

পশ্চিমৰুগ पश्चिम बंगाल WEST BENGAL

81AA 337749

MEMORANDUM OF COOPERATION Between Balagarh Bejoy Krishna Mahavidyalaya, and Bejoy Narayan Mahavidyalaya

Balagarh Bejoy Krishna Mahavidyalaya, with registered office in Balagarh, Hooghly, West Bengal, Indian, 712501, represented by Principal Dr. Pratap Banerjee.

And

Bejoy Narayan Mahavidyalaya, Itachuna, Hooghly, 712147, represented by Principal Dr. Gouam Bit.

Here in after referred to as "Parties". With the object of promoting cooperation in academic education and research, the Parties have mutually agreed to enter into this memorandum.

Article 1

The scope of research and academic education cooperation includes:

1. Conducting joint research in the fields of interest to both Parties;

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- 2. Exchange of expertise between academic staff and students;
- 3. Exchange of science publications, academic scripts, textbooks and literature;
- 4. Green initiatives undertaken by the Nature clubs of the Mahavidyalaya;
- 5. Any other activity which may be incorporated into the memorandum in the form of annex hereto.

Article 2

In order to implement the objectives of this memorandum, the parties shall set out a detailed subject matter in accordance with applicable provisions and financial capabilities, rules of cooperation, financing methods, schedule of staff and student exchange and designate a person responsible for implementing the said. Detailed conditions of cooperation, applicable law, dispute resolution and the scope of responsibility shall be agreed upon by the Parties under a separate agreement.

Article 3

The Parties shall specify regulations regarding data confidentiality and intellectual property rights unless this covered by the subject matter of an agreement. The Parties shall also specify the effects of cooperation.

Article 4

This memorandum is concluded for the period of 3 years. Either Party may terminate this memorandum with three month written notice.

Article 5

This memorandum may be amended by an annex mutually agreed upon and signed by the parties.

Article 6

This parties shall designate coordinators for the activities under this memorandum. 1. For Balagarh Bejoy Krishna Mahavidyalaya, Dr. Abhijit Ghosh, Co-ordinator, IQAC, Balagarh, Hooghly, West Bengal, 712501, represented by Principal Dr. Pratap Banerjee.

2. For Bejoy Narayan Mahavidyalaya, Dr. Shalmali Chakraborty, Co-ordinator, IQAC, Itachuna, Hooghly, West Bengal, 712147, represented by Principal Dr. Goutam Bit.

Article 7

This memorandum enters into force on the date on which the last party signs.

BEJOY NARAYAN MAHAVIDYALAYA



(Signature with date) Principal Bejoy Narayan Mahavidyalaya P.Q.- Itachuna, DL- Hooghly. BALAGARH BEJOY KRISHNA MAHAVIDYALAYA

2017

[Signature with date]

Principal Balagarh B. K. Mahavkiyalaya Balagarh, Hooghly, W.B.



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पश्चिम बंगाल WEST BENGAL MEMORANDUM OF COOPERATION between **Sreegopal Banerjee College** and

Bejoy Narayan Mahavidyalay

Sreegopal Banerjee College, with registered office in Bagati, Magra, Hooghly, West Bengal, India, 712148, represented by Principal Dr. Debasis Mukhopadhyay.

And

Bejoy Narayan Mahavidhyalaya, Itachuna, Hooghly, 712501, represented by Principal Dr. Goutam Bit

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The scope of research and academic education cooperation includes:

- - 1. Conducting joint research in the fields of interest to both Parties; 2. Exchange of expertise between academic and research staff;
- 3. Exchange of science publications, academic scripts, textbooks and literature; 4. Exchange of academic and research staff and students;
- 5. Organisation of joint sc.entific activities,
- 6. Any other activity which may be incorporated into this memorandum in the form of

** 202 15/170/170 pation भूल्ए....र 10 - Engos favar or anaver ক্রতার নাম..... min সাকিম..... amor থানা..... m জলা ভেণ্ডারের স্বাক্ষর..... জিত চ্যাটাব্জী লাইসেন্স প্রাপ্ত স্টাম্প তেণ্ডার দ্বলা জ্বর আদালড, চ্রিডা, কল্লি

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- 1. for Sreegopal Banerjee College, Dr. Subhas Chandra Ghosh Co-ordinator IQAC., Sreegopal Banerjee College Bagati, Magra, Hooghly, West Bengal, India, 712148, represented by Principal Dr. Debasis Mukhopadhyay.
- 2. for Bejoy Narayan Mahavidhyalaya, Dr. Pinak Dutta, Co-ordinator IQAC Itachuna, Hooghly, 712146 represented by Principal Dr. Goutam Bit

Article 7

This memorandum enters into force on the date on which the last party signs.

Bejoy Narayan Mahavidhyala

date and signature)

Principal Bejoy Narayan Mahavidyalaya

P.O.- Itachuna, Dt.- Hooghly

Sreegopal Banerjee College

10.03.22

(date and signature) Principal Sreegopal Banerjee College Begati, Mogra, Hooghly



MEMORANDUM OF COOPERATION

between Sreegopal Banerjee College and Bejoy Narayan Mahavidyalay

Sreegopal Banerjee College, with registered office in Bagati, Magra, Hooghly, West Bengal, India, 712148, represented by Principal Dr. Debasis Mukhopadhyay.

And

Bejoy Narayan Mahavidhyalaya, Itachuna, Hooghly, 712147, represented by Principal Dr. Goutam Bit

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- 1. Conducting joint research in the fields of interest to both Parties;
- 2. Exchange of expertise between academic and research staff:
- 3. Exchange of science publications, academic scripts, textbooks and literature;
- 4. Exchange of academic and research staff and students;
- 5. Organisation of joint scientific activities,
- 6. Any other activity which may be incorporated into this memorandum in the form of annex hereto.

Article 2

In order to implement the objectives of this memorandum, the Parties shall set out a detailed subject matter in accordance with applicable provisions and financial capabilities, rules of cooperation, financing methods, schedule of staff and student exchange and designate a person responsible for implementing the said. Detailed conditions of cooperation, applicable law, dispute resolution and the scope of responsibility shall be agreed upon by the Parties under a separate agreement.

