular metabolism and encourage their own replication. By identifying particular sequences that are conserved throughout a collection of related viruses, the majority of functional structures that have been discovered to date. We effectively find numerous hitherto un annotated motifs crucial for viral fitness by flipping the traditional technique, which defines RNA structures first before checking for conservation of these motifs. In addition to identifying possible motifs helpful in the development of antivirals medicines and vaccines, this work demonstrates the ability of RNA structure as a tool for discovering functional elements in viruses. It also paves the way for additional functional element identification in big viral messenger as well as non-coding RNAs. A virus known as dengue virus 1 (DEN-1) was isolated by Walter Schlesinger and Albert B. Sabin. The four closely related viruses that cause dengue diseases are DEN-1, DEN-2, DEN-3, and DEN-4. They are known as serotypes because the antibodies in human blood serum react differently with each of these four viruses. The four dengue viruses are related and share roughly 65% of their genomes despite the fact that there is a great deal of genetic heterogeneity within a single serotype. Despite these variations, all dengue serotype infections result in the same illness and a set of same clinical symptoms. In this research, we looked for a specific or conservative RNA pattern that could be used to neutralize the DENGUE virus, by targeting RNA in future.

Key Words: Dengue, RNA, Serotype, RNA-motif, Dengue-protein

I. INTRODUCTION

A wide range of living things, including bacteria, plants, and animals, can become infected by viruses, which are little agents. The dengue virus is an ultra microscopic entity that can only replicate inside a host organism, like other viruses. The family Flaviviridae's genus Flavivirus contains the dengue viruses. This genus contains a variety of additional viruses that cause human infections and are spread by ticks and mosquitoes in addition to the dengue virus. Yellow fever, West Nile, Japanese encephalitis, and tick-borne encephalitis viruses are all classified as flaviviruses. REN KIMURA and SUSUMU HOTTA discovered the dengue virus in 1943.

These two researchers were looking at blood samples taken from patients in Nagasaki, Japan, during the 1943 dengue epidemic. A year later, the dengue virus was separately isolated by Albert B. Sabin and Walter Schlesinger. The virus that is now known as dengue virus 1 (DEN-1) had been isolated by both teams of researchers. The DEN-1, DEN-2, DEN-3, and DEN-4 viruses are four closely related viruses that cause dengue illnesses. Because each of these four viruses interacts differently with the antibodies in human blood serum, they are referred to as serotypes. Even while there is considerable genetic variation within a single serotype, the four dengue viruses are similar and share about 65% of their genomes. All dengue serotype infections cause the same sickness and similar set of clinical signs, despite these differences.

All four serotypes were discovered in Southeast Asia in the 1970s and both DEN-1 and DEN-2 were discovered in Central America and Africa. The four serotypes were, however, widely dispersed geographically by 2004. Currently, all four dengue serotypes coexist in tropical and subtropical areas of the world (Fig. 1). The four dengue serotypes have similar geographic and ecological niche. Scientists hypothesize that the dengue viruses evolved in nonhuman primates and jumped from these primates to humans in Africa or Southeast Asia between 500 and 1,000 years ago.

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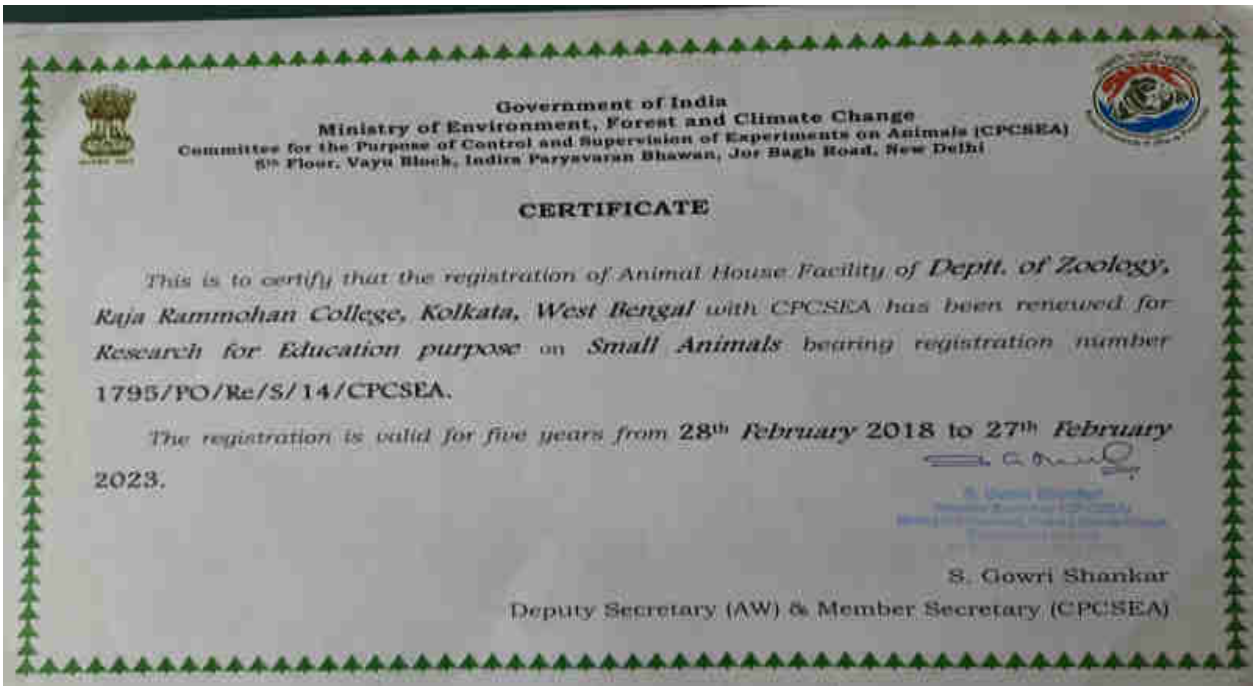
Animal House as Research facility

The college has developed an Animal House which has been registered to CCSEA for three consecutive tenures, where the research scholars of our college are actively working on animal research. Not only that but also both UG and PG students of our and several other colleges of Kolkata and its surroundings regularly visit the animal house under proper guidance, to gather knowledge regarding various aspects of animal ethics and care, as there is no other college in the city of Kolkata where properly maintained animal house has been existing.



Government of India
Ministry of Environment, Forest and Climate Change
Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA)
5th Floor, Vayu Block, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi

CERTIFICATE

This is to certify that the registration of Animal House Facility of *Deptt. of Zoology, Raja Rammohan College, Kolkata, West Bengal* with CPCSEA has been renewed for *Research for Education purpose* on *Small Animals* bearing registration number 1795/PO/Re/S/14/CPCSEA.

The registration is valid for five years from 28th *February* 2018 to 27th *February* 2023.

S. Gowri Shankar
Deputy Secretary (AW) & Member Secretary (CPCSEA)

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Department of Animal Husbandry and Dairying
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To,

Dr Shantanu Das, Chairman, IAEC
Deptt of Zoology, Raja Rammohan College
102/1 Raja Rammohan Sarani, Kolkata - 700009, West Bengal
Email: dasshantanu14@gmail.com
Mobile: 9836693635

Subject: Renewal of Registration and Reconstitution of Institutional Animals Ethics Committee (IAEC)-regarding.

Sir,

The registration of Animal House Facility of your establishment with CCSEA has been **renewed for a period of five years from the date of issue of this letter.**

2. The registration number of Animal House Facility of your establishment is **1795/PO/Re/S/14/CCSEA for Research for Education purpose on small animals.** Henceforth, this registration number may kindly be quoted in all your future correspondence.

3. The CCSEA has accepted the following members recommended by the establishment.

Name of the IAEC Members	Designation in IAEC
1) Dr Shantanu Das	Biological Scientist, Chairperson
2) Dr Kaustav Dutta Chowdhury	Scientist Incharge of Animal House Facility, Member Secretary
3) Dr Sahana Mazumder Sen	Scientist from different biological discipline
4) Dr Sonali Ghosh	Scientist from different biological discipline
5) Dr.Sourav Mathur	Veterinarian

4. CCSEA hereby nominates the following members to the Institutional Animals Ethics Committee (IAEC) of your establishment:

Details of Nominee(s)	Nominated as
1) Dr. Mihir Kumar Biswas 48/A, Dhirendra Nath Chatterjee road, P.O Alambazar, P.S. Baranagar, District North 24 Parganas - 700035, West Bengal Contact No :9830194433 Email :drmihirkumarbiswas16@gmail.com	Main Nominee
2) Prof. Dr. Nripendra Nath Bala 78, Jessore Road South, Hridaypur, Kolkata - 700127, West Bengal Contact No :9433841204 Email :drnripendranathbala63@gmail.com	Link Nominee

Contd...

S Sanyal
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Kolkata-9

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RAMMOHAN COLLEGE

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3) Shri. Swarupananda Mukherjee 63 A/2, Gitanjali Apartment, Metro park, Raja Ram Mohan Roy Road, Kolkata - 700082, West Bengal Contact No :9051164251 Email :swarup_mukherjee@rediffmail.com	Scientist from outside the Institute
4) Dr. Suprodip Mondal Prof. D.B. Mukherjee New Boy's Hostel, West Bengal University of Animal & Fishery Sciences Kolkata - 700037, West Bengal Contact No :7501171158 Email :suprovety@gmail.com	Socially Aware Nominee

(Please note that any change in IAEC members can be made only with prior approval of CCSEA.)

5. The IAEC is valid for a period of five years and is coterminous with renewed period of registration. IAEC is required to be reconstituted at the time of renewal of registration as per CCSEA guidelines.

6. You are requested to convene the meeting of the re-constituted IAEC within a period of 30 days and upload the same on the website of the CCSEA.

7. It is stated that only above approved IAEC members shall sign, with date, on the attendance sheet of the IAEC meetings, and decisions will be taken only in meetings where quorum is complete. The quorum for holding IAEC meeting is six (6), and Main Nominee, Scientist from Outside the Institute and Socially Aware Nominee must be present in such meetings. Link Nominee can attend in case main nominee conveys his unavailability in writing to the chairman IAEC. However, the Link Nominee must be invited once a year to update him/ her about the activities of the IAEC. Any decision taken in the meetings of IAEC without quorum shall be considered invalid.

8. It is also to inform you that before commencing any research on large animals you are required to send research protocols with due recommendation of IAEC to CCSEA for further approval (procedure for submission of Research Protocols is available on the website of CCSEA).

Yours incerely,

(Dr. S. K. Dutta)
Member Secretary (CCSEA)

Copy for necessary action to: Nominees of CCSEA.

The Main Nominee is requested to ensure that the IAEC meetings are held regularly as stipulated in the SOP of CCSEA and submit the Annual Inspection Reports of the Animal House Facility regularly on the Website of CCSEA.

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Minutes of (1st No. of Meeting) Rammohan College, IAEC Meeting

(Minutes of IAEC meeting should be uploaded on the website of CPCSEA within 15 days after conducting the meeting)

Name and address of establishment: Rammohan College, 102/1, Raja Rammohan Sarani, Kolkata-700009

Registration number of establishment: 1795/PO/Re/S/14/CPCSEA

Date and Time of the IAEC Meeting: 28th September, 2023; 11:00AM

Venue: Department of Zoology, Rammohan College

Minutes of the Meeting:

Item No. 1: Formation of Institutional Animal Ethics Committee, Rammohan College, Kolkata

Chairman of the committee, Dr. Shantanu Das welcomed and introduced all the new committee members of the IAEC present at the Department of Zoology, Rammohan College for the discussion on Institutional Animal Ethics Committee, Rammohan College, Kolkata

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Item No. 2: Animal House visit

Animal House visit of the Department of Zoology was done with all the members. Members expressed their satisfaction after visiting the same and following suggestions were given by them:

i) During transport of animals, vehicle with A/C facility should be used.
ii) Purchased animals must be kept in quarantine for few days (10-14days) before use.
iii) An attendant should be provided by the authority for A/C maintenance, log book maintenance, maintenance of feeding schedule, checking of animal health status etc in animal house.
iv) Post-mortem may be done for natural death by the veterinarian.
v) An photocell occupancy sensor may be installed for the control of 12 hour light and 12 hour dark cycle of animals.
vi) Documents are requested to submit regarding Biological waste management.
vii) A new A/C machine (of 2 ton) may be installed instead of the older one in the animal house.
viii) Installation of an A/C has been suggested for quarantine room.

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Item No. 3: Decision/ Recommendation of IAEC on New Research Protocols:

There was no proposal for discussion in this meeting.

S. No.	Title of the Protocol	Protocol No.	Species proposed	Total Housing capacity for Species proposed	Number of animals proposed	Number of animals recommended by IAEC	Approved/ Rejected/ Deferred/ Any other remark/ observation of IAEC

Item No. 4: Miscellaneous

No matter was there to discuss.

All members are satisfied with the discussion. Meeting ended with thanks to and by the Chair.

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Attendance Sheet of the IAEC Members present in the meeting:

S. No.	Name	Designation in IAEC	Signature with Date (The Minutes should be signed with ink. Scanned signature and date shall not be accepted.)
1	Dr. Milan Kumar Biswas	Main Nominee	[illegible] 28/09/23
2	Prof(Dr) Nripendra Nath Bala	Link nominee	[illegible] 28.09.23
3	Dr. Swarupananda Mukherjee	Scientist Outside Institute	[illegible] 28/9/23.
4	Dr. Sourav Mathur	Veterinarian	[illegible] 28/9/23
5	Dr. Supradip Mondal	Socially Aware Nominee	Supradip Mondal 28/9/23
6	Dr. Sahana Mazumdar	Internal Member Scientist from different biological discipline	S Mazumdar 28/9/23
7	Dr. Sonali Ghosh	Internal Member Scientist from different biological discipline	S Ghosh 28/09/2023
8	Dr. Shantanu Das	Chairperson, Biological Scientist	[illegible] 28/09/2023
9	Dr. Kaustav Dutta Chowdhury	Member Secretary, ARF Scientist-in-Charge	Kaustav Dutta Chowdhury 28/09/2023

All the decisions will be taken only in meetings where quorum is complete. The quorum for holding IAEC meeting is six (6), and Main Nominee, Scientist from outside the Institute and Socially Aware Nominee must be present in meetings. Link Nominee can attend in case Main Nominee conveys his unavailability in writing to the chairman IAEC. However, the Link Nominee should be invited once a year to update him/ her about the activities of the IAEC. Any decision taken in the meetings of IAEC without quorum shall be considered invalid.

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Outcome:

Animal house visit by Vivekananda College, Thakurpukur, Kolkata

The Post Graduate students of Zoology from Vivekananda College, Thakurpukur, Kolkata, visited the Animal house and laboratory of Department of Zoology, Rammohan College on 10th and 11th August, 2022 as a part of their curriculum.

10th August, 2022: Faculty members of Zoology Department, Rammohan College delivered lectures on animal ethics and animal handling was demonstrated.

