

UTILISATION CERTIFICATE

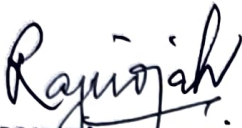
(For the period from 01/04/2025 to 31/03/2026)

(Financial figures given in this UC are shown in lakhs)

1.	Title of the Project	:	DBT-NER Advance-Level Institutional Biotech Hub at Chaiduar College, Biswanath, Assam (Phase-II), with focus area "Effect of pesticides on male Fertility and genotoxicity of albino mice"
2	Name of the Institution	:	Chaiduar College
3	Principal Investigator	:	Dr. Raju Ojah
4	Sanction Order No. & Date of Sanctioning the Project	:	BT/NER/143/SP44407/2021, 01.02.2023
5	Amount brought forward from the previous financial year quoting DBT letter No. & date in which the authority to carry forward the said amount was given i) Letter No. ii) Amount iii) Date	:	BT/NER/143/SP44407/2021 Nil 25/02/2026
6	Amount received/assigned from DBT during the financial year (also give No. and date(s) of sanction order(s) showing the amount(s) released/assigned by DBT)	:	8.00
7	Details of other receipts/interest earned, if any, on the DBT grants	:	Nil
8	Total amount that was available for expenditure during the financial year (S. Nos. 5, 6 and 7)	:	8.00
9	Actual expenditure (excluding commitments) incurred during the financial year (statement of expenditure in this regard is enclosed herewith)	:	8.00
10	Unspent balance refunded, if any (a copy of BharatKosh receipt in this regard is enclosed herewith)	:	0.00
11	Balance amount available at the end of the financial year	:	0.00
12	Amount allowed to be carried forward to the next financial year vide letter No. & date	:	0.00
i). Certified that the amount of Rs. 8.00 mentioned against col. 9 has been utilised on the project for the purpose for which it was sanctioned and an amount of Rs. 0.00 has been surrendered to Govt.			

Raju Ojah
Principal Investigator
Advance-Level Institutional Biotech Hub
Chaiduar College, Cokpur, Assam

ii). Certified that I have satisfied myself that the conditions on which the grants-in-aid was sanctioned have been duly fulfilled / are being fulfilled and that I have exercised the following checks to see that the money was actually utilised for the purpose for which it was sanctioned.		
Kind of checks exercised: 1.Cashbook (Attached)	:	


PROJECT INVESTIGATOR
 (Name, Signature and Stamp)
 Principal Investigator
 Adv Level Institutional Biotech Hub
 Chaiduar College, Gohpur, Assam


FINANCE OFFICER OF THE INSTITUTION
 (Name, Signature and Stamp)
 Head Assistant / Accounts Officer
 Chaiduar College, Gohpur


HEAD OF THE INSTITUTION
 (Name, Signature and Stamp)

Principal & Secretary
 Chaiduar College
 P.O. Gohpur

Statement of Expenditure (SoE) (Referred to in para 9 of the Utilization Certificate)

(Showing grants received from the Department of Biotechnology, and the Expenditure incurred in FY 2025 - 2026 during the period from 01/04/2025 to 31/03/2026)

(Financial figures given in this SoE are shown in lakhs)

S. No.	Budgetary Object Heads	Unspent Balance Carried Forward from Previous Financial Year	Grant Received/ Assigned from DBT during the Financial Year	Other receipts/ Interest Earned on the DBT Grants	Total Grant Available	Actual Expenditure (excluding commitments) incurred during the financial year	Balance Grant Available	Remarks (If any)
1	2	3	4	5	(3+4+5) = 6	7	(6-7) = 8	9
A.	Grants for Creation of Capital Assets**	Nil	Nil	Nil	Nil	Nil	0.00	-
B.	Grants-in-aid General	Nil	8.00	Nil	8.00	8.00	0.00	-
C.	Details of other receipts/ interest earned on the DBT grants (if any)	Nil	Nil	Nil	Nil	Nil	0.00	-
	Grand Total	Nil	8.00	Nil	8.00	8.00	0.00	-

****This SoE must be substantiated with valid & duly executed Capital Assets Acquired Certificate (CAAC)**

- The signatories hereby certify that the expenditure incurred from the released grant was utilized solely for the purpose of implementation of the project under consideration, and in compliance with the sanction order. We also certify that monthly emoluments of engaged human resource in this project have been disbursed in accordance with the duly notified norms/guidelines of the Government Department/Ministry/Autonomous Bodies. Detailed expenditure, if asked for, will be submitted for the purpose of Audit.
- It is also certified that the institute has not utilized more than the amount sanctioned under the "Overhead" component.