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- 2. for Bejoy Narayan Mahavidhyalaya, Dr. Pinak Dutta, Co-ordinator IQAC Itachuna, Hooghly, 712147 represented by Principal Dr. Goutam Bit

Article 7

This memorandum enters into force on the date on which the last party signs.

Bejoy Narayan Mahavidhyala

(date and signature) Principal Bejoy Nerayan Mahavidyalaya P.O.- Itachuna, Dt.- Hooghly. Sreegopal Banerjee College

12.05.2022

.....

(date and signature) Principal Sreegopal Banerjee College Bagati, Mogra, Hooghly



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পশ্চিমবর্গা पश्चिम बंगाल WEST BENGAL

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MEMORANDUM OF COOPERATION

Between

Bejoy Narayan Mahavidyalaya

and

Government Physical Education College for Women,

Bejoy Narayan Mahavidyalaya, Itachuna, Hooghly, 712147, represented by Principal Dr. Goutam Bit.

And

Government Physical Education College for Women, with registered office in Rice Research Station, Chinsurah (R.S.)Hooghly, West Bengal, Indian, 712102, represented by Principal Dr. Shyamal Mazumder.

Here in after referred to as "Parties". With the object of promoting cooperation in academic education and research, the Parties have mutually agreed to enter into this memorandum.

Article 1

The scope of research and academic education cooperation includes:

- 1 Conducting joint activities in the field of sports and games;
- 2. Exchange of expertise between academic staff and students;
- 3 Exchange of academic scripts, books and literature.
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Article 2

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Article 6

This parties shall designate coordinators for the activities under this memorandum. 1. Bejoy Narayan Mahavidyalaya, Dr. Pinak Dutta, Co-ordinator, IQAC, Itachuna, Hooghly, West Bengal, 712147, represented by Principal Dr. Goutam Bit.

2. For Government Physical Education College for Women, Dr. Sushanta Pal, Co-ordinator, IQAC, Rice Research Station, Chinsurah (R.S.)Hooghly, West Bengal, Indian, 712102, represented by Principal Dr. Shyamal Mazumder.

Article 7

This memorandum enters into force on the date on which the last party signs.

GOVERNMENT PHYSICAL EDUCATION COLLEGE FOR WOMEN

BEJOY NARAYAN MAHAVIDYALAYA

AL

(Signature with date) Principal Covt. Phy. Edu. College for Woman Hoogshiv



(Signature with date)

12022

Principal Bejoy Narayan Mahavidyalaya P.O.- Itachuna, Dist.- Hooghiy,



পশ্চিমকা पश्चिम बंगाल WEST BENGAL

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In continuation of the MOU, signed on 10/03/2017 (Non-Judicial Stamp no. 81AA337748 and 81AA337749) We, undersigned do hereby agree to continue our collaboration with more emphasis on environment related activities and little emphasis on Physical education (as one of the parties namely BNMV has a MOU with another B.P.Ed College at Hooghly).

BEJOY NARAYAN MAHAVIDYALAYA

(Signature with date) Principal Bejoy Narayan Mahavidyalaya P.O.- Ilachuna, DL- Hooghiy. BALAGARH BEJOY KRISHNA MAHAVIDYALAYA

2021 0

iv:

Signature with date) Principal Balagarh B. K. Mahavidyataya Balagarh, Hooghly, W.B.





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MEMORANDUM OF UNDERSTANDING

BETWEEN Bankura Sammilani College, Kenduadihi, Bankura, West Bengal

Bejoy Narayan Mahavidyalaya,

Itachuna, Hoogly

Bankura Sammilani College, Bankura, affiliated to Bankura University and **Bejoy Narayan Mahavidyalaya**, Itachuna, Hoogly affiliated to Burdwan University, are linked by common academic interests and seek to develop collaborations and exchanges in fields of shared interest and expertise. The activities undertaken pursuant to this **Memorandum of Understanding** (MoU) are based on a spirit of cooperation and reciprocity, that is intended to be mutual benefit to both the institutions.

1. Purpose*

This Memorandum of Understanding (MoU) serves as a written understanding of agreed upon principles between Bankura Sammilani College and Bejoy Narayan Mahavidyalaya concerning a set of general academic objectives. This is a non-binding agreement and is intended to clarify the nature and extent of the harmonizing activities that might be undertaken for the mutual benefit of the two institutions. Each institution will be responsible for managing its own expenses and also share as and when necessary. Commitments of specific institutional resources, personnel, space, facilities, or any other academic or intellectual activities considered hereunder may or may not be beyond the scope of this MoU. To the extent that the implementation of any agreed upon activity requires a commitment of resources, personnel, credit-bearing coursework, or intellectual property, a supplementary agreement will be negotiated and approved by the two parties before work on any of the projects can commence.

2. Objectives, Scope, and Major Activities*

Both institutions agree to encourage the development of the following types of activities:

- Visits and formal exchanges of faculty, scholars and administrators in specific areas of education, research and outreach.
- Cooperate in Under Graduate & Post Graduate education and training through library as well as laboratory resources.
- Organize joint conferences, symposia, or other scientific meetings on subjects of mutual interest.
- Exchange of academic information and materials.
- Pursue avenues for under graduate and post graduate student exchange during the academic year or through summer/winter internship programs.
- Explore the possibilities for developing joint research programs and collaborations.
- Other exchange and cooperation programs such as extension activities to which both institutions agree.

3. Responsibilities of the Institutions*

[&]amp;

The two institutions identify that the execution of any agreed upon activity will depend upon the interests and expertise of the individuals involved and the availability of financial resources, space and other resources. Accordingly, the functioning of any exchange and cooperative programs based on this MoU shall be conferred and determined between the two institutions. It is further expected that both institutions will be compliant with all applicable Government of India and State legislations and University policies.

4. Duration and Option to Amend, Extend or Terminate*

This MoU will become effective when signed by authorities of both institutions. The agreement will remain in effect for five years from the date of signature given below, and may be renewed or amended by mutual agreement of the institutions. The institutions should agree to periodically review the activities undertaken and the progress made and to consult concerning amendments, renewal or termination of this MoU. Either authority may terminate this MoU at any time by providing written notice of such termination to the other authority.