List of research scholars and faculty members are as follows:

- Ms. Pujita Ghosh, Research Scholar
- Ms. Soumi Banerjee, Research Scholar
- Dr. Samarendra Nath Banerjee, Associate Professor
- Dr. Kaustav Dutta Chowdhury, Assistant Professor

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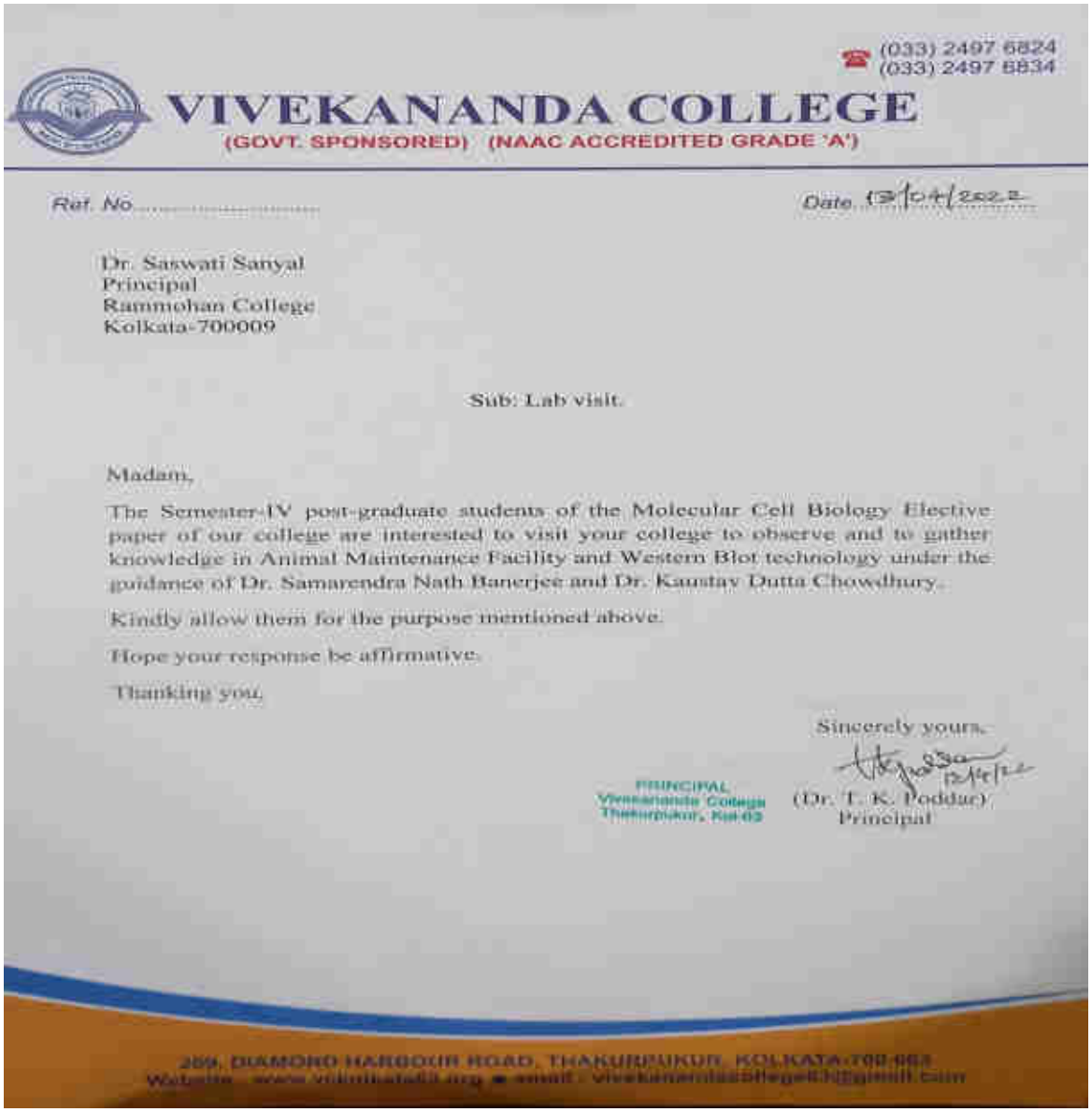

(033) 2497 6824
(033) 2497 6834

VIVEKANANDA COLLEGE
(GOVT. SPONSORED) (NAAC ACCREDITED GRADE 'A')

Ref. No..... Date 13/04/2022

Dr. Saswati Sanyal
Principal
Rammohan College
Kolkata-700009

Sub: Lab visit.

Madam,

The Semester-IV post-graduate students of the Molecular Cell Biology Elective paper of our college are interested to visit your college to observe and to gather knowledge in Animal Maintenance Facility and Western Blot technology under the guidance of Dr. Samarendra Nath Banerjee and Dr. Kaustav Dutta Chowdhury.

Kindly allow them for the purpose mentioned above.

Hope your response be affirmative.

Thanking you,

Sincerely yours,

PRINCIPAL
Vivekananda College
Thakurpukur, Kol-63

(Dr. T. K. Poddar)
Principal

259, DIAMOND HARBOUR ROAD, THAKURPUKUR, KOLKATA-700 063

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Roll No.	Registration No.	Signature of the candidate
544/200/201224	023-1211-0049-17	Anushka Dutta
544/200/201225	014-1211-0365-17	Anushna Chandra
544/200/201226	195-1221-2210-16	Anushri Das
544/200/201227	235-1111-0793 17	Avimanyu Mukherjee
544/200/201228	534-1214-1527-17	Debaomita Mansa
544/200/201229	023-1211-0034-17	Debyan chatterjee
544/200/201230	563-1224-0218-16	Debosmita Ray
544/200/201231	023-1211-0353-17	Riya Ghosh
544/200/201232	012-1211-1270-17	Meghashree Gosha
544/200/201234	235-1111-0801-17	Nishank Pandey
544/200/201235	014-1211-0348-17	Payel Chakraa
544/200/201236	023-1211-0046-17	Pranamita Giri
544/200/201237	544-1211-0469-17	Prativa Patra
544/200/201238	014-1211-0421-17	Riya Mukherjee
544/200/201239	541-1221-0028-16	Sanmita Sahoo
544/200/201240	561-1211-1125-17	Sayed Mukherjee
544/200/201241	023-1211-0069-17	Sreyashi Das
544/200/201242	561-1212-1176-17	Srimoni Naskar
544/200/201243	563-1111-0685-17	Subhajit Saha

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The Post Graduate students of Zoology from Vivekananda College, Thakurpukur, Kolkata, visited the Animal house of Department of Zoology, Rammohan College on 30th May, 2023 as a part of their curriculum. Faculty members of Zoology Department, Rammohan College delivered two lectures on animal ethics and hands on animal handling was conducted.

List of research scholars and faculty members are as follows:
1. Ms. Pujita Ghosh, Research Scholar
2. Ms. Soumi Banerjee, Research Scholar
3. Dr. Samarendra Nath Banerjee, Associate Professor
4. Dr. Kaustav Dutta Chowdhury, Assistant Professor

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VIVEKANANDA COLLEGE
(GOVT. SPONSORED) (NAAC ACCREDITED GRADE 'A')

Ref. No..... Date 27/04/2023

Dr. Saswati Sanyal
Principal
Rammohan College
Kolkata-700009

Sub: Lab visit.

Madam,

The Semester-IV postgraduate students of our college are interested to visit your college for Animal House and Zoology Laboratory to witness the Western Blot Demonstration which are part of their curriculum.

Further you are requested to allow Dr. Samarendra Nath Banerjee and Dr. Kaustav Dutta Chowdhury of your college for assistance during demonstration.

Kindly give necessary permission for the purpose mentioned above.

Hope your response be affirmative.

Thanking you,

Sincerely yours,

PRINCIPAL
Vivekananda College
Thakurpukur, Kol-63

(Dr. T. K. Poddar)
Principal

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Sl.No.	ROLL NUMBER	REGISTRATION NO.	Signature of the candidate
01.	544/ZOO/211246	014-1211-0406-18	Aatreyee Samaddar
02.	544/ZOO/211247	563-1211-0765-18	Bidisha Ray
03.	544/ZOO/211248	544-1211-0057-18	Jahnabi Saha.
04.	544/ZOO/211249	023-1111-0497-18	Kaushik Acharjee
05.	541/ZOO/211250	541-1112-0082-18	Krishnendu Mondal
06.	544/ZOO/211251	544-1211-0655-18	Mihika Samanta
07.	544/ZOO/211252	543-1212-0316-18	Poulami Naskar.
08.	544/ZOO/211253	023-1111-0192-18	Pravin Kumar Singh
09.	544/ZOO/211254	224-1211-0435-18	Raiya Kuila
10.	544/ZOO/211255	023-1112-0410-18	Ritesh Naskar
11.	544/ZOO/211256	543-1211-0332-18	Rituja Mukherjee
12.	544/ZOO/211257	014-1211-1209-18	Riya Chowdhury
13.	544/ZOO/211258	023-1111-0493-18	Rubaul Chowdhury
14.	544/ZOO/211259	541-1112-0107-18	Sridhadeep Mallick
15.	544/ZOO/211260	544-1212-0425-18	Snigdha Das
16.	544/ZOO/211261	115-1111-0941-18	Soudeb Bhattacharya
17.	544/ZOO/211262	564-1111-0439-18	Soubik Dhole
18.	544/ZOO/211263	542-1214-0366-18	Soumika Sarkar
19.	544/ZOO/211264	014-1214-0404-18	Sowmili Ghosh.
20.	544/ZOO/211265	563-1111-0803-18	Subhra Kamal Ghosh

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Animal house visit by Victoria Institution (College)

The Under Graduate students of Zoology from Victoria Institution (College), Kolkata visited the Animal house of Department of Zoology, Rammohan College on 22nd December, 2022 as a part of their curriculum. Faculty members of Department of Zoology, Rammohan College delivered two lectures on animal ethics and demonstrated animal handling.

List of faculty members are as follows:

1. Dr. Samarendra Nath Banerjee, Associate Professor
2. Dr. Kaustav Dutta Chowdhury, Assistant Professor

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VICTORIA INSTITUTION (COLLEGE)

78-B, Acharya Prafulla Chandra Road, Kolkata-700 009
Phone : 91-33-2350 1959 ■ Fax : 91-33-2360 0046
Website : www.victoriacollege.co.in

Ref. No.....

Date. 22/12/2022

To,
The Principal,
Rammohan College,
Kolkata-9

Teacher-in-Charge
VICTORIA INSTITUTION
(College)

Through proper channel

Sub.: Request for permission of Animal House visit of the Department of Zoology of your College for our SEMESTER-5H students

Respected Madam,
We request your kind permission to allow our SEM5H students (No. of students: 18) to visit the Animal House of the Department of Zoology of your college on 22nd December, 2022 1pm onwards.
We have verbally taken the permission from the respective Department.
We would be highly obliged for your kind permission and do the needful for the purpose.

Thanking you,

Regards

Yours sincerely,
Debjani Das(Ghosh)
Debjani Das(Ghosh),
Associate Professor in Zoology,
Victoria Institution (College), Kolkata

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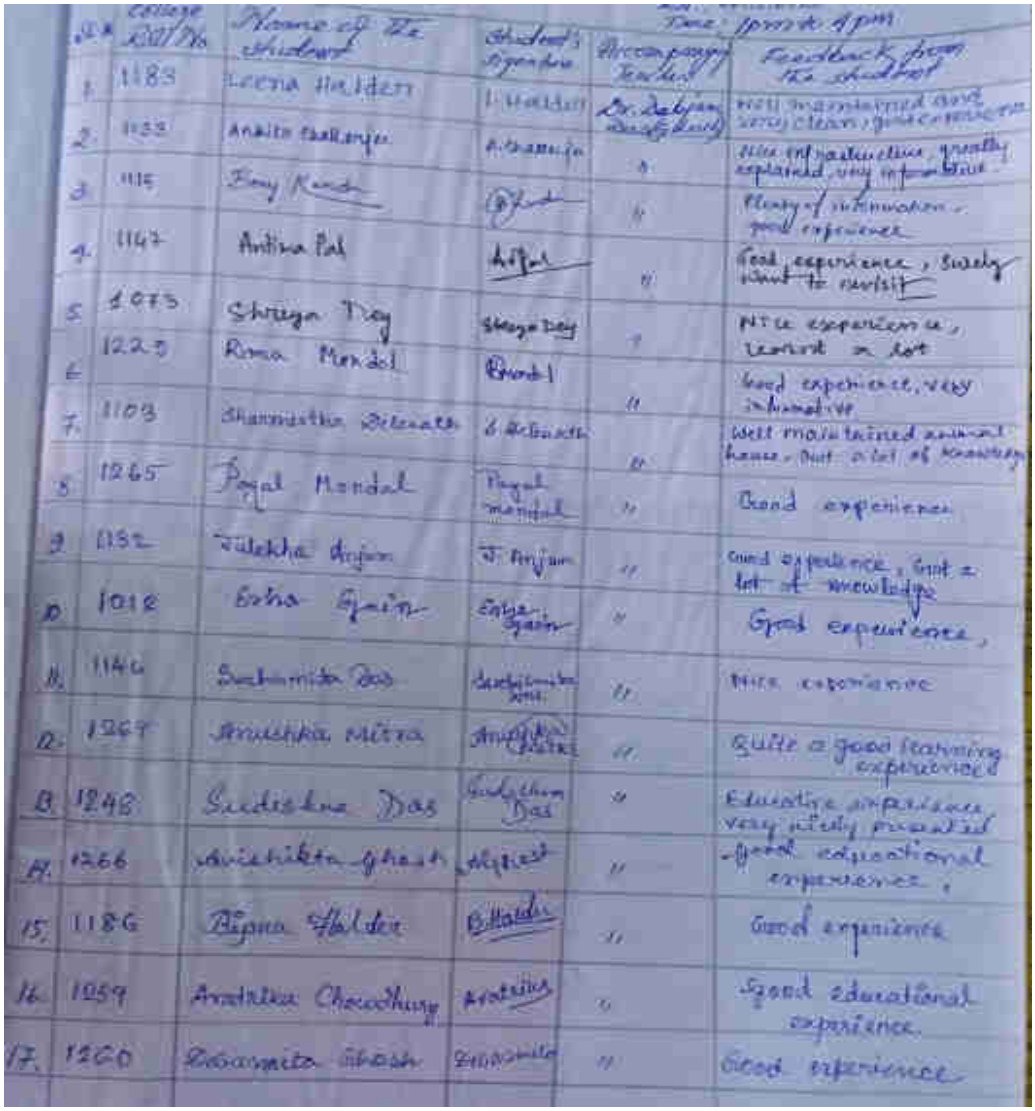
Attendance sheet of the students



Sl. No.	College Roll No.	Name of the Student	Student's Signature	Accompany Teacher	Feedback from the student
1.	1183	Leena Halder	L Halder	Dr. Debjani Bandyopadhyay	well maintained and very clean, good experience
2.	1133	Anaita Chatterjee	A Chatterjee	"	Nice infrastructure, quality explained, very informative
3.	1115	Tony Kundu		"	Plenty of information, good experience
4.	1147	Antika Pal		"	Good experience, surely want to revisit
5.	1075	Shreya Dey		"	NTCC experience, learnt a lot
6.	1223	Rima Mandal		"	Good experience, very informative
7.	1103	Shanmistha Debnath		"	Well maintained animal house, but a lot of smell
8.	1265	Payal Mondal		"	Good experience
9.	1152	Tulekha Anjum		"	Good experience, Got a lot of knowledge
10.	1018	Esha Gain		"	Good experience,
11.	1146	Sushmita Das		"	Nice experience
12.	1269	Anushka Mitra		"	Quite a good learning experience
13.	1248	Sudeshna Das		"	Educative experience, very nicely managed
14.	1266	Avishikta Ghosh		"	Good educational experience,
15.	1186	Rajna Halder		"	Good experience
16.	1259	Anubha Chowdhury		"	Good educational experience.
17.	1260	Sharmila Ghosh		"	Good experience

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Significance:

This inturn helps to establish inter-institutional knowledge sharing ecosystem for the benefit of the students.