PROJECT INVESTIGATOR

(Name, Signature and Stamp)

Principal Investigator
Adv. Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam


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Head Assistant / Accounts Officer
Chaiduar College, Gohpur


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(Name, Signature and Stamp)

Principal & Secretary
Chaiduar College
P.O. Gohpur

Please also note the following:

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2. *Please cross check and ensure that all financial documents are complete in all respect and all are in proper order and in proper DBT formats.*
3. *Please ensure that all financial documents should tally with each other:*
 - a. *Details in Capital Assets Acquired Certificate are matching with equipment expenditure details given in UC &SoE and are in consonance with the DBT approvals/ sanction equipment /Capital assets item list.*
 - b. *Expenditure details in Utilization Certificates are matching with the GFR-19 generated from PFMS website.*
4. *All financial documents duly signed by PI, Finance & Accounts Officer, and Executive Authority of Institution. In case of NGO/ Private Institutions UC &SE also needs to be Audited by Chartered Accountant.*
5. *All financial documents are required to be submitted by email to the program officer.*
6. *In case of multicentric project, grant release/assignment will be considered together after receipt of all financial documents in proper order from all participating institutions. Therefore, all project investigators may co-ordinate with the project coordinator for timely submission of project documents to DBT.*

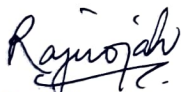
Capital Assets Acquired (wholly or substantially) Out of Government Grants

(Separate Register to be maintained by Grantee Institution)

(For the financial year 2025 - 2026, for the period from 01/04/2025 to 31/03/2026)

(Financial figures given in this CAAC are shown in lakhs)

1.	Name of the Sanctioning Authority	:	Department of Biotechnology, Govt of India
2.	S. No. of Assets Register	:	0
3.	Name of the Grantee Institution	:	Chaiduar College
4.	Project No. & Date of sanction order	:	BT/NER/143/SP44407/2021
5.	Amount of the sanctioned grant for creation of capital assets	:	0.00
6.	Whether any condition regarding the right of ownership of Govt. in the property or other assets acquired out of the grant was incorporated in the grant-in-aid sanction order	:	Nil
7.	Particulars of assets actually created or acquired <i>(Details as per enclosed format)</i>	:	Nil
8.	Value of the assets as on date	:	0.00
9.	Purpose for which assets utilized at present	:	Research
10.	Encumbered or not	:	N/A
11.	Reasons, if encumbered	:	N/A
12.	Disposed of or not	:	N/A
13.	Reasons and authority, if any, for disposal	:	N/A
14.	Amount realized on disposal <i>(before initiating such disposal process prior approval of DBT shall be obtained)</i>	:	0.00
15.	Remarks	:	N/A



Principal Investigator
Adv. Level Institutional Biotech Hub
Chaiduar College, Gohpur, G.

Details of Capital Assets Acquired During the Period

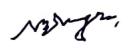
(Financial figures given in this CAAC are shown in lakhs)

S. No.	Name of Equipment/ Asset	Sanctioned Cost	Quantity Procured	Actual Cost (Actual figure, not to roundoff)	Date of Placing order	Date of Receiving Equipment	Payment Voucher No. with Date (Copy of payment voucher(s) may please be enclosed)	Balance to be reimbursed [Provide reason(s) for fluctuation in price (if any)]
	1	2	3	4	5	6	7	8
Sanctioned Equipment/Asset								
a.	-	-	-	-	-	-	-	-
b.	-	-	-	-	-	-	-	-
c.	-	-	-	-	-	-	-	-
d.	-	-	-	-	-	-	-	-
e.	-	-	-	-	-	-	-	-
f.	-	-	-	-	-	-	-	-
g....	-	-	-	-	-	-	-	-
Equipment/Asset acquired without sanction but for which the prior approval of the DBT was obtained								
a.	-	-	-	-	-	-	-	-
b.	-	-	-	-	-	-	-	-
c....	-	-	-	-	-	-	-	-
Total		-	-	-	-	-	-	-