5. General Terms*

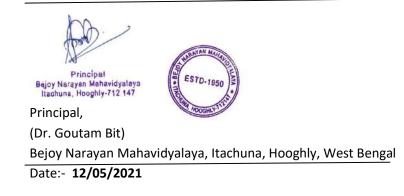
This MoU is not intended to, and does not create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity, by either party, its officers, employees, or agents against the other party, its officers, employees, or agents. Nothing in this MoU obligates either party to commit or transfer any funds, assets, or other resources in support of projects or activities between the two parties. Neither party will use the name of the other, either expressly or by implication, in any publicity, solicitation or advertisement without the express written approval of the other party to this MoU.

6. Signatures*

This MoU shall enter into force on the date of the signing by qualified representatives of both institutions.

12 05 2021 RINCIPAL nkura Sammilani Colle Kenduadihi, Bankura

Principal, (Dr. Samir Kumar Mukherjee) Bankura Sammilani College, Kenduadihi, Bankura, West Bengal Date:- **12/05/2021**





Government of West Bengal Government General Degree College, Singur Estd. 2013 Hooghly, W.B. 712409 Office of the Principal Phone No. 033-2630-0126 Email: <u>oicsingur@gmail.com</u>

Ref. No. GGDC-SINGUR-56

Date: 3/12/202/

To The Additional Secretary to the Government of West Bengal Department of Science & Technology and Biotechnology Vigyan Chetana Bhawan, 5th Floor Block-DD, Plot No. 26/B, Sector-I Salt Lake City, Kolkata-700 064

Kind Attention: Amiya Kumar Kalidaha, Senior Scientific Officer

Sub: Submission of 1st Year UC, Audited SoE and Yearly Progress Report of my R&D Project on Chemical Sciences entitled: "Synthetic engineering of multitasking small-molecule heterocyclic fluorophores that juggle environmental sensitivity and biological significance"

Sir,

Kindly note that I, Dr. Amrit Krishna Mitra, am having one R&D Project on Chemical Sciences as given in the subject line funded by your Department, DSTBT, GoWB. I have successfully completed the first_year of this ongoing project as per the objectives and suggestions received from the Hon'ble Expert Committee Members during my last presentation. I am really indebted to DSTBT, GoWB for providing me the fund for carry out this research at my Institute.

I am here by submitting the five nos. of hardcopies with original signatures of 1st UC, Audited SoE and Yearly Progress Report with publications etc. related to the said R&D Project for your consideration with a request to release the next installment at the earliest. I have already uploaded the softcopies/pdf of these documents at Vigyansathi Portal from my dashboard on 3-12-2021.

I am ready to go for presentation before the Expert Committee as and when called for.

Thanking you.

With best regards,

Sincerely yours,

Awnit Krishne Mitr DR Dept PI - Name: Dr. Amrit Krishna Mitra, Designation: Assistant Professor of Chemistry, Government General Degree College, Singur Email: amritsepistles@gmail.com, 9432164011 Registration id & date: 57/ASTP/M/C_49358/21, 2019-11-21 Application id & date: 0226/RND/CHS/C_49358/Feb-2021/1/1, 2021-02-19

Brolati Chakraborty Softeent of Maradan Co-PI- Name: Dr. Brotati Chakraborty of Maradan Designation: Assistant Professor of Chemistry, Bejoy Narayan Mahavidyalaya, Itachuna Email: <u>brotati07@gmail.com</u>, 9433701100 Registration id & date: 642/ASTP/F/C_44658/21, 2019-11-21

Enclo: as stated



Utilisation Certificate (UC) in respect of Grant-In-Aid

Date: 24.11.2021

- No.
- 1. Name of the Grantee Institute (s) : Government General Degree College, Singur
- Sanctioning Authority: West Bengal State Council of Science & Technology 2.
- Sanction Order Number & Date: 1855(Sanc.)/ST/P/S&T/15G-5/2019 Date: 14/02/2020 3.
- Amount Sanctioned : Rs. 1,10,000/- [Rupees One Lakh Ten Thousand Only] 4.
- Drawing & Disbursing Officer : AO, WBSCST 5
- 6. Treasury/PAO : -[From where the bill was drawn]
- 7. Bill No. & Date : -
- 8. T. V. No. & Date: -
- Amount Drawn : Rs. 1,10,000/-
- 10. Unspent Balance of Previous year, if any : NA
- 11. Amount Utilised : Rs. 1,10,000/-
- 12. Unspent Balance, if any, in Current year : NA
- 13. Purpose of Utilisation : R&D project entitled Synthetic engineering of multitasking smallmolecule heterocyclic fluorophores that juggle environmental sensitivity and biological significance

CERTIFICATE

Certified that I have satisfied myself that the conditions on which the Grant-in-Aid was sanctioned have been duly fulfilled/are being fulfilled that I have exercised the following checks to see that the money was actually utilised for the purpose for which was sanctioned.

[Applicable in case of unspent balance] The unspent fund will be adjusted against the Grant-in-Aid to be sanctioned and paid in the Current Financial Year (applicable in case of recurring grant only).

Kinds of checks exercised

- 1. Cash Book
 - 2. Ledger
- 3. SOE (Statement of expenditure)



Dr. SANTANU CHAKRABARTI

PRINCIPAL

Date 24 11 2021

Signature with Official Stamp

GOVT. GENERAL DEGREE COLLEGE, SINGUR (IMPORTANT: UC must be completed in one single A4 page and not to split into more than one page)

<u> Standard Form - II</u>

Yearly Progress Report

Name of the PI and Co-PI (if any) with designation, mobile no., e-mail id, Registration id & date and Application id & date (Vigyansathi Portal): PI – Name: Dr. Amrit Krishna Mitra, Designation: Assistant Professor of Chemistry, Government General Degree College, Singur Email: amritsepistles@gmail.com Registration id & date: 57/ASTP/M/C_49358/21, 21-11-2019 Application id & date: 0226/RND/CHS/C_49358/Feb-2021/1/1, 19-02-2021 Co-PI- Name: Dr. Brotati Chakraborty Designation: Assistant Professor of Chemistry, Bejoy Narayan Mahavidyalaya, Itachuna Email: brotati07@gmail.com Registration id & date: 642/ASTP/F/C 44658/21, 21-11-2019