Development of knowledge sharing ecosystem

1. **Installation of PM 2.5 sensor**
2. **Installation of Weather station**

i. Installation of PM 2.5 sensor at New Science Building, Rammohan College

Keeping the air quality monitoring into perspective and for sensitization of young minds, a PM2.5 sensor has been installed in the Department of Botany in the premises of the New Science Building of Rammohan College in collaboration with Prof. Punyasloke Bhadury, Centre for Climate and Environmental Studies& Department of Biological Sciences, IISER, Kolkata.

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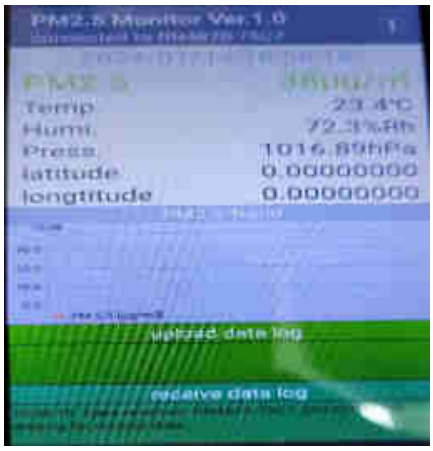
The cost-effective sensor development has been validated and through this installation vital data on air quality, in particular for PM2.5, humidity, among others are being generated 24x7. The information can help towards effective decision-making process to improve the city air quality and most importantly will inculcate thinking among the young minds studying in Rammohan College.



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ii. Installation of Weather Station, Department of Geography at New Science Building, Rammohan College

Department of Geography, Rammohan College maintains a Weather Station since September 1st, 2023 at New Science Building Campus in association with Indian Meteorological Department, Kolkata. It is very unique as the first educational institute with such facilities in North Kolkata. At present, this mini weather station is capable of measuring maximum and minimum temperature, relative humidity, atmospheric pressure, wind direction and rainfall data and this information are regularly updated in college website.

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Outcome:

These two composites along with other facilities under knowledge sharing ecosystem can be used to figure out the factors responsible for the alterations in floral and faunal diversity within the campus. This model ecosystem study will inspire to extend the systemic observations to the neighbouring sites, finally in larger concept to the north Kolkata. The sid process has been initiated by publishing People's Biodiversity Register (PBR of Ward no 27, Kolkata Municipality Corporation, West Bengal following the directive of National Green Tribunal.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Peoples Biodiversity Registrar of Kolkata, Ward Number 27: A Peoples Document Prepared as per Directive of National Green Tribunal (NGT) by Rammohan College

Jayanti Sen[1], Krishnendu Sarkar[2], Sanyasi Sanyal[3], Meenakshi Gupta[4], Samiran Mondal[5], Somnarendranath Banerjee[6], Kaustav Dutta Chowdhury[7], Sarit Ranjan Dey[8]

[1]Associate Professor & BSC Member, Department of Botany, Rammohan College
[2]Assistant Professor and IQAC Convener & BSC Member, Department of Botany, Rammohan College
[3]Principal & BSC Secretary, Rammohan College
[4]Councilor & BSC Member, Ward No. 27
[5]Assistant Professor & BSC Member, Department of Chemistry, Rammohan College
[6]NAAC Consultant & BSC Member, Rammohan College
[7]Assistant Professor & BSC Member, Department of Zoology, Rammohan College
[8]Assistant Professor & BSC Nodal Officer, Department of Zoology, Rammohan College

Abstract: As per National Biodiversity Authority (NBA) guidelines, National Green Tribunal (NGT) has issued one order to West Bengal Biodiversity Board, Government of West Bengal to prepare a complete Peoples Biodiversity Registrar (PBR) of Kolkata Municipal Corporation (KMC). A project has been initiated in the year 2017-18, Rammohan College, has been approached to prepare a PBR of Ward No. 27 and form a Biodiversity Management Committee (BMC). A complete PBR has been prepared and submitted to West Bengal Bio diversity Board, Department of Environment, Government of West Bengal.
Keywords: BMC, PBR, NGT, NBA, BMC

I. INTRODUCTION

India has a wealth of biological diversity as well as traditional and modern knowledge. It takes up 2.4% of the global area, which accounts for 7-8% of the species that are known to exist globally (Singh 2011).As of right now, the nation has documentation for over 91,200 animal and 45,500 plant species (DBA 2014).In accordance with the 1992 Convention on Biological Diversity, the Indian government created the Biological Diversity Act (BDA) in 2002 and regulations in 2004.Conservation of biological diversity, sustainable use, and just and equitable distribution of benefits resulting from the exploitation of natural resources are all mandated by CBD. The Convention notably upholds the sovereign right of the states to preserve their biological variety. Each member state of the Convention is required to implement a National Biodiversity Strategy and Action Plan (NBSAP) or an equivalent instrument for the conservation of biodiversity. As a result, the BDA (2002) established the National Biodiversity Authority (NBA) to advise and assist the Biodiversity Management Committee (BMC) in developing the People's Biodiversity Register (PBR) (NBA 2014). These laws have seen the deployment of BDA (2002), the NBA at the national level, Bether Board are State, District, Block, Town, Village BMCs. The primary goal of BMC formation in relation to PBR preparation is to raise public awareness and foster a sense of community among people and their environment (NBA, 2004).Globally, as of January 2022, the nation has assisted in the establishment of 2,65,836 PBRs and 2,79,000 BMCs by the corresponding NBAs in 28 states. According to Biological Diversity Regulations (2004), every local panchayats BMC is required to prepare the PBR. The APBR is a legally binding document that provides, in accordance with NBA criteria, detailed information about the entire biodiversity of a region, including its flora, fauna, and other resources under a BMC's jurisdiction. According to the updated PBR rules of the NBA (2014), a PBR booklet consists of five annexes, which include general information on the panchayat's BMC, a list of "locals," "heritage," and registered traditional healthcare practitioners who records and ethnological resources that are under the village's jurisdiction; a list of people who the villagers believe possess Traditional Knowledge (TK) about biodiversity or agriculture; fisheries, and forestry; a list of schools, colleges, departments, universities, government institutions, non-governmental organizations, and individuals involved in the PBR preparation and details of access eight Union Territories[7].

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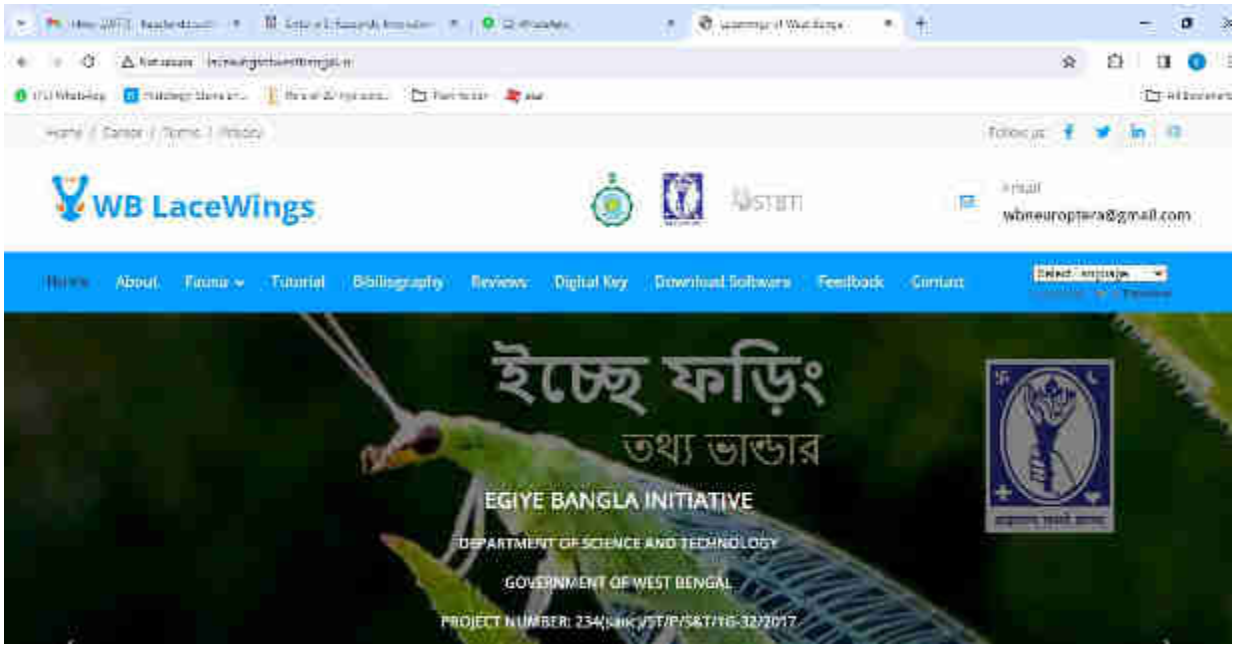
Development of digital key for Neuroptera: The Industry Academia Interface

Rammohan college academia incubation centre is also associated with the development of digital key for Neuroptera associated with Aphids of West Bengal. This initiative on the development of artificial intelligence based digital key may able to transfer the knowledge from laboratory to field which is the most significant part of this venture. The related website and youtube links are as follows:

Website link

http://Lacewingsofwestbengal.in



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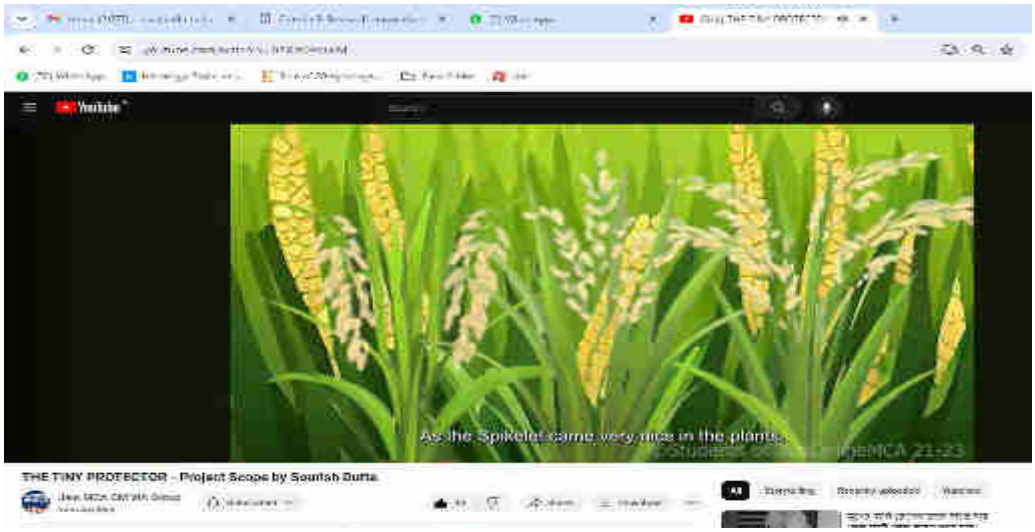
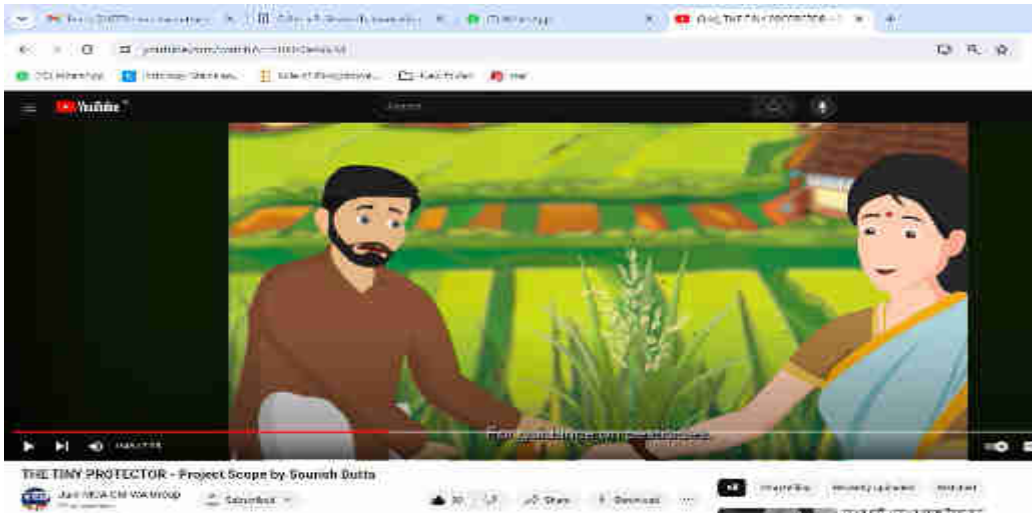
You tube link: https://youtu.be/h8Xlh0eb6FM





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Volume2, Issue1 (January-April 2023), PP: 01-10.
www.indjcst.com
ISSN No: 2583-5300

Model Aphid Predator Neuroptera (Insecta): Web-Based Digital Key Development from Dichotomous Key by Computer Programming

Sourish Dutta[1], Rubia Mondal[2], Sayak Ganguli[3], Rayan Das[4], Santi Ranjan Dey[5]
[1,2,5] *Department of Zoology, Rammohan College, Kolkata, West Bengal, India.*
[3]*Post Graduate Department of Biotechnology, Saint Xavier's College, Kolkata, India.*
[4] *Department of Zoology, Asutosh College, Kolkata, India.*