PROJECT INVESTIGATOR

(Name, Signature and Stamp)

Principal Investigator
Adv. Level Institutional Biotech Hub
Charduar College, Gohpur, Assam


FINANCE OFFICER OF THE INSTITUTION

(Name, Signature and Stamp)

Head Assistant / Accounts Officer
Charduar College, Gohpur


HEAD OF THE INSTITUTION

(Name, Signature and Stamp)

Principal & Secretary
Charduar College
P.O.- Gohpur

Consolidated Statement of Accounts (Towards final Settlement of Accounts)
(For the period from Official Sanctioned Date to Official Completion Date 01/02/2023 to 31/03/2026)

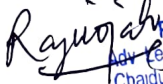
1. **Title of the Project** : DBT-NER Advance- Level Institutional Biotech Hub at Chaiduar College, Biswanath, Assam (Phase-II), with focus area "Effect of pesticides on male Fertility and genotoxicity of albino mice"
2. **Name of the Grantee Institution** : Chaiduar College
3. **Principal Investigator** : Dr. Raju Ojah
4. **Sanction Order No. & Date of Sanctioning of the Project** : BT/NER/143/SP44407/2021,
Date: 01.02.2023
5. **Actual Duration of the Project** : 3 years

A. Consolidated Budget Statement

(Financial figures given in this CBS are shown in lakhs)

Budgetary Object Heads	Total Sanctioned Grant within each Budget Head (as per the Sanctioned Order)	Grants Release Made by DBT					Expenditure Incurred (This must align with UCs and SoEs submitted yearly) **					Amount Refunded through BharatKosh	Unspent Balance left with the Institution	Remark (if any)
		Details to be furnished Financial Year wise					Details to be furnished Financial Year wise							
		2023 - 2024	2024 - 2025	2025 - 2026	20.. - 20..	Total	2023 - 2024	2024 - 2025	2025- 2026	20.. - 20..	Total			
		Year 1	Year 2	Year 3	Year 4 ...		Year 1	Year 2	Year 3	Year 4 ...				
Grants for Creation of Capital Assets	4.67455	4.67455	0.00	0.00	0.00	4.67455	3.98109	0.00	0.00	0.00	3.98109	0.69346 (Automatically deducted by DBT)	0.00	
Grants-in-aid General	41.78648	16.10960	17.67688	8.00	0.00	41.78648	15.67688	17.67688	8.00	0.00	41.35376	0.43272 (Automatically deducted by DBT)	0.00	-
Interest Earned/ any other Receipt(s)	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	46.46103	20.78415	17.67688	8.00	0.00	46.46103	19.65797	17.67688	8.00	0.00	45.33485	1.12618	0.00	-

**Indicate if there was any deviation/revision as against the sanctioned order, and reason thereof in remark section


 Principal Investigator
 Advance Level Institutional Biotech Hub
 Chaiduar College, Gohpur, Assam

B. Details of Equipment Procured During the Project Period

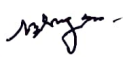
(Financial figures given in this equipment procured details are shown in lakhs)

S. No.	Name of Equipment(s)/ Asset(s) Acquired	Sanctioned Cost	Quantity Procured	Actual Cost (Figures not to roundoff)	Balance to be reimbursed
	1	2	3	4	5
a.	Microtome Knife Sharpening Machine	0.39805	1	0.34220	Nil
b.	Laminar Air Flow	1.06050	1	0.80240	
c.	Rotary Microtome	0.42000	1	0.37760	
d.	Hot Water Bath	0.21000	1	0.12390	
e.	Mobile Freeze box	0.12600	1	0.10000	
f.	Vertical Autoclave	0.85000	1	0.49999	
g.	Horizontal Electrophoresis with Digital power pack	0.41300	1	0.42000	
h.	Air Conditioner	0.52500	1	0.43000	
i.	Vortex	0.13650	1	0.12390	
j.	Double Distilled Water Plant	0.42000	1	0.66670	
k.	Hot Plate	0.11550	1	0.09440	
Total		4.67455		3.98109	Nil