2. Title of the R&D Project:

Synthetic engineering of multitasking small-molecule heterocyclic fluorophores that juggle environmental sensitivity and biological significance

3. Name and postal address of the Institute of the PI and Co-PI (if any):

Institute of PI - Government General Degree College, Singur Address: Jalaghata, Singur, Hooghly: 712409

Institute of Co-PI - Bejoy Narayan Mahavidyalaya, Itachuna Address: Itachuna, Hooghly: 712147

- 4. Total Approved Budget: 2,20,000/-
- 5. First Sanctioned G. O. No. & Date: 1855(Sanc.)/ST/P/S&T/15G-5/2019, Date: 14-02-2020
- 6. Date of Commencement of the Project: 28-08-2020
- 7. Total Duration of the Project (One year/ Two year/ Three year): Three years
- 8. Last Sanctioned G. O. No. & Date (for which the Yearly Progress Report is given):

1855(Sanc.)/ST/P/S&T/15G-5/2019, Date: 14-02-2020

9. Year of the Progress Report (1st year/ 2nd year/ 3rd year): 1st year

10. Objective(s)/ Academic Landmark of the Sanctioned Project: 1st year/ 2nd year/ 3rd year:

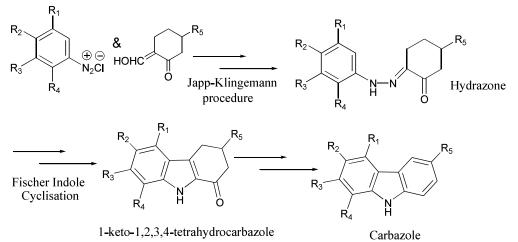
Development of new small molecule environment sensitive heterocyclic fluorophores is always an important field of research in biology, bio-technology and medicine. Our target is to develop a new class of small molecule fluorophores based on heterocyclic skeleton. The environment sensitivity, interactions

with amines, amino acids, cyclodextrins, micelles and proteins are the primary objectives of this research. Development of such fluorophores having biological significances will definitely make a mark in the field of photochemistry and those of medicinal chemistry and material science. These small molecule fluorophores probably can act as light emitting diodes, potential photosensitive biological units, fluorescent markers (with respect to amino acids, peptides, proteins, carbohydrates etc.) in biology, photo-induced electron sensors and in diverse fields of chemistry (photoelectrical dyes, supramolecular recognitions and medicinal chemistry). Since many of the carbazole and indole derivatives are famous for their wide range of biological activities, it has been the core research objective to synthesise several fluorescent derivatives of carbazoles and indoles and to study their photophysics in diverse environments.

Serial	Quantifiable Landmarks	Months
1	Laboratory Set-up and synthesis of heterocyclic fluorophores (based on Indole skeleton). Characterization of this fluorophores using IR, ¹ H NMR, ¹³ C NMR, HRMS data.	1 - 12 months
2	Photophysical studies of these compounds.	12 - 24 months
3	Molecular docking analysis and biological studies (if the fluorophores are found to be bio- active)	24- 36 months

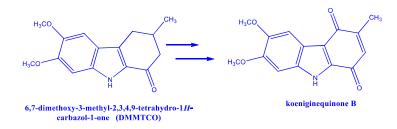
11. Achievement(s) of the Objective/ Academic Landmark (till date of Report):

We have synthesised a few fluorophores based on 1-keto-1,2,3,4-tetrahydrocarbazole [KTHC] skeleton. Japp-Klingemann reaction has been used to synthesise several hydrazones followed by Fischer Indole Cyclisation to obtain the said skeleton [Scheme 1].



Scheme 1: Synthetic outline to obtain derivatives of 1-keto-1,2,3,4-tetrahydrocarbazole.

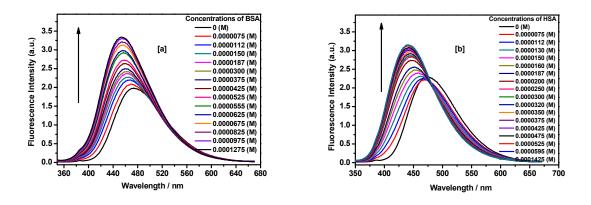
We have performed the detailed photophysical studies of a newly synthesized fluorophore, 6,7dimethoxy-3-methyl-2,3,4,9-tetrahydro-1H-carbazol-1-one (DMMTCO). DMMTCO is a synthetic precursor of koeniginequinone B (biologically active carbazolequinone) [Scheme 2].



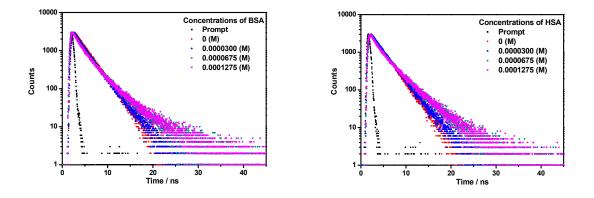
Scheme 2: Representative structures of 6,7-dimethoxy-3-methyl-2,3,4,9-tetrahydro-1H-carbazol-1-one (DMMTCO) and Koeniginequinone B.

Spectroscopic and photophysical study of this molecular system in serum albumin media has been performed meticulously for a better understanding of the nature of binding and bio-distribution in the body. Steady states as well as time-resolved fluorescence techniques have been used as extremely sensitive monitors to explore the interactions between the abovementioned ones [Scheme 3 and Scheme

4].

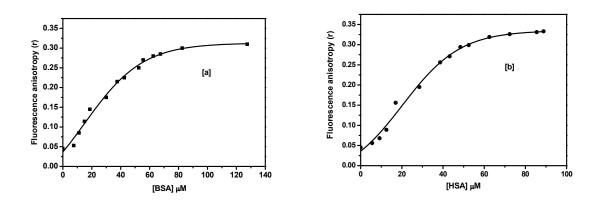


Scheme 3: Fluorescence emission spectra of DMMTCO in presence of different concentrations of (a) BSA and (b) HSA. Emission spectra have been taken exciting the samples at their corresponding absorption maxima.