Abstract: *The bulk of scientific problems given by biologists could never be answered or even envisioned without reference to some sort of hierarchical arrangement of taxa, making classification the most fundamental component of all biological sciences. The majority of biologists may agree that the goal of taxonomy should be to identify the many components of biodiversity, especially considering the significance of accurate organism identification for bio security and the best crop management practises. However, field experience in taxonomy and application is disappearing. As a result, it is essential to find any pests or other creatures. Since adopting new taxonomic technologies in 2011, the USDA Animal and Plant Health Inspection Service, Plant Protection and Quarantine (APHIS-PPQ) has created an incredible array of identification tools, some of which are gaining enormous popularity. There isn't yet a database or programme in India that is suited for this use and uses Indian algorithms. We have chosen the predator group of aphids as our model organism in order to create our own "Digital Key" experiment and identify insects that can control aphids as biocontrol agents. This is because the Neuroptera (Insecta) of West Bengal, India is region-specific database reliant (Homoptera: Aphididae). As a result, we made an experimental website called www.lacewingsofwestbengal.in and a "Digital Key" of "Families" of a particular group of Neuropterans.*

Keywords: *Aphid-predator, Hemerobiidae, Chrysopidae, Dilaridae, Coniopterygidae, Digital key*

I.INTRODUCTION

Most scientific problems posed by biologists could never be defined or even envisaged without reference to some sort of hierarchical organisation of taxa, making classification the most fundamental of the biological disciplines (Rieppel, 1992, 2004). But the question of the future of taxonomy—or even if it has a future—has started to crop up frequently in both specialised and general scientific publications. Taxonomy shouldn't serve as the "handmaiden" of other biological disciplines, it has been maintained (Wheeler 2008). On the other hand, the majority of biologists might agree that taxonomy's goal should be to identify the elements of Taxonomic and practical field knowledge, however, are both disappearing. As a result, it is critical to identify any pests or other organisms. After adopting new taxonomic technology in 2011, USDA Animal and Plant Health Inspection Service, Plant Protection and Quarantine (APHIS-PPQ) has created an astounding array of identification tools, several of which are gaining enormous popularity. The method is the creation of digital and beta keys. The algorithm has been created and registered for patent. 130 countries presently utilise this commercial software (LUCID BUILDER VERSION 3.5). India is still working on its own software. **As it is region specific database dependent, we have to develop our own algorithm.**

Members of the superorder Neuropterida (orders Neuroptera, Megaloptera, Raphidioptera, and Glosselytrodea) have access to a range of digital data online, including lacewings, antlions, fish flies, and snake flies. One can easily retrieve this information via the digital interface of Texas A&M University's Lacewing Digital Library (LDL). Since 2010, visitors have had access to a variety of online resources through the LDL portal (http://lacewing.tamu.edu), which provides information on neuropterid insects, global neuropterists, and related subjects. The Neuroptera or any other class of insects have yet to have digitised documentation produced in India.

The demand for taxonomists has reached previously unheard-of heights due to the practically continual appearance of new diseases and pests in agricultural areas. For experts in insects, identifying new, existing, and possibly invasive pest species is a daily problem. It is essential to appropriately identify any insects before taking any further action. In the past, end users have recognised insects using a range of techniques, including matching (type specimens), dichotomous keys, route keys, matrices and multiple entry keys (computer assisted), tabular keys (taxa vs. character states), and punch card keys. Recently, the use of computer-based taxonomic applications that include taxonomic keys, resources, and tools has increased. On the other hand, alpha taxonomy has advanced down the systematic branches. Most biological sciences require the ability to recognize species, particularly invasive ones. It does play a bigger part in pest management, though (Odeh et al, 2015, Sharma et al, 2019).

The group of neuroptera is crucial as a biological control agent. Neuropterans are currently being sold commercially as controlling agents by 14 Canadian, 33 Mexican, and 95 American firms (http://www.cdpr.ca.gov/docs/pestmgt/ip). Additionally, our state has a neuropteran resource. More than 35 different species of Neuroptera associated with aphids have been collected and identified by us in West Bengal. So, for the "Family," we created a model beta digital key.

II. MATERIALS

Key to the Aphidophagous Families of West Bengal of the Suborder Planipennia

We have collected Neuropteran specimens from different regions of West Bengal and analyzed their morphology for

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Outcome:

This project may be considered as an innovative approach to the laboratory to land programme. Dissemination of this related knowledge probably helps farmers to increase farm productivity by developing awareness on model aphid predator Neuroptera. Collaboration with industry professionals regarding the same provides farmers with a blend of practical expertise and academic rigor. This type of industry academia interface also helps to increase the interests of the students in their skill enhancement course (SEC) since 'Applied Entomology' has been included in 1st semester syllabus of Zoology, University of Calcutta.

Special lectures by eminent Professors

SL No 1: Dated 25.07.2019

A seminar was organized by the Department of Botany on"**CAREER COUNSELLING CUM ORIENTATION PROGRAMME**" on 25.07.2019. The speakers were DR. SHYAMAL K. CHAKRABORTY (ASSOCIATE PROF. BIDHAN NAGAR COLLEGE) and DR. ASALATA D'ROZARIO (ASSOCIATE PROF. NARASINHA DUTT COLLEGE) to give an idea to the students about the different career avenues after graduating with Botany as a major subject.

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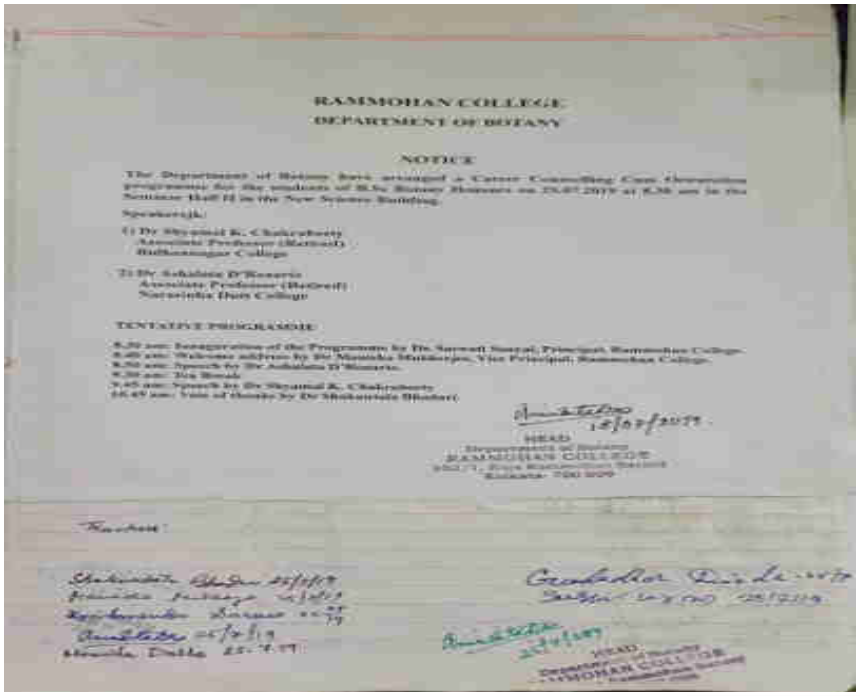

RAMMOHAN COLLEGE
DEPARTMENT OF BOTANY

NOTICE

The Department of Botany have arranged a Career Counselling Cum Orientation programme for the students of B.Sc Botany Honours on 29.07.2019 at 8.30 am in the Seminar Hall II in the New Science Building.

Speakers:

(1) Dr Shyamal K. Chakraborty
Associate Professor (Retired)
Ridhaynagar College

2) Dr Ashalata D'Rosario
Associate Professor (Retired)
Narendra Dutt College

TENTATIVE PROGRAMME

8.30 am: Inauguration of the Programme by Dr Sarmali Sanyal, Principal, Rammohan College.
8.40 am: Welcome address by Dr Manisha Mukherjee, Vice Principal, Rammohan College.
8.50 am: Speech by Dr Ashalata D'Rosario.
9.30 am: Tea Break
9.45 am: Speech by Dr Shyamal K. Chakraborty
10.45 am: Vote of thanks by Dr Shakuntala Bhaduri

HEAD
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Teachers:

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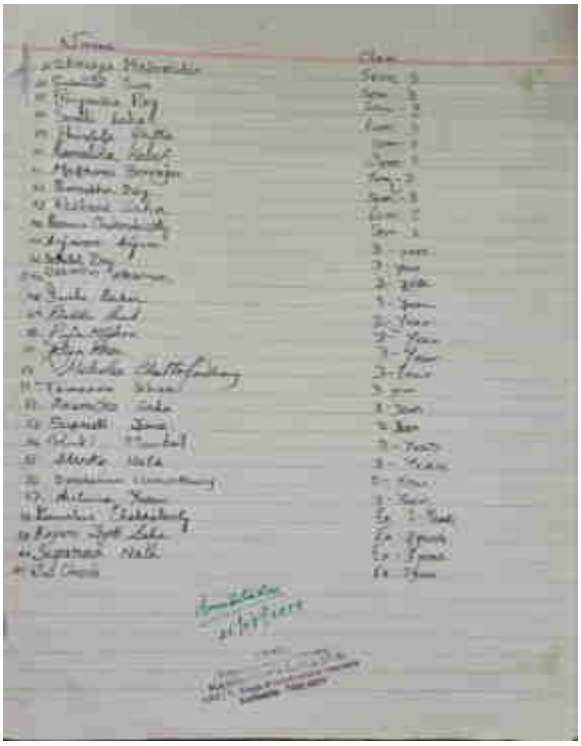

SL No 2 : Dated 25.11.2019, 30.11.2019

Prof. Moumi Banerjee took Semester-3 SEC special Classes on the following dates: 25th and 30th September 2019. Topic was Historical Tourism: Theory and Practice. It was specially for 3rd Semester (CBCS) History Honours students on the following dates: 25.11.2019 (10:00 am to 12:00 pm) and 30.11.2019 (10:00 am to 12:00 pm),

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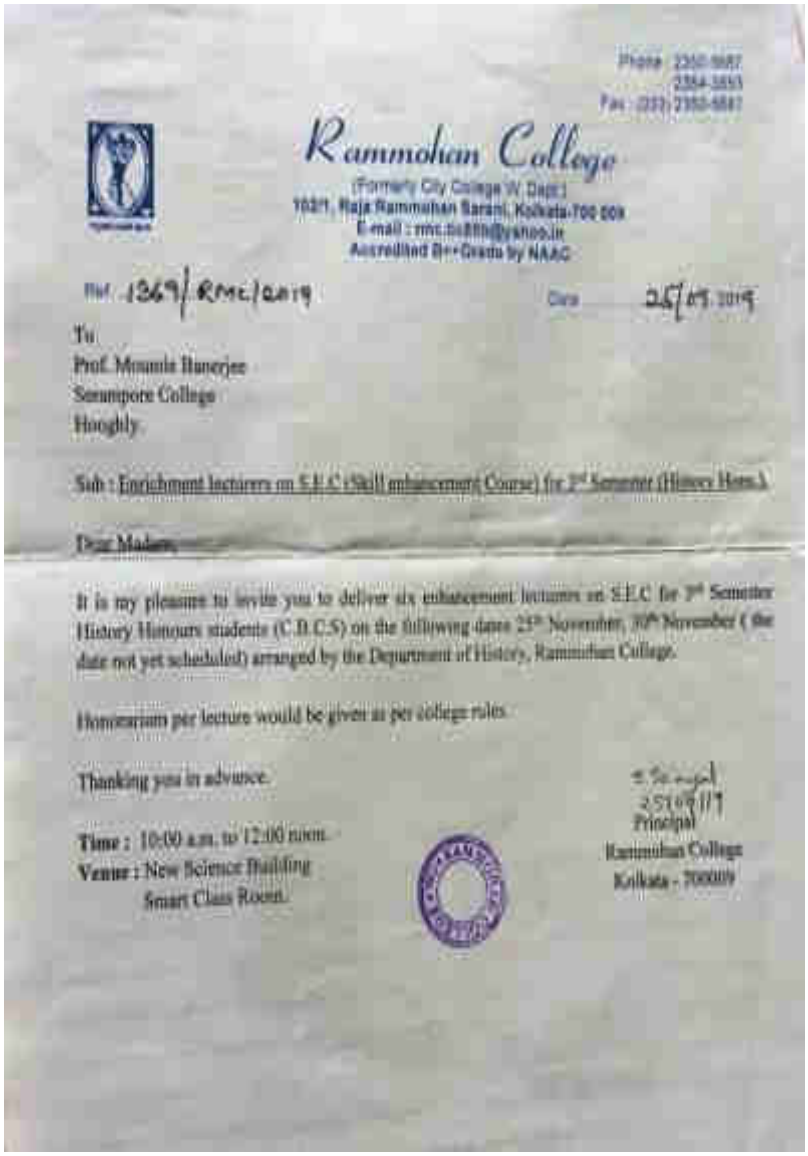

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Ref. 1369/Rmc/2019 Date 25/09/2019

To
Prof. Moumie Banerjee
Serampore College
Hooghly

Sub : Enrichment lectures on S.E.C (Skill enhancement Course) for 3rd Semester (History Hons.)

Dear Madam,

It is my pleasure to invite you to deliver six enhancement lectures on S.E.C for 3rd Semester History Honours students (C.B.C.S) on the following dates 25th November, 30th November (the date not yet scheduled) arranged by the Department of History, Rammohan College.

Honorarium per lecture would be given as per college rules.

Thanking you in advance.

Time : 10:00 a.m. to 12:00 noon.
Venue : New Science Building
Smart Class Room.

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Principal
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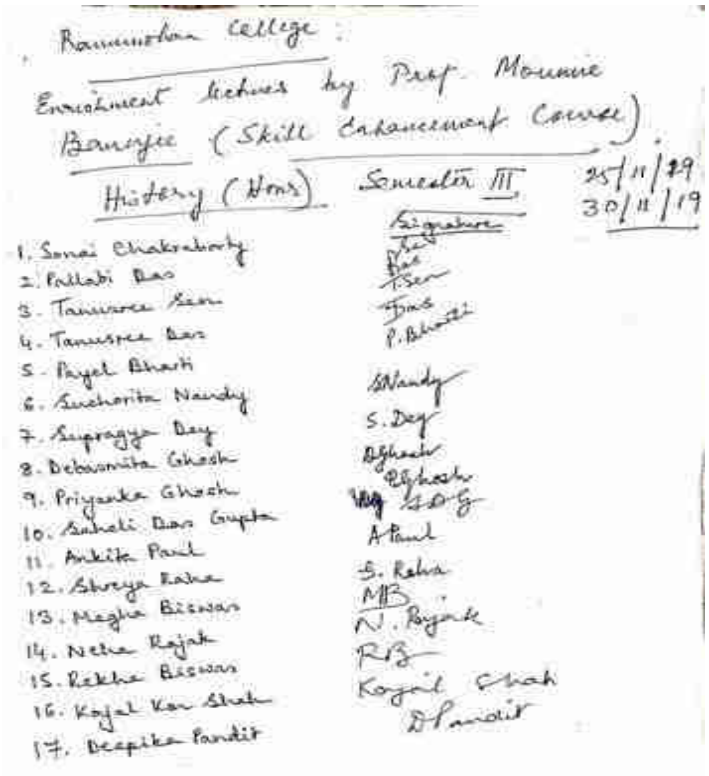
Prof. Moumi Banerjee taking Semester-3 SEC special Classes.