- The signatories hereby certify that the expenditure incurred from the released grant was utilized solely for the purpose of implementation of the project under consideration, and in compliance with the sanction order. We also certify that monthly emoluments of engaged human resource in this project were disbursed in accordance with the duly notified norms/guidelines of the Government Department/Ministry/Autonomous Bodies. Detailed expenditure, if asked for, will be submitted for the purpose of Audit.
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PROJECT INVESTIGATOR

(Name, Signature and Stamp)


FINANCE OFFICER OF THE INSTITUTION

(Name, Signature and Stamp)


HEAD OF THE INSTITUTION

(Name, Signature and Stamp)

Principal Investigator
Adv Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

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Progress Report for R&D Projects [Year 3(1+2+3)]*
[For the period 01-02-2023 to 31-03-2026]

Section-A: Project Details

A1. Project Title: *DBT-NER Advanced –Level Institutional Biotech Hub at Chaiduar College, Biswanath, Assam (Phase-II)* with focus area “ Effect of pesticides on male Fertility and genotoxicity of albino mice”

A2. DBT Sanction Order No. & Date:

Letter No. : BT/NER/143/SP44407/2021 **Date :** 01/02/2023

A3. Name of Principal Investigator: Dr. Raju Ojah

Name of Co-PI/Co-Investigator: Dr. Mohini Mohan Borah
Dr. Sushanta Borah

A4. Institute: Chaiduar College

A5. Address with Contact Nos. (Landline & Mobile) & Email:

Landline: 03715-291058

Mobile : 8638537756

Email: biotechcdc23@gmail.com, chaiduarcollege@gmail.com.

A6. Total Cost: Rs 57,52,175. 00

A7. Duration: 3 Years

A8. Approved Objectives of the Project:

1. Analysis of pesticides in tea leaves
2. Study the effect of pesticides used in tea farming at Biswanath district on male germ cells of albino mice.
3. Study the effects of pesticides used in tea farming on histoarchitecture of testis, kidney and liver of albino mice.
4. Study the effect of pesticides on testicular protein expression in male albino mice.
5. Study the toxic (SGOT/SGPT) and genotoxic effect of pesticides on male albino mice.

A9. Specific Recommendations made by the Task Force (if any): No.

Section-B: Scientific and Technical Progress

B1. Progress made against the Approved Objectives, Targets & Timelines during the Reporting Period:

Scientific and Technical Progress

- **Summary of the project**

Modern lifestyles expose humans to a wide range of toxic chemicals, among which pesticides are recognized as major contributors to male reproductive disorders, including reduced sperm motility, low sperm count, hormonal imbalance, and impaired fertility. In India, the widespread application of pesticides in agriculture has become a significant public health concern, particularly for male agricultural workers who are frequently exposed due to inadequate use of protective measures and limited awareness of associated health risks. In Assam, tea cultivation forms a vital part of the economy, and the tea gardens of Biswanath district are known for intensive pesticide usage to maintain crop productivity. However, the potential adverse effects of these pesticides on male reproductive health have not yet been systematically investigated. Therefore, the present study aims to evaluate the impact of tea garden pesticides on male fertility using albino mice as an experimental model. The research will focus on the analysis of pesticide residues, assessment of reproductive and testicular toxicity, and evaluation of genotoxic effects. In addition, the study seeks to promote awareness regarding the harmful effects of pesticide exposure and to encourage the adoption of organic and sustainable farming practices for the protection of both human health and the environment.

Keywords: Pesticides, Sperm, Human health, Tea Garden, Reproductive toxicity.

Background for the Project (including rationale of the project):

Biswanath district, home to Asia's largest Monabari Tea Estate, relies extensively on pesticides in tea cultivation. A pilot survey conducted among tea garden workers in the region revealed a high prevalence of health-related issues, including infertility, reproductive disorders, and developmental abnormalities in children, which may be associated with exposure to endocrine-disrupting chemicals present in pesticides. In this context, the present study aims to investigate the effects of tea garden pesticides on male fertility using albino mice as an experimental model. By examining reproductive toxicity, hormonal imbalance, and associated physiological changes, the study seeks to address a growing global concern regarding the impact of environmental contaminants on male reproductive health.