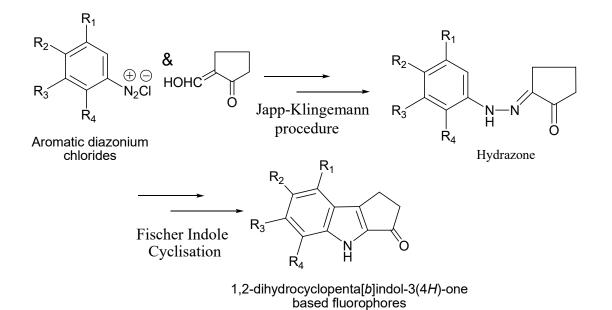


Scheme 4: Fluorescence lifetime plots of DMMTCO (excited using a 340 nm LED) in presence of BSA (a) and HSA (b). Concentration of the compound is 1×10^{-6} M.

Fluorescence anisotropy study has been performed to assess the degree of restrictions imparted by the micro-environments of serum albumins [Scheme 5].



Scheme 5: Variation of fluorescence anisotropy (r) of DMMTCO with increasing concentrations of BSA (a) and HSA (b). λ_{em} is 453 nm for BSA and 440 nm for HSA. Concentration of the compound is 1×10^{-6} M.



Another series of new fluorophores have been synthesised [Scheme 6].

Scheme 6: Synthetic outline to obtain derivatives of 1,2-dihydrocyclopenta[b]indol-3(4H)-one.

Throughout this spectroscopic endeavour attention has been paid to compare the photophysical responses of the said fluorophore within bio-environments of two different albumins.

12. If there is any shortcomings to achieve the objective(s), reason(s) thereof:

We have not been able to synthesise some more fluorophores. Even the biological studies of these skeletons have not been performed yet.

It was due to the Covid-19 pandemic situation that most of the academic and research institutions were not accessible. Hopefully, the pending works can be performed in the second year of the project.

13. Physical Progress during the reporting year:

We have been able to synthesise a few fluorophores. However, detailed photophysical studies have been performed on a single fluorophore, 6,7-dimethoxy-3-methyl-2,3,4,9-tetrahydro-1H-carbazol-1-one (DMMTCO). The photophysics of DMMTCO in several homogeneous and microheterogenous systems have been studied in detail.

In this respect, it is worthwhile to mention that a review article has been published by the principal investigator on the synthesis, photophysical and biological studies of carbazole. A book chapter has also been published on the photophysical properties of 1-keto-1,2,3,4-tetrahydrocarbazole based fluorophores. Again, as we all know, neurotransmitters play the role of electrochemical signalling molecules which are essential for suitable brain functioning. Their dysfunction causes several mental and health disorders. Neurotransmitters are present at a very low concentration in the nervous system and they are mixed with many other biochemical molecules. The neuropeptides oxytocin and vasopressin are the most interesting molecules for social neuroscience and there is a considerable genetic and structural resemblance between these structures. We have planned to study the interactions (if any) between the newly synthesised fluorophores and the neuropeptides oxytocin and vasopressin.

A review article has been published on oxytocin and vasopressin showcasing the chemistry, the social and the psychobiological importance of oxytocin and vasopressin.

14. Quantitative indication of the actual progress vis-à-vis the original proposal submitted to DSTBT (as per Work Plan and Timeline):

For the past one year, a detailed literature survey has been performed and a few fluorophores have been synthesised. Detailed photophysical studies were carried out on one of such fluorophores. Three papers and one book chapter have been published in several UGC approved journals.

However, the synthesis of more such new fluorophores, their biological and photophysical studies are pending. Quantitatively, 25% progress has been made with respect to the original proposal submitted to

DSTBT. Due to the pandemic, most of the academic and research institutions restricted physical entry, thereby hampering the progress to a certain extent. Hopefully, we shall be able to perform better in the ongoing year.

15. Physical Achievement and Translational Outcome till date, particularly, how the result will help the common people of our State:

Designing and characterizations of small molecule environment sensitive fluorophores are extremely significant in the viewpoint of bio-chemical and bio-physical studies. They are extremely precious owing to their capability to probe micro-environments which can decipher bulk information in the study of molecular biology, drug discovery, material science, tissue diagnostics, environmental indicators, enzyme substrates and cellular staining agents. Although numerous fluorophores are known in the form of coumarins, fluoresceins, cyanines, oxazines, pyrenes, quinines, bodipy dyes etc., the quest for newer ones is still on as they are extremely essential to visualize a biochemical process. This research venture involves synthesis and photo-physical studies of a new family of fluorophores. Even the interactions of these fluorophores with several biomolecules, neuropeptides and metal ions undoubtedly constitute an important research that will be helpful for the common people of our state especially focussing on the development of new drugs and biomarkers.

16. No. of papers published/ communicated (with copy) and Book/ Book Chapter/ Book Edited etc.:

Three papers and one book chapter has been published through this project.

1. Journal of the Iranian Chemical Society [Springer Nature, Impact Factor: 2.019] Indexed in Scopus, UGC-CARE List (India) and others

Mitra, A.K. Sesquicentennial birth anniversary of carbazole, a multifaceted wonder molecule: a revisit to its synthesis, photophysical and biological studies. *J IRAN CHEM SOC* (2021). <u>https://doi.org/10.1007/s13738-021-02444-0</u>.

2. Current Science [Current Science Association along with the Indian Academy of Sciences. Impact Factor: 1.102]. Indexed in Web of Science, Scopus, UGC-CARE List (India) and others

Mitra, A. K. (2021). Asima Chatterjee, one of the brightest stars in the galaxy of organic chemistry. Current Science (00113891), 127(7).

3. AIMS Molecular Science [AIMS Press. Impact Factor: NA] Indexed in Web of Science, UGC-CARE List (India) and others

Mitra, A. K. (2021). Oxytocin and vasopressin: the social networking buttons of the body. AIMS Molecular Science, 8(1), 32-50.