Rammohan College :
Enrichment lectures by Prof. Moumie Banerjee (Skill Enhancement Course)
History (Hons) Semester III 25/11/19 30/11/19

	Signature
1. Sonai Chakraborty	
2. Pallabi Das	
3. Tanusree Sen	
4. Tanusree Das	
5. Payel Bharti	
6. Sucharita Nandy	
7. Supragya Dey	
8. Debasmita Ghosh	
9. Priyanka Ghosh	
10. Suhali Das Gupta	
11. Ankita Paul	
12. Shreya Saha	
13. Megha Biswas	
14. Neha Rajak	
15. Rekha Biswas	
16. Kajal Kar Shah	
17. Deepika Pandit	

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SL No 3: Dated 03.08.2020

DEPARTMENT OF ZOOLOGY AND IQAC

Host: Dr. Kaustuv Dutta Choudhury
Date: 03/08/2020
Inaugural Lecture: Principal, Rammohan College

Speaker I (5 pm-5: 45 pm IST): Dr. Mrinal Mukherjee, Assistant Professor
Co-Ordinator, Department of Education,
Planning and Administration, WBUTTEPA

Topic: Coping with stress and managing education in the context COVID 19 pandemic: The whole institutional approach

Speaker II (5:45 – 6: 30 pm IST): Dr. Rajen Haldar, Assistant Professor,
Department of Physiology, University of Calcutta

Topic: Know your health: Self-diagnosis and limitations

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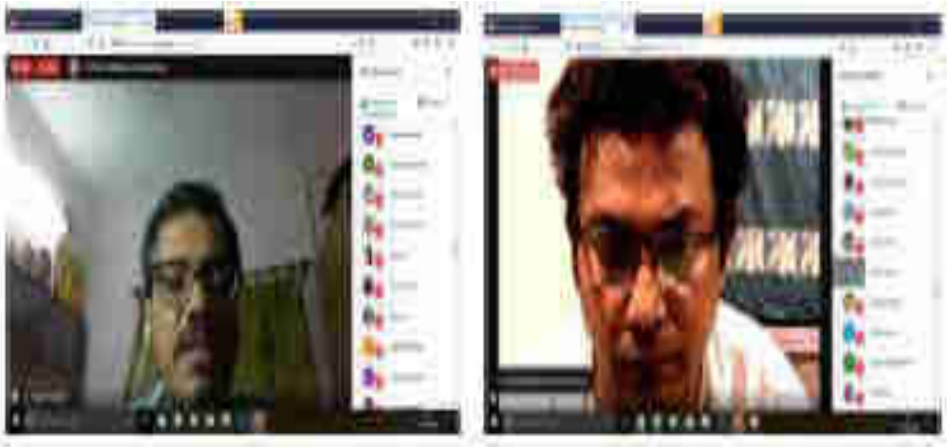

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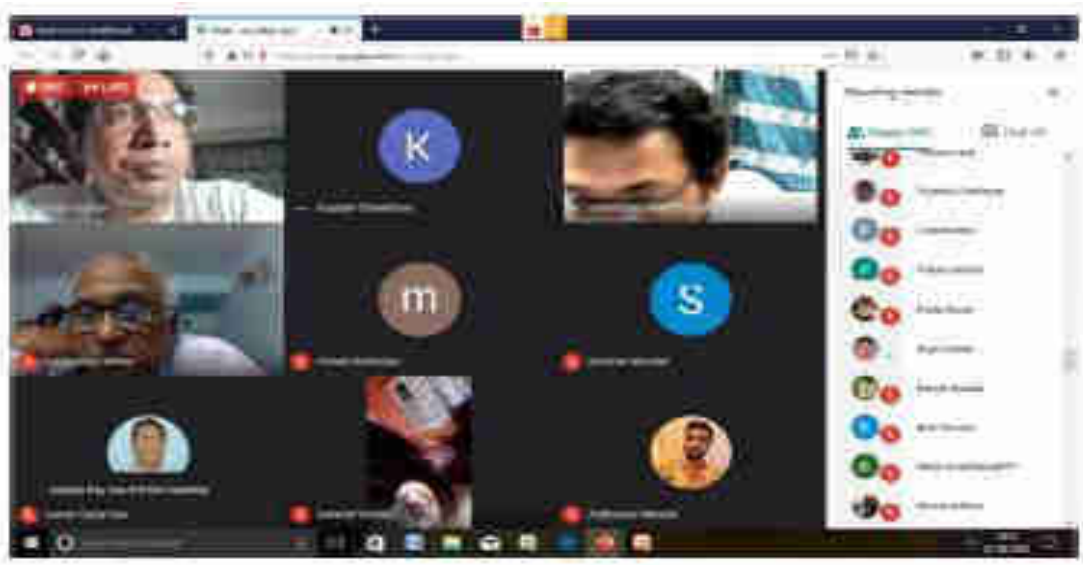

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SL No 4 : Dated 05.08.2021 to 08.08.2021

Deprtmental Seminar, English Department

The Department of English in collaboration with the IQAC, Rammohan College (Affiliated to the University of Calcutta), Kolkata organized an online lecture series on 5 th, 7 th and 8 th October 2021. This online lecture series was held with an intention to provide the students with an in depth and resourceful knowledge about the different areas of their study through the lectures of some eminent teachers and scholars of repute. The complete schedule of the series is enclosed herewith. There are six speakers from different University, who delivered talk on different topic. After the end of the programme, Students and the speakers were given certificate.

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Total number of student participants 110

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SL No 5 : Dated 25.03.2022

Department of Physiology and IQAC, Rammohan College organised a seminar on 25th March, 2022 from 12pm onwards in Smart Class Room , New Science Building. Dr. Sujoy Lahiry, Lead Scientist, R & D, Primary Cells, ATCC, Gaithersburg has delivered his lecture on on "Hepatic and other primary cell isolation from human and animal tissues". Students from UG and PG department of Physiology of Rammohan College attended the lecture. It was a great interactive session between the speakers and the students.

RAMMOHAN COLLEGE

Department of Physiology
U.G. & P.G.Section

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NOTICE

We are glad to announce that ***Dr. Sujoy Lahiri***, Lead Scientist, R&D, Primary Cells, ATCC, Gaithersburg has given his kind consent to deliver a popular lecture on "Hepatic and other Primary Cell isolations from Human and Animal tissues" for the 6th Semester B.Sc Students (Physiology Hons.) and 4th Semester M.Sc Students (Human Physiology) on **25th March,2022 (Friday) at 12.00 noon.**

All are cordially welcome.

Venue : New Science Building

Sonali Ghosh
23/03/2022
(Dr. Sonali Ghosh)
Head
Department of Physiology
Rammohan College.

23/03/22
(Dr. Gouriprosad Datta)
Course Coordinator
P.G.Section
Department of Physiology
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RAMMOHAN COLLEGE

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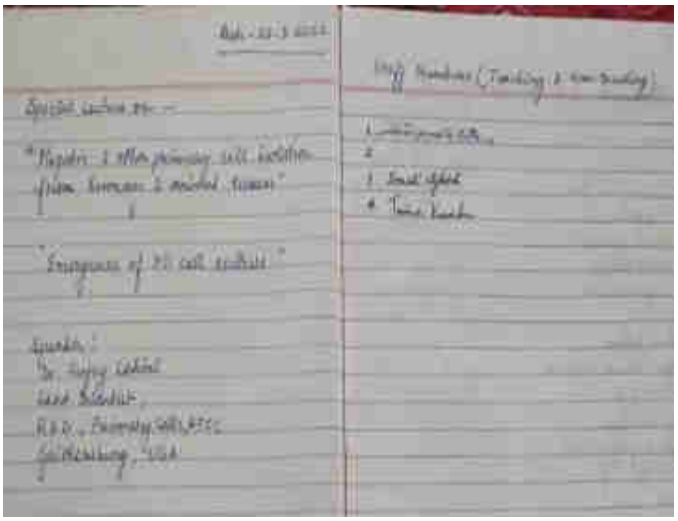

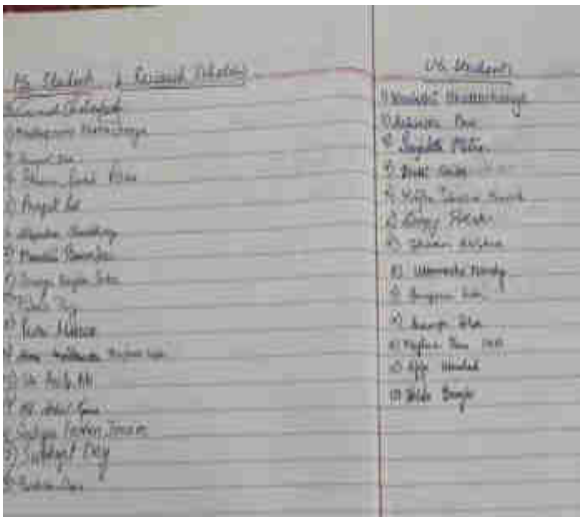

Total number of participants was 35

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SL No 6 : Dated 7.12.2022

Deprtmental Seminar, Mathematics Department

Department of Mathematics, Rammohan College in collaboration with Internal Quality Assurance Cell, Rammohan College organized a State-level Seminar on 'Mathematics, Physophophical and Modern Aspects' on 7th December 2022. The seminar was inaugurated by Dr Saswati Sanyal, Pricipal, Rammohan College. Dr. Parthasarathi Mukhopadhyay, Associate Professor, Dept. of Mathematics, Ramakrishna Mission Residential College (Autn.) delivered his lecture on An Eternal Enigma, Shunyashudhu 0 noy. Dr.Hiranmoy Mondal, Associate Professor and HOD in the Dept. of Mathematics, MAKAUT, WB, delivered a lecture on "NOTHING IS UNREAL– EXCEPT NUMBER'S".

The seminar opened new vistas for students to explore various avenues through proper knowledge in the world of Mathematics, where they discussed not only about Mathematics but also gathered knowledge of History, ancient Geography and old civilizations.

Number of registered students 33

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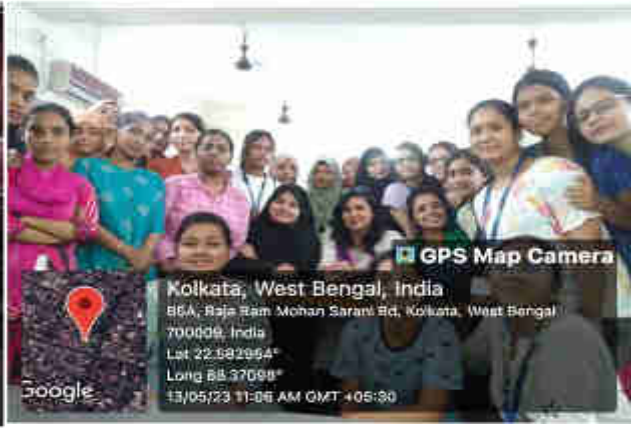
SL No 7 : Dated 28.04.2023 and 13.05.2023

Prof. Moumi Banerjee delivered invited lectures for History Honours Semester-IV on 28th April 2023 and 13th May 2023 on Indian Art. 4th Semester (CBCS) History Honours attended the lecture



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Ref. 2285/Ram/2023 Date 25. 04. 2023

To
Prof. Moumie Banerjee
Assistant Professor in History
Serampore College
Hooghly, West Bengal.

Madam

I cordially invite you to deliver two Special Lectures on the SEC B2 Paper - Art Appreciation : An Introduction to Indian Art, in our College for students of History Hons. Semester - 4. The dates are 28.04.2023 and 13.05.2023.

Hope you will kindly agree

Thanking you in anticipation

Your sincerely

S Sanyal
25/4/2023

Principal
Rammohan College.

Rammohan College
4th Semester History Hons

Attendance of Students for Prof Moumie Banerjee's class on 28th April, 2023 :

Name of student	Signature
1. MALA YADAV	Mala Yadav
2) Vinita Das	Vinita Das
3) Muskan Khatoon	Muskan Khatoon
4) Ayesha Firdous	Ayesha Firdous
5) Thanjikar Gupta	Thanjikar Gupta
6) Anindita Nayak	Anindita Nayak
7) Anindita Purakait	Anindita Purakait
8) Mala Yadav	Mala Yadav
9) Ishani Ghosh	Ishani Ghosh
10) Parna Ghosh	Parna Ghosh
11) Tiasha Biswas	Tiasha Biswas
12) Rupsa Mishra	Rupsa Mishra
13) Kistika Mondal	Kistika Mondal
14) Jayika Paul	Jayika Paul
15) Prajukta Bose	Prajukta Bose
16) Usha Chandrakanthi	Usha Chandrakanthi

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Rammohan College
4th Sem History Hons
Attendance of Students for Prof Moumita Banerjee's class on 28th April, 2023: (contd)

Name of Student	Signature
17) Kajal Rajak	Kajal Rajak
18) Esha Kumari Sonkar	Esha Kumari Sonkar
19) Hina Fatma	Hina Fatma
20) Nahid Khatoon	Nahid Khatoon
21) Chanda Patel	Chanda Patel.
22) Puja Show	Puja Show
23) Sreya Roy	Sreya Roy
24) Rithika Rana.	Rithika Rana
25) Suparna pal	Suparna pal.
26) Kulsum Naaz	Kulsum Naaz
27) Arsee Seraj	Arsee Seraj
28) Sifa Naaz	Sifa Naaz
29) Sabahat Yasmin	Sabahat Yasmin

Rammohan College
4th Semester History Hons
Attendance of Students for Prof Moumita Banerjee's class on 13th May, 2023:

Name of Student	Signature
1. MALA YADAV	Mala Yadav
2. Vinita Das	Vinita Das.
3) Mehek Khatoon	Mehek Khatoon
4) Ayesha Firdous	Ayesha Firdous
5) Jhunjhar Gupta	Jhunjhar Gupta
6) Anindita Nayak	Anindita Nayak
7) Anindita Ranakoti	Anindita Ranakoti.
8) Mala Yadav	Mala Yadav
9) Ishani Ghosh	Ishani Ghosh
10) Parna Ghosh	Parna Ghosh
11) Tiasha Biswas	Tiasha Biswas
12) Rupsa Mishra	Rupsa Mishra
13) Kritika Mondal	Kritika Mondal
14) Sayika Paul	Sayika Paul.
15) Priyanka Bose	Priyanka Bose
16) Usha Chandrabanshi	Usha Chandrabanshi

Rammohan College
4th Sem History Hons
Attendance of Students for Prof Moumita Banerjee's class on 13th May, 2023: (contd)