● **Objectives, Methodology & Work plan:**

➤ **Objectives**

1. Analysis of pesticides in tea leaves.
2. Study the effect of pesticides used in tea farming at Biswanath district on male germ cells of albino mice.
3. Study the effects of pesticides used in tea farming on histoarchitecture of testis, kidney and liver of albino mice.
4. Study the effect of pesticides on testicular protein expression in male albino mice.
5. Study the toxic (SGOT/SGPT) and genotoxic effect of pesticides on male albino mice.

➤ **Work plan:**

Period of study	Achievable targets	Status
6 Months	Site selection and literature review	Done
12 Months	Sample collection and preparation, Dose determination	Done
18 Months	Tissue sample collection and Histological studies	Done
24 Months	Genotoxicity study, SDS-PAGE and Toxicity study	Done
30 Months	Report writing, Manuscript preparation for publication	Done
36 Months	Report submission	Done

➤ **Objective wise Methodology and Result**

➤ **Materials and methods**

Objective 1.0 Analysis of pesticides in tea leaves.

1.1 Plant materials and chemicals

Mature tea leaves from the *Camellia sinensis* Linn plant in Biswanath district of Assam were collected for the study. All of the analytical-grade chemicals and solvents used in this investigation were acquired from Sigma Aldrich and E. Merck in Germany.

1.2 Preparation of plant materials

To avoid exposure to direct sunlight, the tea leaves were carefully dried in a controlled environment. After that, a mechanical grinder was used to grind them coarsely. In anticipation of further processing and analysis, the resulting powdered leaves were meticulously kept in an airtight, dry container in a deep freezer kept at -15°C (Hasan *et al.*, 2024).

1.3 Preparation of tea extract

After being cleaned of adhering contaminants with running tap water, 10 g of the gathered matured tea leaves were put in a covered container. After that, methanol was added at a 1:20 ratio. A cold extraction procedure was carried out by immersing the samples in the methanol solvent for 72 hours. After then, it was filtered. A rotary evaporator was then used to treat the antioxidant-containing filtrate and produce extracts (Hasan *et al.*, 2024).

1.4 LCMS Profiling

To determine its underlying phyto-constituents, the plant sample's hydro-methanolic extract was subjected to LCMS experiments utilizing an Agilent 6500 Series QTOF LCMS System with a binary pump (6200seriesTOF/6500seriesQ-TOFB.09.00 (B9044.1SP1). The ion source was a dual Agilent mass spectrometer with ionization interface (AJS ESI). Five microliters of each fraction's sample were injected onto a ZorbaxC182 after being diluted with 98% water and acetone. 1.8 μ M C-18 columns, 1 $\times$ 50 mm. Between m/z 60 and 1600, the spectra were captured with both positive and negative polarities at a scan rate of 2.0 spectra/sec.

1.4 Chemicals

SGOT, SGPT, and Creatinine kits were purchased from Aspen Laboratory Pvt. Ltd (Delhi, India). Testosterone kit (Catalog No. SE120119) was purchased from Sigma-Aldrich. All other chemicals required for the experiment were obtained from the chemical store of the DBT-NER Advance Level Institutional Biotech Hub, Chaiduar College.

Objective 2.0: Study the effect of pesticides used in tea farming at Biswanath district on male germ cells of albino mice.

2.1 Experimental subjects: Male Mice

For the experimental purpose, adult, fertile, healthy mice 11 to 13-week-old, weighing 27 $\pm$ 3 grams, were obtained from the Animal House Facility at chaiduar college. Before commencing the experiment, all the animals were acclimated in a separate hygienic room within the Animal House for 15 days. Five mice were kept per pathogen-free sterile plastic cages, maintained at a controlled temperature (27 $\pm$ 2°C), with a 12/12-hour light/dark cycle. They were given a routine diet (twice daily) and had access to water ad libitum. The experiment followed the guidelines of the Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA).

2.2 Selection of dose

In the study the mice were divided into five groups (n = 5). The dose to be treated is prepared using Lindane (compound found higher concentration in the tea leaves) at different concentrations (mg/kg) i.e., 5mg/kg, 10mg/kg, 15mg/kg, 20mg/kg, 25mg/kg, 30mg/kg, 35mg/kg, 40mg/kg. The above compound decided to be treated on the basis of the abundant concentration in tea obtained by LC-MS analysis. Every group of mice were treated twice

daily with the above respective concentrations. A negative control group was treated with purified normal drinking water. These experiments were conducted for 35 days, followed by a fertility test.