4. Book chapter Published by : LINCOLN UNIVERSITY COLLEGE, Malaysia

Mitra, A. K. (2020). Introducing a New Family of Fluorophores: Keto-tetrahydrocarbazole. *Modern Approaches in Chemical and Biological Sciences*, 18. [doi:10.31674/book.2020.macbs]

17. Patents applied (if any): We have not applied for any patent till date. Hopefully, we shall try to do it in future.

18. Remaining Work to be done for the next year:

- A. Synthesis of some new small molecule heterocyclic fluorophore.
- B. Photophysical studies in several environments.
- C. Study related to the interactions of these compounds with several biomolecules.
- D. Biological studies of these compounds.

19. Budget utilization as per the sanctioned heads:

Sl No	Sanctioned Heads as per Budget	Amount allotted as per Sanctioned Budget (A)	Expenditure made during the reporting year (B)	Unspent Balance (C=A-B)	Remarks, if any
1.	Consumables	1,00,000/-	1,00,000/-		Chemicals and glass goods have been bought for the smooth execution of the project.
2.	Other costs	5,000/-	5,000/-		This sanctioned budget has mainly been utilized to buy stationery and a certain amount (2,360/-) from this sanctioned budget has been paid to the Journal Current Science for the print of colour pages for one of the published articles.
3	Travel	5,000/-	5,000/-		Numerous visits were made to various intuitions during the lockdown period.
-	4				
F	Total	1,10,000/-	1,10,000/-		

20. Any other Special Achievement/ Translational value etc.: No other special recognition has been achieved till date. We still have two years' time and hopefully something beneficial can be made.

Aunit Knishure Milm-DR. AMPIT KR. MITRA WBES-Gr-A Dept. of Chemistry Govt. General Degree College, Singur

PI – Name: Dr. Amrit Krishna Mitra,

Designation: Assistant Professor of Chemistry, Government General Degree College, Singur

Email: amritsepistles@gmail.com, 9432164011

Registration id & date: 57/ASTP/M/C_49358/21, 2019-11-21

Application id & date: 0226/RND/CHS/C_49358/Feb-2021/1/1, 2021-02-19

ahavidyalaya Narayan N Brotali Chakrabor

Co-PI- Name: Dr. Brotati Chakrabörty

Designation: Assistant Professor of Chemistry, Bejoy Narayan Mahavidyalaya, Itachuna

Email: brotati07@gmail.com, 9433701100

Registration id & date: 642/ASTP/F/C_44658/21, 2019-11-21

Page | 10

Audited Statement of Expenditure (Audited-SoE)

- 1. Name of the PI and Co-PI (if any) with designation, mobile no., e-mail id, Registration id & date and Application id & date (Vigyansathi Portal): PI – Name: Dr. Amrit Krishna Mitra, Designation: Assistant Professor of Chemistry, Government General Degree College, Singur Email: amritsepistles@gmail.com Registration id & date: 57/ASTP/M/C_49358/21, 21/11/2019 Application id & date: 0226/RND/CHS/C_49358/Feb-2021/1/1, 19/02/2021 Co-PI- Name: Dr. Brotati Chakraborty Designation: Assistant Professor of Chemistry, Bejoy Narayan Mahavidyalaya, Itachuna Email: brotati07@gmail.com Registration id & date: 642/ASTP/F/C_44658/21, 21/11/2019
- 2. Title of the R&D Project: Synthetic engineering of multitasking small-molecule heterocyclic fluorophores that juggle environmental sensitivity and biological significance
- 3. Name and postal address of the Institute of the PI and Co-PI (if any): Institute of PI - Government General Degree College, Singur Address: Jalaghata, Singur, Hooghly: 712409 Institute of Co-PI - Bejoy Narayan Mahavidyalaya, Itachuna Address: Itachuna, Hooghly: 712147
- 4. First Sanctioned G. O. No. and Date: 1855(Sanc.)/ST/P/S&T/15G-5/2019 Date: 14/02/2020
- 5. Date of Commencement of the Project: 28/08/2020
- 6. Total Duration of the Project (One year/ Two year/ Three year): Three year
- 7. Last Sanctioned G. O. No. and Date (for which the Audited SoE is given): 1855(Sanc.)/ST/P/S&T/15G-5/2019 Date: 14/02/2020
- 8. Reporting Year of this Audited SoE (1st year/2nd year/3rd year): 1st year

SI No	Sanctioned Heads as per Budget	Amount allotted as per Sanctioned Budget (A)	Expenditure made during the reporting year (B)	Unspent Balance (C=A-B)	Remarks, if any
1.	Consumabl	1,00,000/-	1,00,000/-	-	Chemicals and glass goods have been bought for the smooth conduction of the project.
2.	Other costs	5,000/-	5,000/-	-	This sanctioned budget has mainly been utilized to buy stationaries and a certain amount (2,360/-) from this sanctioned budget has been paid to the Journal, Current Science for the print of colour pages for one of the published articles.
3.	Travel	5,000/-	5,000/-	-	Numerous visits were made to various intuitions during the lockdown period.
	Total	1,10,000/-	1,10,000/-	-	

Certified that we have exercised all kinds of checks to see that the grant has been utilized for the purpose for which it Chartered Accountants was sanctioned by DSTBT, GoWB.

AMRIT KRISHNA MITRA wint Unishine Mil-28/10/21

Name & Signature with date of Principal Investigator with Official Seal

Assistant Professor WBES Govt. Gen. Degree College Singur, Hooghly

Name & Signature with date of Head of the Institution with Official Seal

Dr. SANTANU CHAKRABARTI WBSES

23

PRINCIPAL GOVT. GENERAL DEGREE COLLEGE, SINGUA

Name & Signature with date of Chartered Accountant with Official Seal M. NO: 051492



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1 Who

Proprietor



P. K. DHAR & CO. Chartered Accountants Phone : 2230-5796 MERCANTILE BUILDINGS (2nd Floor) 9, Lal Bazar Street, Kolkata - 1

Utilisation certificate

This is to certify that out of Rs. 1,10,000/- (One lakh ten thousand) only, sanctioned by Department of Science & Technology, Govt. of West Bengal for implementing the project "Synthetic engineering of multitasking small-molecule heterocyclic fluorophores that juggle environmental sensitivity and biological significance" in favour of Government General Degree College, Singur PIN- 712409, vide sanctioned letter no. 1855(Sanc.)/ST/P/S&T/15G-5/2019 Date: 14/02/2020 and Rs. NIL on account of unspent balance of the previous year, a sum of Rs. 1,10,000/- (One lakh ten thousand) only has been utilised for the purpose for which it was sanctioned.