Name of Student	Signature
17) Kajal Rajak	Kajal Rajak
18) Esha Kumari Sonkar	Esha Kumari Sonkar
19) Hina Fatma	Hina Fatma
20) Nahid Khatoon	Nahid Khatoon
21) Chanda Patel	Chanda Patel.
22) Puja Show	Puja Show
23) Sreya Roy	Sreya Roy
24) Rithika Rana	Rithika Rana.
25) Suparna pal	Suparna pal.
26) Kulsum Naaz	Kulsum Naaz
27) Arsee Seraj	Arsee Seraj
28) Sifa Naaz	Sifa Naaz
29) Sabahat Yasmin	Sabahat Yasmin

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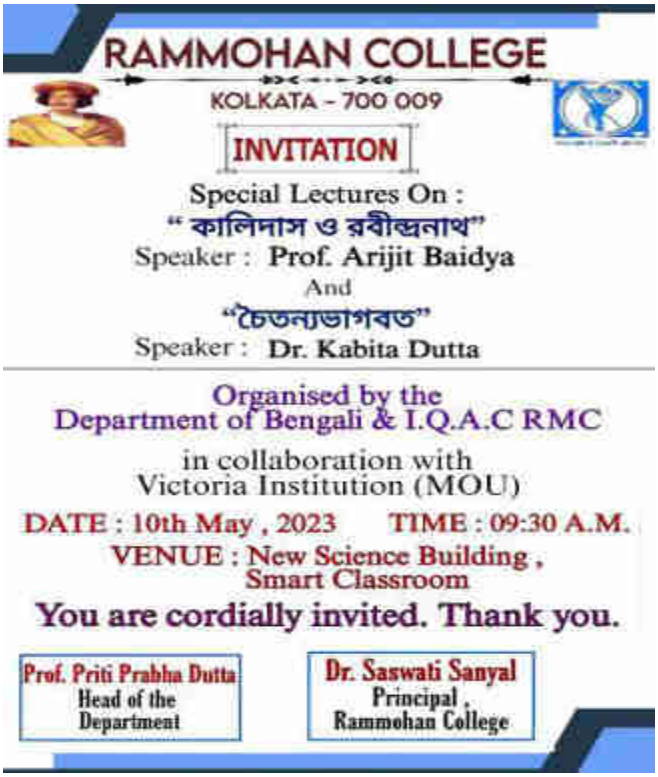
Ref. ..... Date.....20

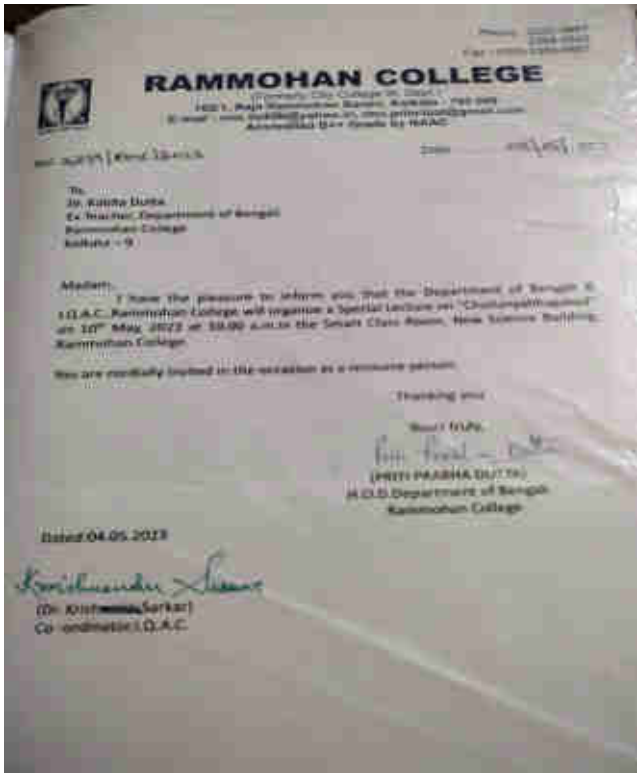
SL No 8 : Dated 10.05.2023

Two special Lectures were arranged on 10th May, 2023. Topic of the Lectures

Chaitanya Bhagavad-Speaker- Dr.Kabita Dutta, ex-teacher of the Department

Kalidas o Rabindranath-Speaker -Prof. Arijit Baidya, Assistant Professor of Victoria Institution, Kolkata





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SL No 9: Dated 11.05.2023

Deprtmental seminar, Chemistry Department, RMC

Department of Chemistry in collaboration with IQAC, Rammohan College organized a State-level Seminar on "Chemistry for sustainable future" on 11th May 2023. The seminar was inaugurated by the Patron, Dr. Saswati Sanyal, Principal of Rammohan College, Kolkata. Dr. Arpita Chandra, Senior Scientific Officer Chittaranjan National Cancer Institute, Kolkata, and Dr. Subhasish Roy, Assistant Professor, Department of Chemical Engineering, University of Calcutta was present as the distinguished speakers in this seminar.

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Ref. ..... Date ..... 20...

To
Prof. (Dr.) Subhasis Roy
Assistant Professor,
Department of Chemical Engineering
University of Calcutta

Subject: Invitation as a Resource Person in the State Level Seminar

Respected Sir,
We are delighted to inform you that the Department of Chemistry, Rammohan College (Affiliated to the University of Calcutta), Kolkata is planning to organize a one day State Level Seminar, "Chemistry for sustainable future" on 11th May 2023. This seminar aims to provide the students with an in-depth and resourceful knowledge about the different area of their study through the lectures of some eminent speakers. With this intention, we feel privileged to invite you as Resource person in this seminar and would like to request you to deliver lecture on that day at 10.00 am.
We eagerly look forward to your kind acceptance of our invitation.
Thanking you,
Yours sincerely

Dr. Sarwati Sanyal
Principal, Rammohan College
Principal
RAMMOHAN COLLEGE
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Anup Mandal
04/05/2023
Assistant Professor and Head of
Department of Chemistry &
Convenor of the seminar

Contact details: 9475977545(Dr Anup Mandal)

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Ref. ..... Date ..... 20...

To
Dr. Arpita Chandra
Senior Scientific Officer,
In vitro Carcinogenesis and Cellular Chemotherapy,
Chittaranjan National Cancer Institute,
37, S. P. Mukherjee Road, Kolkata-7000026

Subject: Invitation as a Resource Person in the State Level Seminar

Respected Madam,
We are delighted to inform you that the Department of Chemistry, Rammohan College (Affiliated to the University of Calcutta), Kolkata is planning to organize a one day State Level Seminar, " Chemistry for sustainable future" on 11th May 2023. This seminar aims to provide the students with an in depth and resourceful knowledge about the different area of their study through the lectures of some eminent speakers. With this intention, we feel privileged to invite you as Resource person in this seminar and would like to request you to deliver lecture on that day at 9.00 am.
We eagerly look forward to your kind acceptance of our invitation.
Thanking you,
Yours sincerely

Dr. Sarwati Sanyal
Principal, Rammohan College
Principal
RAMMOHAN COLLEGE
Kol-9

Anup Mandal
04/05/2023
Assistant Professor and Head of
Department of Chemistry &
Convenor of the seminar

Contact details: 9475977545(Dr Anup Mandal)

The seminar was with huge success since our students enjoyed it a lot. It was followed by a quiz by Dr Arpita Chanda where she distributed some gifts. It was really encouraging for the students.

Number of registered students 34

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Outcome:

In terms of **content**, students learnt to show competence in identifying relevant information, defining and explaining topics under discussion. They further understood to judge when to speak and how much to say, speak clearly and audibly in a manner appropriate to the subject, ask appropriate questions, use evidence to support claims, respond to a range of questions, take part in meaningful discussion to reach a shared understanding. They again realized that they have to pay close attention to what others say and only can able to respond constructively. Through listening attentively, they were able to build on discussion fruitfully, supporting and connecting with other discussants. With these experiences students now can able to develop persuasive speech, present information in a compelling, well-structured, and logical sequence, respond respectfully to opposing ideas, show depth of knowledge of complex subjects, and develop their ability to synthesize, evaluate and reflect on information.

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Field visit of Students of Laboratory based subjects

Department of Botany

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Department of Zoology

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Department of Physiology

Department of Geography

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Outcome:

Field trips bridge the gap between theoretical knowledge and its application in real-world. By providing students with tangible hands-on experiences, these make learning more engaging, memorable, and relevant. Furthermore, trips promote critical thinking, enhance observational skills, and nurture a sense of curiosity and wonder.

Thus basically these provide alternative educational opportunities for students and trips can benefit the community if community services have been included.

Medicinal Plant Garden

Research Council/Advisory Board also conducts Environment awareness programmes round the year and one medicinal plant garden is under development in the new science building. Moreover, one small kitchen garden is rapidly growing adjacent to the college canteen where vegetables and spices produced in the garden will be utilized shortly.

Objective

The objective of establishing this garden is to maintain a conservation of the important species of medicinal and aromatic plants which are being used in day-to-day primary health care.

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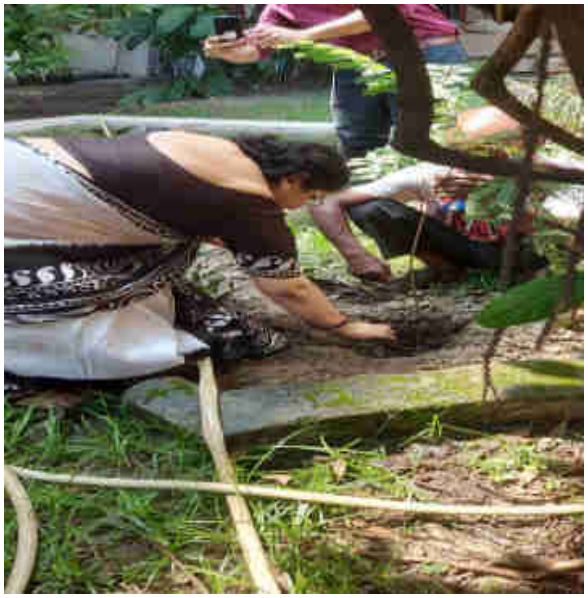
Plantation of Phyllanthus emblica (Indian gooseberry or amla)



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Kitchen garden at New Science Building, Rammohan College

Sample picture of *Solanum* sp, *Citrus limon*, *Amaranthus cruenta*

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Outcome:

Medicinal plant gardens are appropriate tools for conservation of indigenous medicinal plants and preservation of traditional knowledge that help to collaborate local communities, academicians, students, researchers and pharmacists for generating greater conservation benefits and promote science communication. Moreover, dissemination of the knowledge regarding the same among the students may help to develop the movement for the protection of our mother nature.

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Unit B: Intellectual Property Rights Cell and activity

Rammohan College

IPR Cell

1. Dr. Saswati Sanyal, Chairperson, Principal, Rammohan College
2. Dr. Kaustav Dutta Choudhury, Co-ordinator, IPR Cell
3. Dr. Krishnendu Sarkar, Co-ordinator, IQAC
4. Dr. Samarendra Nath Banerjee, Subject expert
5. Dr. Samiran Mondal, Member
6. Dr. Md Ahmadullah, Secretary, Teachers' Council
7. Dr. Santi Ranjan Dey, Member

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IPR Policy

The National Intellectual Property Rights (IPR) Policy 2016 was adopted on 12.5.2016 as a vision document to guide future development of IPRs in the country.

Rammohan College, 85A, 85B, 85C, 85D & 102/1, Raja Rammohan Sarania, Kolkata 700009 adopted the following IPR Policy:

1. All inventions, discoveries and other works that can constitute Intellectual property should be disclosed in a thorough and timely manner.
2. The concerned person/s will provide all records and documents that are necessary to the protection of the Intellectual Property.
3. Abide by the agreements made in respect of the sponsored research and licensing.
4. Have further responsibility to properly consider, disclose and manage any conflicts of interest arising in the ownership of Intellectual Property in which the Institute has stake/share.
5. Intellectual Property generated through University sponsored projects will be governed by the terms of agreement between the institute and the sponsor.
6. Handling of the rights of Intellectual Property generated during the course of the externally funded projects shall be governed by the terms of contract between the funding agency and the Institute.

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Seminar on Intellectual Property Right

The Department of Political Science, in collaboration with IQAC, had arranged a seminar on intellectual property rights. Professor Anirban Mazumder, a faculty member of the renowned academic institution, the West Bengal National University of Juridical Science, Kolkata, was the distinguished speaker. It was an illuminating session not only for students, but faculty members present there also benefited. He had begun his lecture with the definition of property and its classification. Intellectual property, i.e., the creations of the mind, falls into the category of intangible property. Unless it is accessible to the cultural life of the community, it remains incomplete. Our students, while asked to name a few intellectual property items, spontaneously responded and mentioned books, vaccines, gadgets, etc. Furnished by different interesting slides Professor Mazumder had described trademarks, copyrights, and patents. We came to know about those stories, which paved the way for a few inventions, and inventors were honoured with patents. A distinction was made between copyright and ownership. Various clauses for infringement of copyright were discussed in lucid language. When it was mentioned that the translation of a book without the permission of the author is considered an infringement, one of our students raised a relevant query. The speaker had cleared her doubt that even if the author is not alive, a willing

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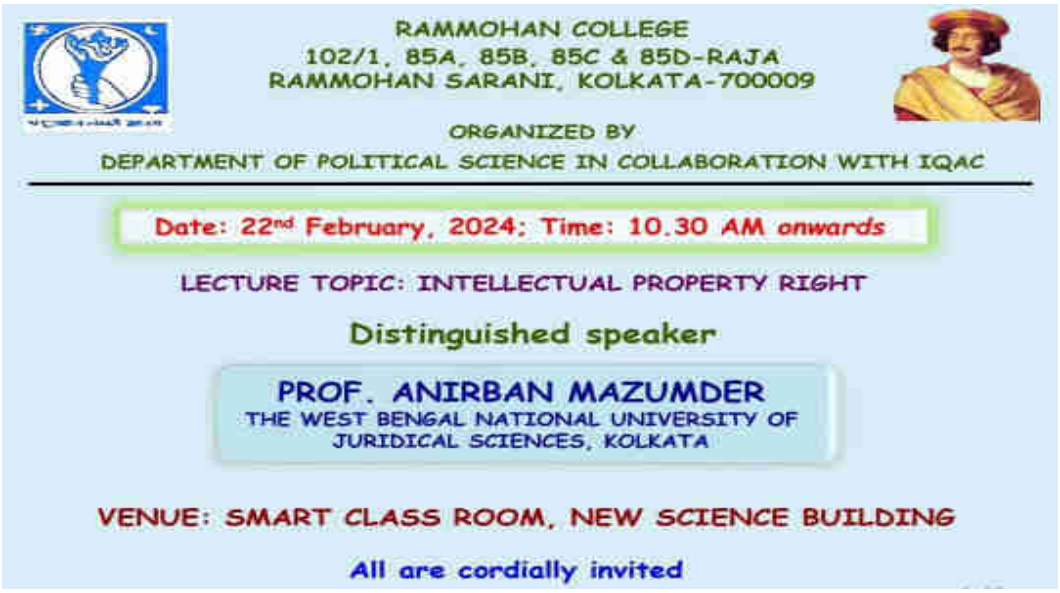
person has to wait seven years to receive a response from his or her successor. Alongside, he mentioned that for the purpose of research, news reporting, taking help from books, or making any reference, it is not considered illegal. Copyright law facilitates new creations. A patent is granted for an invention only. Many instances were cited to explain the complex web of the Law of Patents, causes for revoking, etc. Finally, he had provided the philosophical legitimization of intellectual property with reference to John Locke's Theory of Labour.