For the fertility test, each male mouse was paired with two estrus-induced female mice in separate breeding cages, and the appearance of a vaginal plug was considered day zero of gestation. The mice were kept in separate cages until the birth of pups. Fertility rates were determined using the formula described by Ajayi and Akhigbe (2020).

The study revealed that the highest dose, 40mg/kg, was detrimental and sometimes lethal to the subjects. A 30mg/kg dose was detrimental but not lethal, while 25mg/kg, 20mg/kg, 15mg/kg, 10mg/kg dose caused a significant decrease in fertility. Again, 5mg/kg dose resulted in an insignificant decrease in fertility.

2.3 Grouping of experimental animals

Male mice were divided into four groups (n = 5) and received oral Lindane solution (T1, T2) sample treatment as detailed in Table 2. All male mice were orally administered 100mg/kg and 25mg/kg dose twice daily, in the morning between 8:00 and 9:00 Hrs and in the evening between 16:00 and 17:00 Hrs (Table 1). The negative control group received water only, and the positive control group was given cyclophosphamide (Cyp) orally at a dose of 20 mg/kg body weight (bw) (Oh et al., 2007), both for 35 days. Literature survey indicated that 20 mg/kg bw of Cyp is the minimum dose that could induce reproductive toxicity and cytotoxicity (Oh et al., 2007; Cuce et al., 2015). Therefore, this dose was used to induce the said toxicity. On the 36th day of the experiment, all animals were weighed. After recording their weight, the animals were euthanized using ketamine hydrochloride, and blood serum and tissues were collected for further experiments.

Table 1: Different treatment groups of male mice

Group	Group size	Dose	Duration (Days)	Dose
Negative Control	5	0%	35	Twice daily
Positive control (Cyp)		20mg/kg bw		
T1		10mg/kg bw		
T2		25mg/kg bw		

2.4 Collection of Blood serum

Blood was collected from the mice by cardiac puncture using a syringe and placed in sample bottles without anticoagulant. The blood samples were centrifuged at 6000 rpm (Model: CHEM 5x) for 10 minutes. The resulting supernatant was used to measured testosterone, SGOT, SGPT, and Creatinine levels.

2.5 Collection of organs

The testes were dissected out for histological and antioxidant evaluation. The epididymis was dissected for sperm parameter analysis.

2.6 Determination of testicular weight

The relative weight of the testis was measured using a high-precision electronic balance (Model: PGB200, Wensar).

2.7 Sperm Parameters

Sperm parameters, including sperm count, abnormalities, acrosome status, and sperm viability, were evaluated using standard methods at 37°C.

2.7.1 Sperm suspension

The caudal portion of the epididymis was separated, cleaned and minced in 1 mL normal saline solution. The sperm obtained from the caudal epididymis was diluted in a 1:20 ratio (sperm: normal saline solution) to create a suspension (Kakati et al., 2024).

2.7.2 Sperm count

The sperm count was done following the method outlined by Narayana et al. (2002). Specifically, 200 µL of the sperm suspension was added to each Neubauer chamber, and sperm were counted under a light microscope at 40X magnification in five squares. The sperm count was expressed as the number of spermatozoa per mL.

$$\text{Sperm/mL} = \text{Number of sperm counted (y)} \times \text{dilution factor/volume} \times 1000$$

$$\text{Sperm/mL} = y \times 20/0.02 \text{ mm}^3 \times 1000 \text{ mm}^3/\text{mL}$$

$$= y \times 1000,000 \text{ sperm/mL}$$

2.7.3 Sperm morphology

Sperm abnormalities were assessed following the method described by Narayana et al. (2005). A drop of the sperm suspension was applied to a clean slide, immediately smeared, and fixed with methanol for 2-3 minutes. Slides were stained with 2% Eosin to distinguish between normal and abnormal sperm morphology. Sperm morphology was examined using a Leica DM 750 light microscope at 40X magnification. The mean percentage of abnormal sperm was calculated using the formula.

$$\text{Percentage of abnormal sperm} = \frac{\text{Number of sperm heads with aberrations}}{\text{Total number of sperm heads studied}} \times 100$$