Certified that I have satisfied myself that the condition on which the Grant-in-Aid was sanctioned have been duly fulfilled and that I have exercised the following checks to see that the money was actually utilized for the purpose for which it was sanctioned.

<u>Kind of checks</u> Cash Book, Pass Book, Vouchers etc.

> For P.K. DHAR & Co. Chartered Accountants.

HON

(Pradip Kumar Dhar) Proprietor. M.No. 0 51492-

V DIN 21051-92 AAAAE T 9590

Place: Kolkata Dated: 24-11-2021

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SREEGOPAL BANERJEE COLLEGE

ESTD.-1958 (Government Sponsored) Accredited with B-Grade in Second Cycle Accreditation by NAAC

Vill.: Bagati, P.O.: Magra, Dist.: Hooghly, Pin : 712148, West Bengal

Ref. No.



Phone : (033) 2684-4124, 2684-2706 Tel. Fax : 2684-2706 e-mail : sgbc_2003@yahoo.com

Date 23.04.2018

Το.

F. Pinak Dutta
Associate Professor
Department of Chemistry
Beiov Naravan Mahavidyalaya
Itachuna, Hooghly

Sir.

Sub: Collaborative research

It's a privilege and honour for me to collaborate with you and your institution on the projects related to detection of fatty acid profiles of various indigenous fishes primarily consumed by the people of the eastern region of India and protein isolates of *Alstonis scholaris*. Please share with me your proposals in detail so that I can work on it and give my views before starting our laboratory work.

0

reesonal Baneries Colless

" ___king forward for an interesting and fruitful venture.

Regards

Mita Dulls 23/04/18

Mrs. Mita Dutta) Associate Professor & Head Department of Chemistry Sreegopal Banerjee College Bagati, Magra, Hooghly

Head of the Dept of Chemistry S.G.B. College, Bagati Mogra, Hooghly.



Principal's Chamber: (03561) 255131 Office: (03561) 255132 Fax: (03561) 255131 E-mail: principal@jgec.ac.in

GOVERNMENT OF WEST BENGAL DEPARTMENT OF CHEMISTRY JALPAIGURI GOVT. ENGG. COLLEGE JALPAIGURI – 735102

Ref. No.

Dated, The

TO WHOM IT MAY CONCERN

This is to certify that Dr. Animesh Layek, Assistant Professor of Physics of Bejoy Narayan Mahavidyalaya, Itachuna, Hooghly-712147 is a long time collaborator of the undersigned on the research area of the synthesis and characterization of nanooxide. Dr. Layek primarily collaborates on investigating and interpreting the photoelectric properties of the metal nonooxides synthesized in my laboratory since 2016 and we had a joint publication entitled "*Temperature dependent growth of cadmium(II) oxide nanocrystals: studies on morphology based optical, electrical and dielectric properties*" published in the Journal: *J Mater Sci: Mater Electron* and few more is expected to be published in near future.

rolessor (W.B.E.S.)& 30.04,201 Associate artment of Chemistry reignini Govit. Engineering College

Dr. Shyamapada Shit Associate Professor of Chemistry (W.B.E.S.) & Head of Chemistry Jalpaiguri Govt. Engineering College Jalpaiguri 735102



পশ্চিমবঙ্গ पश्चिम बंगाल WEST BENGAL

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Date: - 22.12.2020

- surstar (Khanyan Gucket Accademy), Tagatalogia - भशावातात्यात् रामाव आहि स्वांट वृत्यत् रेमात्मर हिंगालनी - कार्यया आकि, उन्हार Coaching (वर् वावड्या आह) (त्रवगुराखीम (त्रव): (त्रक्तीत्व - 928. (2)(क - मिल्युग्रहार्ग्य स्थापितालाय प्राणि बहुभव 20,000- Vras-- स्वार्थ आम्हाय नमीवया यात्रिक भवा नमायाविम्हात्मात्यात्य रूराव रुरावीतिव विनाक्त्मा रकाहिर भन्न वावड्या कार्युया थावित्। Birchun Sugh

22/12/2020

Bejoy Narayan Mahavidyalaya P.Q.- Nachuna, Dt.- Hooghly.

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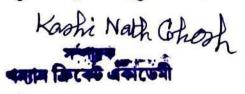
নান ক্রিকেট একাডেম

मान किर्को अकारणम

) No other coaching camp will be able to use this ground unless it is written in

the college permit.

- Khanyan Cricket Academy& Coaching Centre will be forced to leave the ground for any event of the college.
- The ground of the college is maintained by Khanyan Cricket Academy Coaching Centre with the permission of the college.
- Any New development of the ground will be made with the written permission of the college.
- If all the condition is well done according to the agreement, then during the renewal of the next agreement the college should have their 1st priority to Khanyan Cricket Academy& Coaching Centre.
- 6) All the instrument of the Khanyan Cricket Academy& Coaching Centre (i.e. Cricket Net, Ball, Chair, wicket, Table, Garden Umbrella, side screer etc.) which is used for development of the camp as well as cricketer would have a authority to take the above said camp if the agreement w not be approved for the future.
- Khanyan Cricket Academy& Coaching Centre can able to arrange cricker match on the ground in the whole year.
- In future if any dispute arise both the party would have solve the problem on good faith.
- 9) Khanyan Cricket Academy& Coaching Centre should be bounded to pay Rs. 10,000/-(Ten Thousand) within the specified time(said an bergeor for five years.



Bireshum Single 211/2020

ধন্যান ক্রিক্টে একাডেমী

<u>Agreement for lease of the college playground in front of College Hostel</u> This agreement for lease of the College Playground situate at in front of college hostel (details address) in made on 22 d day of 22 d. in the year 20 2.0

BETWEEN

College Authority as the "lease" of the First Part.