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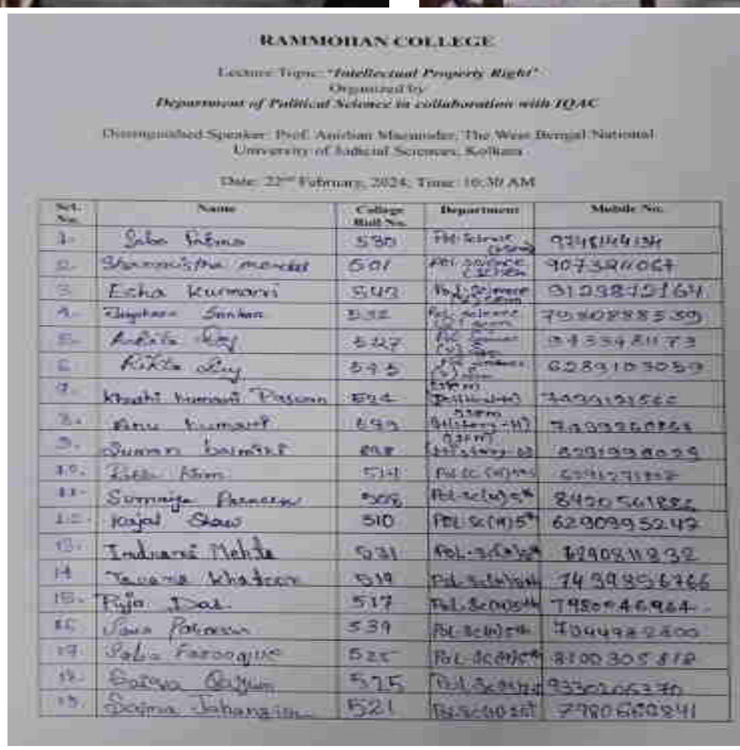

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Lecture Topic: *"Intellectual Property Right"*
Organized by
Department of Political Science in collaboration with IQAC

Distinguished Speaker: Prof. Anirban Mazumder, The West Bengal National University of Juridical Sciences, Kolkata

Date: 22nd February, 2024; Time: 10:30 AM

Srl. No.	Name	College Roll No.	Department	Mobile No.
1.	Saba Fatima	530	Pol. Science (3rd Sem)	9748144134
2.	Sharmistha Mondal	501	Pol. Science (3rd Sem)	9073911067
3.	Echa Kumari	543	Pol. Science (3rd Sem)	9123815164
4.	[illegible] Sinha	532	Pol. Science (3rd Sem)	7980888539
5.	Ankita Roy	527	Pol. Science (3rd Sem)	[illegible]
6.	Rikta Roy	545	Pol. Science (3rd Sem)	6289103059
7.	Khushi Kumari Prasad	524	3rd Sem Political (H)	[illegible]
8.	Annu Kumari	699	3rd Sem History (H)	[illegible]
9.	Suman Kumari	[illegible]	3rd Sem History (H)	[illegible]
10.	[illegible]	514	Pol. Sc (H) 3rd	[illegible]
11.	Sumaiya Parveen	505	Pol. Sc (H) 3rd	8420561882
12.	Kajal Shaw	510	Pol. Sc (H) 5th	6290995247
13.	Indrani Mehta	531	Pol. Sc (H) 3rd	8290811232
14.	[illegible] Khatoon	519	Pol. Sc (H) 3rd	7439956766
15.	Puja Das	517	Pol. Sc (H) 5th	7980746964
16.	Sana Parveen	539	Pol. Sc (H) 5th	[illegible]
17.	Saba Farooque	525	Pol. Sc (H) 5th	8100305818
18.	Sariya Begum	515	Pol. Sc (H) 3rd	[illegible]
19.	Saima Jahangir	521	Pol. Sc (H) 3rd	7980680841

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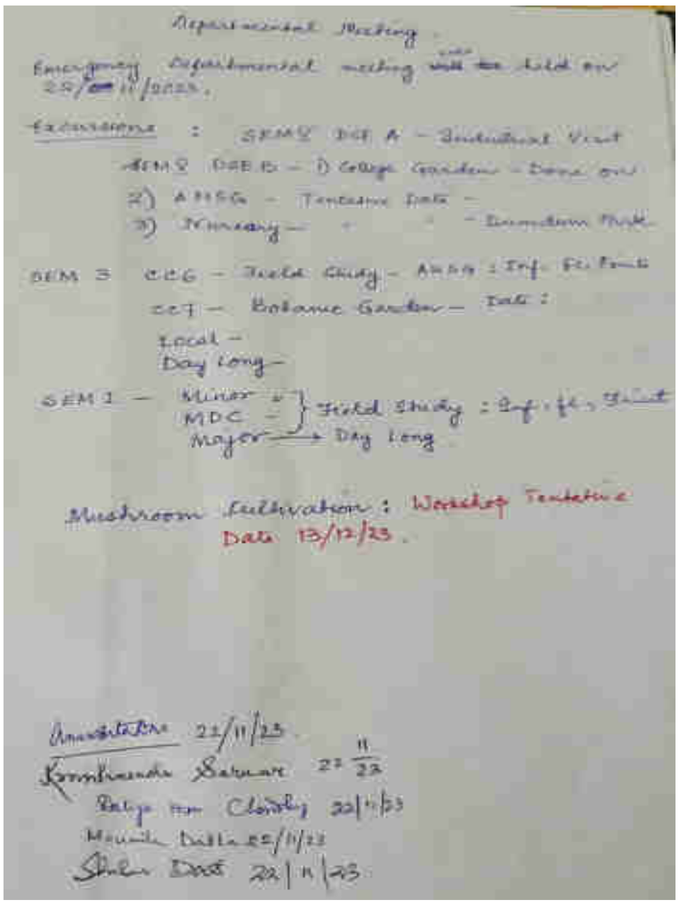
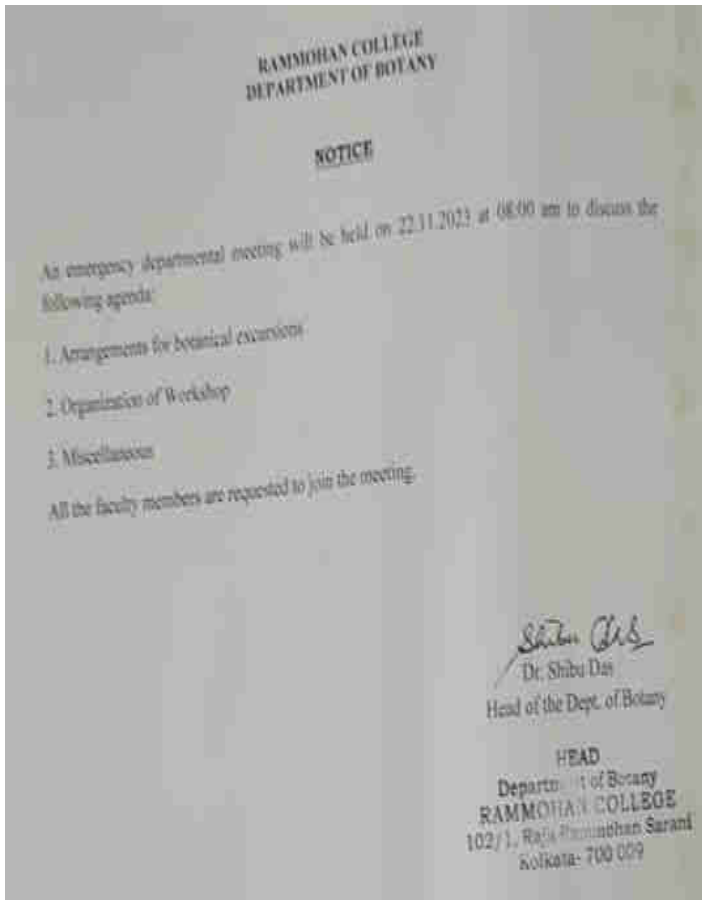
Unit C: Self-reliance and capacity building hub

Establishment of Mushroom culture unit at New Science Building, Rammohan College





RAMMOHAN COLLEGE
DEPARTMENT OF BOTANY

NOTICE

An emergency departmental meeting will be held on 22.11.2023 at 08.00 am to discuss the following agenda:

1. Arrangements for botanical excursions
2. Organization of Workshop
3. Miscellaneous

All the faculty members are requested to join the meeting.

Dr. Shibu Das
Head of the Dept. of Botany

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Department of Botany
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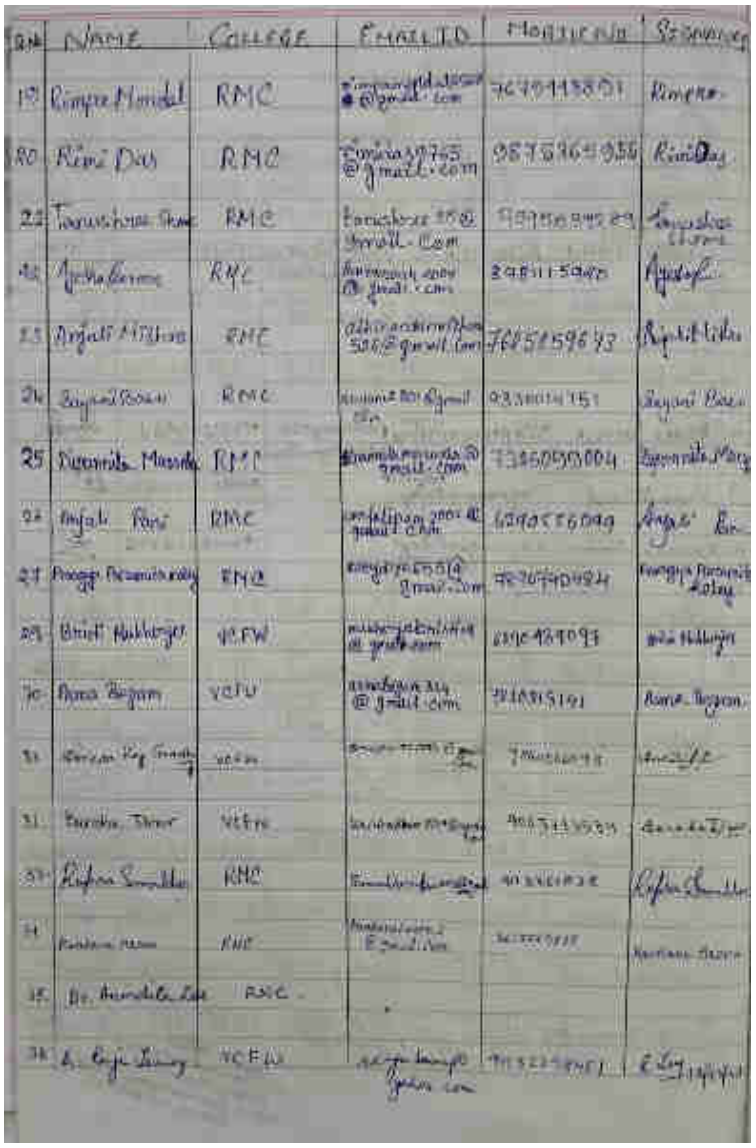

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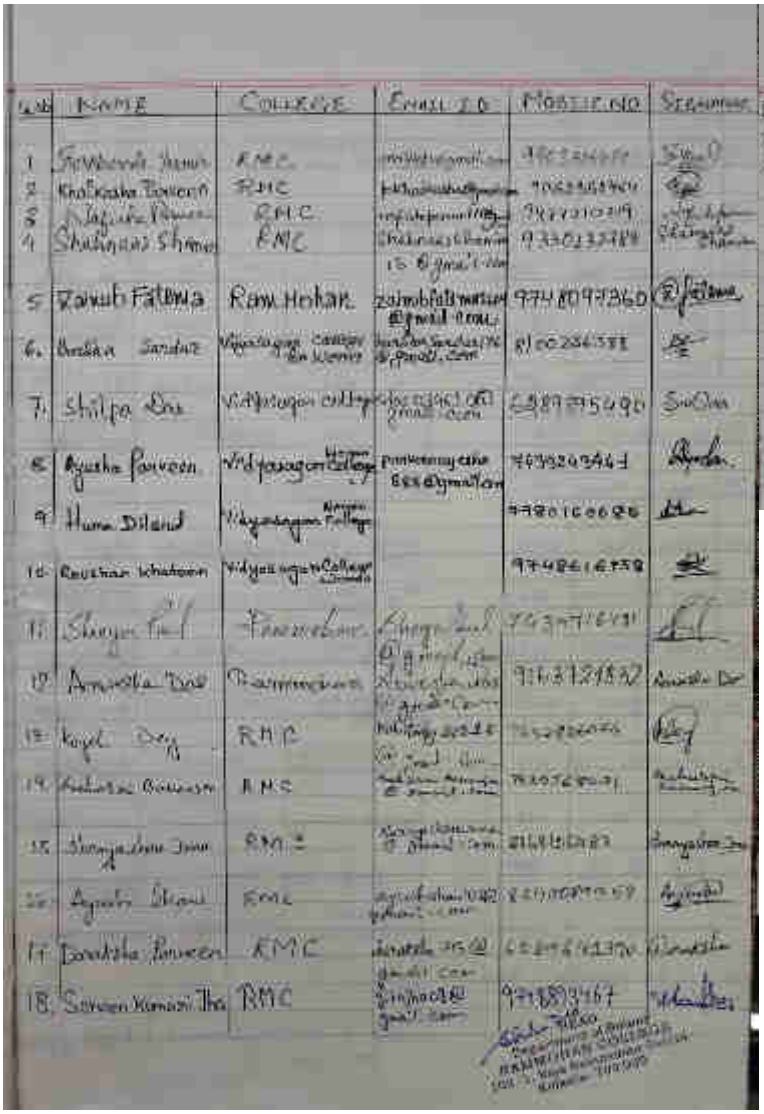

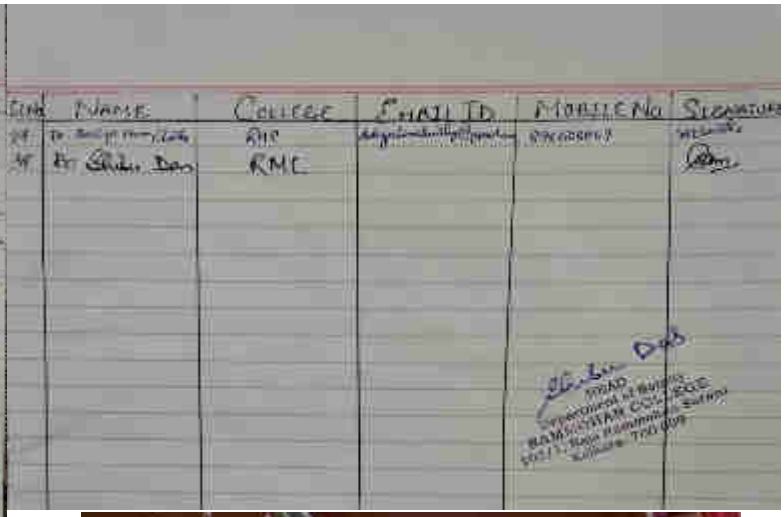

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An one-day workshop on Mushroom Culture Technology was organised by the Department of Botany, Rammohan College, on 13th December 2023. The resource persons were Dr Nilanjan Chakraborty (Department of Botany, Scottish Church College) and Mr Anujit Das (Earth Star Mushrooms)

Dr Chakraborty delivered a lecture on the benefits of mushroom as food, different mushroom dishes, the cultivation process and the economic aspects of mushroom cultivation.