AND

Khanyan Cricket Academy hereinafter called Second Part.

Whereas the party hereto of the First and Second Part were made an agreement for the lease of the college playground situated at in front of college hostel (details address of the college) to the second party for Rs.10,000/- (Rupees ten thousand) yearly for 5 (Five) years.

Bireshum Sigle 2/12/2020

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Kashi Nath Chosh



Date ... 15.12.2020

Ref. No.

साततीय श्रीगत-

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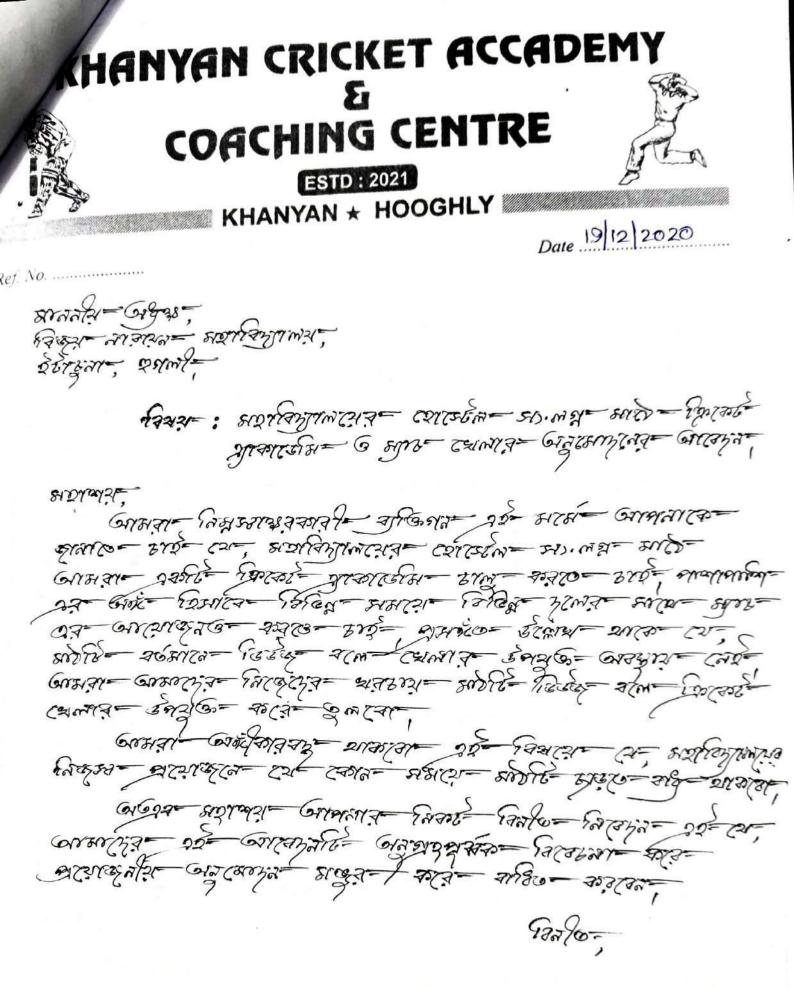


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Birchwor Singh

সভাপাও খন্যান ক্রিকেট একাডেমী

Kashi Nath Chosh

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Sugartes,

Bireshwar Singh 19/12/2020

সভাপত্তি খন্যান ক্রিকেট একাডেমী

F370-, Kashi Nath Blich क्रमाल्यल খন্যান ক্রিক্টে এক্সডেমী

MANTE (278735-ביוביות הבתבות - היבובוה - ובשבו Dargart=, OSTANT השאנור : מצמא שאותינות - נבאנאית איי ביאי האיך בתצאים יקה הארות בין האות הארובים - אירו האיצים - לירי ירי איניים - לירי ירי איניים - לירי ירי איניים Contester ! 200 Ludi -באידיותי האבור בר בר באוניין בינגר אייריאי אייר איירי באוד בנים כוב - הוציצובו ברוב החדורדעבות , בוב בעצ - סרידהים (12431= 3325= 201:202= crisis. -33= Outiness= 202-האמות = משל = בעות - האם = היה - האלים אותות - לבט = איתור האותו = x3, 20 - 20 cm = 2103= 2103= - 23- Colorado = 2350= 325= QIFINO - 32M21 - 217(7) - CZ, SUDDE - 265067 - FEESE - 20M-(आगात - देन्नयुक्त - जन्मुग्न ट्राइ - क्रिमान् - जाम्मारात्न - निर्द्यात्न -219377 = store - 1250 = 7(m - 2018) = 1210117 = 3920 -ASCA = CARAT - 23 - 23 28 - 29 - 103 2010 - 25 200 - 10 200) - 25 - 25 - 29 - 103 2010 - 25 200 - 10 200) - 25 - 25 - 25 - 103 2010 - 25 2000 - 10 200) 61697- 31282121- ONATAR - FARE - FREERE - FREERE तित्रिम करत= अट्राय्हतीय अनुद्वाल्य कार्ड् - करिन कार्ड -मंद तन Erebustres For 50-Bireshwar Singh Koohr Nath Gheoh খন্যান ক্রিকেট একাডেমী ন্যান ক্রিকেট একাডেয়ী

দাঁতা।ৰ নীহালল ৰাঁক 0 punjab national bank शाखा/Branch दिनांक Date 2 6) 2 बचत/चात्/ओडी/नकदं उघार/आवर्ती जमा/आवधिक ऋण/मांगऋण खाता संख्या/ क्रेडिट कार्ड संख्या SF/CA/OD/CC/RD/TL/DL A/c No./Credit Card No. 0 0 नाम/Name दूर/Tel. n 4. /P. ₹ राशि Amount ,000 00 10 ¥/Amount(in words)Rs an i राशि शब्दों n 내 1 / PNB-154(R) 20-21(50) SPF C चेक न Cheque 1. Va 10 No. 8 र बैंक का नाम & Name of Bank 2 1./P. 0,000 0 कुल/Total 000 Punjab National Bank Toll free 24 hours call centre 1800 180 2222 / 1800 103 2222 Officer/Cashier/SWO

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