After the lecture Mr Anujit Das from Earth Star Mushrooms demonstrated the cultivation process stepwise and gave hands on training to the students of the department. Students from Semester I of the Department of Botany, Vidyasagar College for Women also actively participated in the workshop. The training programme was very successful.

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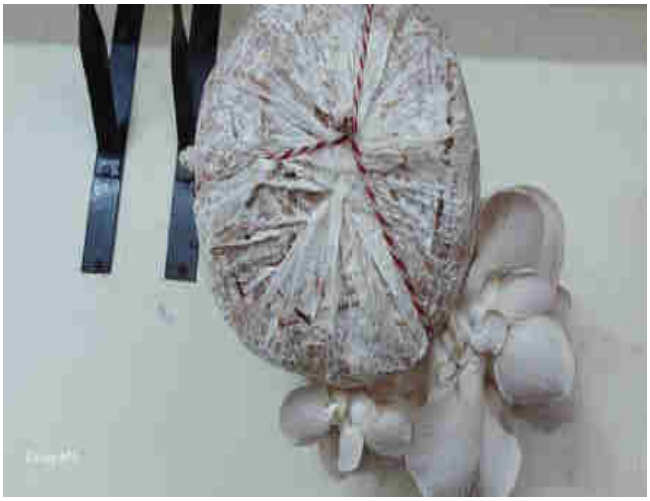

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Remarks

Considering the high yield, fast growth cycle, and low production cost mushroom culture system has been established in Rammohan College. Students are encouraged by the Innovation and Incubation Centre cell to take it as profitable business since mushroom products have a high market demand, and can be sold fresh or processed into a variety of products such as canned mushrooms. Thus it gives chances of employment for the students in the future. Here it should be mentioned that mushroom production can convert the huge lignocellulosic waste materials into a wide diversity of products (edible or medicinal food, feed and fertilizers), protecting and regenerating the environment. Therefore it should be considered as a major component of green trade.

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LEARN TO EARN: Capacity building

The learn to earn motto of the college is well exemplified by the collective effort undertaken by the Department of Bengali when they organized a Handicraft Exhibition of their Alumni Association in collaboration with IQAC, Rammohan College, on 13th October, 2023. The Auditorium in the New Science Building came alive with the excited buying and selling of attractive handicraft items; a number of past students of the Bengali Department displayed their products and this initiative yielded results in the form of revenue generation of more than **Rupees Ten Thousand**. Among the alumni, **Marutrisha Sarkar earned Rs. 2050/-, Riya Ghosh Rs. 1500/-, Sneha and Sudesha Chatterjee Rs. 1407/-, Meghna Guha Rs. 1800/-, Shreyashi Chakraborty Rs. 670/-, Mandira Das and Sudipta Hazra Rs. 750/-, Riya Kundu Rs. 950/- and Swarnali Sarkar raised an amount of Rs. 2040/-.** *This attempt is an indication of the potential for earning in an effective way among students passed out from this college.*

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Handicraft Exhibition of Alumni Association

Organized by the Department of Bengali & IQAC,Rammohan College.

The aims of this Exhibition were

A)To encourage the Students to enhance their potential.

b) To grow their self confidence.

c) To make them ready for self employment.

So the moto of the program was learning to earning and the program was successfully completed,

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Rammohan College

Department – Bengali

Handicraft Exhibition of Alumni Association

Organized by the Department of Bengali & IQAC,Rammohan College

Date : 13.10.2023

Name of the Participants –

1)Marutrisha Sarkar

2)Riya Kundu

3)Sneha &Sudesha Chatterjee

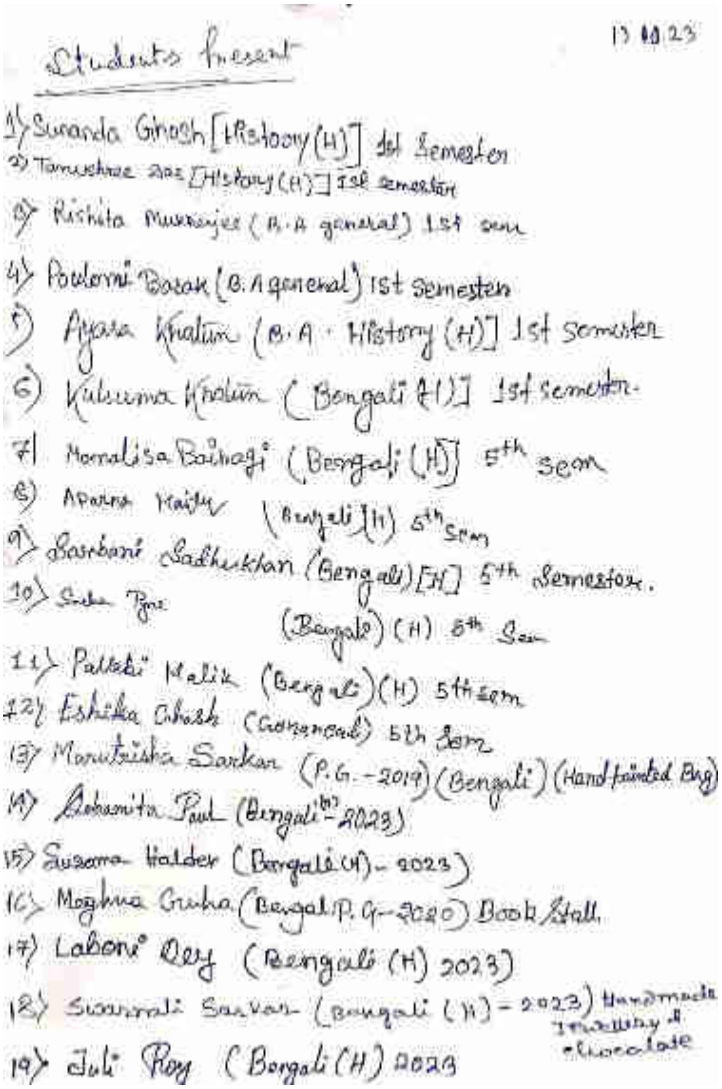
4)Swarnali Sarkar

5)Meghna Guha

6)Sheyashi Chakraborty

7)Riya Ghosh

8)Mandira Das & Sudipta Hazra



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12.2023

20. Anwesha Shaw (2020) Stall :- Handmade Panjabi & Jwellery
21. Mandira Das (2020) - Stall - Handmade jewellery
22. Rim Ghosh (2023 pm) - Stall - Food
23. Sneha Chatterjee - (2020) - Stall - Craft and Jwellery
24. Riya Kundu (2020) - Stall - Handmade Jwellery.
25. Suhita Saha (2023) — Ex Student
26. Nabanita Dey (2023) — Ex Student
27. Manisha Rajak (2023) - Ex student
28. Sohini Mukherjee (2023) - Ex student
29. Sukalpa Sarkar (2023) - Ex student
30. Paromita Mondal (2018) - Ex student
31. Jhankar Gupta (2023) - 5th Sem (History H)
32. Anindita Nayak (2023) - 5th Sem (History H)
33. Ankita Basak (2023) - 3rd Sem (M.A) Bengali (H)
34. Rakhi Ghosh (2023) - 3rd Sem (M.A) Bengali (H)
35. Maksuda Yesmin (2023) 3rd sem (M.A) Bengali (H)
36. Anindita Dey (2023) 3rd Sem (M.A.) Bengali (H)
37. Puja Das (2023) 3rd Sem (B.A) Bengali (H)
38. Sudeshna Biswas "
39. Ankita Dutta "
40. Anamika Dey "
41. Chandrima Bagchi "
42. Sayantanee Chakraborty " (M.A)
43. Esha Sharma 5th sem (Hindi)
44. Shreya Pandey 5th Sem (Hindi)
45. Sudipta Hazra (Ex)
46) Gramapurna Mondal 3rd (M.A) Bengali
47) Barsha Saha (M.A) Bengali
46. Sneha Mondal M.A 3rd sem (Bengali)
47. Afrana Nasrin M.A 3rd " (")
48. Chandrima Nandi M.A 3rd " (")
49. Sulekha Chowdhury B.A 1st " (")
50) Shayantika Saha B.A 1st Sem (English)
51) Sharmistha Das M.A 3rd Sem (Bengali)
52) Punam Prasad B.A 5th sem (Hindi)
53) Lakshmi Das B.A 5th sem (Hindi)
54) Tania Dey B.A 1st Sem (Bengali)
55) Sonu Singh B.A 1st Sem (English)
56) Ahana Samaddar M.A 3rd Sem (Bengali)
57) Debasmita Singha M.A 3rd Sem (Bengali)
58) Papiya Mondal (Bengali) Ex student (passout)
59) Nandini Saha (Bengali) (M.A) (3rd Sem)
60) Riya Ganguly (Bengali) (M.A) (3rd Sem)
61) Moumita Das (Bengali) (M.A) (3rd Sem)
62) Ipshita Mallick (Bengali) (M.A) (3rd Sem)
63) Stephen Gomes [Bengali] [M.A] [3rd Semester]
64) Anwesha Mondal [Bengali] [M.A] [3rd Semester]
65) SOMA ROY [BENGALI] [MA] [3rd SEMESTER]
66) Ponali Karmakar [Bengali] [MA] [3rd Sem]
67) Nilanjana Kundu [Bengali] [MA] [3rd Sem]
68) Souvi Paul [Bengali] [MA] [3rd Sem]
69) Aditi Singha [Bengali] [M.A] (3rd Sem)

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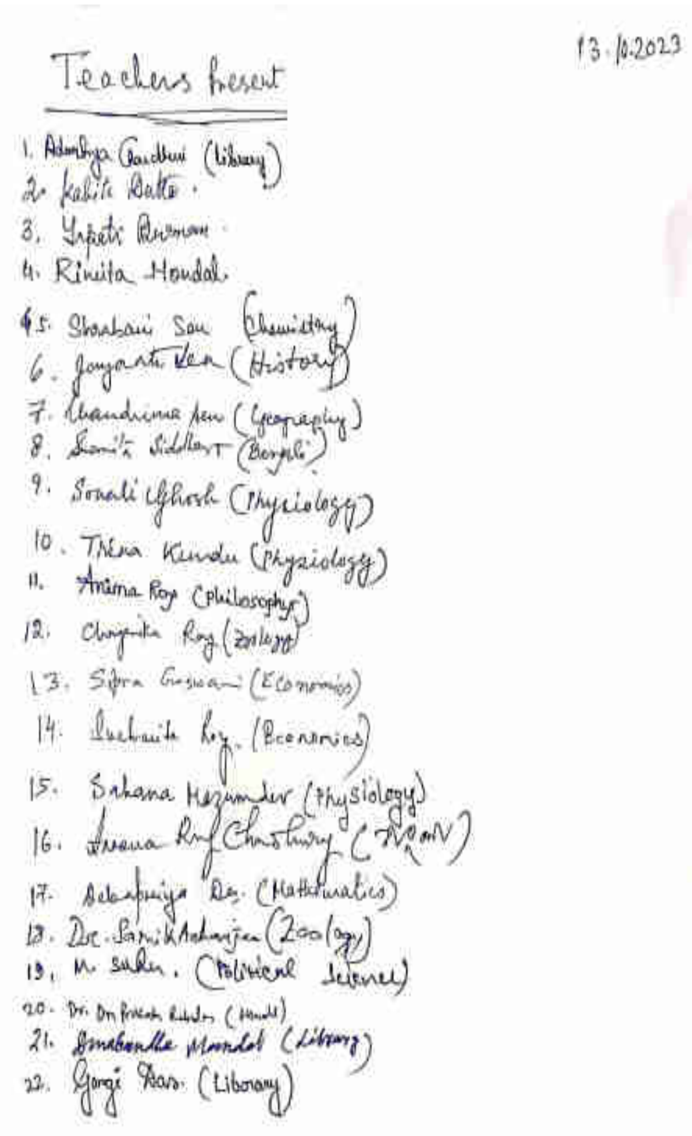

13.10.2023

Teachers present

1. Adwitiya Gandhari (Library)
2. Kabita Datta.
3. Tripti Barman.
4. Rinita Mondal.
5. Shrabani Sen (Chemistry)
6. Jayanta Sen (History)
7. Chandrima Sen (Geography)
8. Smita Siddhanta (Bengali)
9. Sonali Ghosh (Physiology)
10. Tilena Kundu (Physiology)
11. Anima Roy (Philosophy)
12. Chayanika Roy (Zoology)
13. Sipra Goswami (Economics)
14. Suchanita Roy. (Economics)
15. Sahana Mazumder (Physiology)
16. Anasua Roy Chowdhury (Bengali)
17. Adwitiya Das. (Mathematics)
18. Dr. Samik Acharjee (Zoology)
19. M. Saha. (Political Science)
20. Dr. Dr Pritesh Kulathur (Hindi)
21. Snabantha Mondal (Library)
22. Gargi Rao. (Library)

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Future plan

The abovementioned workshop and exhibition were organized by the college to make students forcefully expose to production, planning and innovative marketing. As a result students now become ready to develop a plan and accordingly may able to execute the same in the future, the capacity building.

Now we are going to strive for the provision of industry interaction and access to support incubators with skills for commercialization of their products.

This directive guidance may configure the life of the students towards the development of self-reliant people, the stepping stone of Atma *Nirbhar Bharat*.

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