2.7.4 Sperm viability

Sperm viability was assessed following the method by Golshan-Iranpour et al. (2020). The percentage of viable sperm was determined by calculating the stain-to-unstained sperm ratio. For this, 5µL of 1% eosin Y stain was mixed with 5µL of the sperm suspension and placed on a microscopic slide. The slide was examined under a light microscope (Leica DM-750) at 40X magnification. In the microscope, motile (living) sperm cells remained unstained, while non-motile (dead) sperm absorbed the dye. Stained and unstained sperm cells were

counted, and the ratio of living to dead spermatozoa was evaluated in each sample to estimate viability:

$$\text{Percentage Viability} = \frac{\text{Number of live spermatozoa}}{\text{Number of spermatozoa observed under microscope}} \times 100$$

2.7.5 Acrosome status

We followed the method outlined by Nixon et al. (2021) to assess acrosome status. Spermatozoa from the epididymis were fixed in a 4% paraformaldehyde solution at a pH of 7.4 for 10 minutes. After fixation, the sperm were washed twice with 100 mM ammonium acetate (pH 9.0) re-suspended in 1 mL (100 mM) ammonium acetate. A 50µL suspension of this was smeared on a glass slide. The smear was allowed to dry and then stained with 0.22% **Coomassie** brilliant blue. Once again, the slide was air-dried, and a thin cover slip was placed over a drop of glycerol. The prepared slide was then observed under the microscope.

Objective 3: Study the effects of pesticides on histoarchitecture of testis, kidney and liver of albino mice.

Histological observations of testis, liver and kidney were carried out with slight modifications to the method described by Hamza and Diab (2020). Following dissection, the right testis and epididymis were carefully excised and fixed overnight in 10% neutral buffered formalin. On the following day, the tissues were washed under running tap water for 1 hour to remove excess fixative. Subsequently, the samples were dehydrated through ascending grades of alcohol, followed by clearing in xylene. The fully dehydrated tissues were then subjected to three successive changes of molten paraffin wax and incubated overnight to ensure complete infiltration. Thereafter, the tissues were embedded in paraffin blocks. The paraffin-embedded tissues were sectioned at 4 µm thickness using a rotary microtome. The sections were then rehydrated and stained with hematoxylin and eosin (H&E) after passing through descending and ascending grades of alcohol as required for proper staining and dehydration and examined under a Leica DM 750 microscope.

Objective 4: Study the effect of pesticides on testicular protein expression in male albino mice.

4.1 Testicular Protein Studied by SDS-PAGE

The male mice testicular protein samples were prepared and studied by single-dimensional SDS-PAGE following an adapted protocol based on the method of

Frederic M. Ausubel *et al.* (2002). The testes of control and treated mice were collected and immediately placed in the sample buffer. Following a brief homogenization of the testicular tissue, the sample was heated for 15 minutes in boiling water and cooled immediately on ice to denature the proteins. The sample was then centrifuged at 5000 rpm for 15 minutes, and the supernatant containing the soluble testicular proteins was collected and stored at -70°C until further use. Quantitative estimation of the total protein in the sample was performed following the method of Bradford (1976).

The testicular protein samples were separated using a discontinuous SDS-poly acrylamide gel system, which was cast as a 10% separating (resolving) gel topped by a 3.9% stacking gel. The protein samples, along with a standard molecular weight marker, were resolved using a DC power supply system (Bangalore Genei MVS). Following electrophoresis, the location of the separated proteins in the gel was determined by staining with Coomassie Brilliant Blue R250 solution. The stained gel was subsequently immersed in a de-staining solution (consisting of 40 ml methanol, 20 ml acetic acid, and 40 ml distilled water) without Coomassie brilliant blue to clear the background and reveal distinct protein bands. The resolved protein bands in the gel were documented using a Gel-Doc system (DIGIDOC IT, UVP-LMS20E, Ultra-Violet Products Ltd.), and the molecular weights of the separated male mice testicular proteins were determined by comparing them against the standard molecular weight marker.

4.2 Reagent and Solution Formulations

The sample buffer was prepared by mixing 25 ml of 4x Tris-Cl/SDS (pH 6.8), 20 ml of glycerol, 4 gm of SDS, 2 ml of β -mercaptoethanol, 1 mg of bromophenol blue, 10 μl of PMSF (0.1 millimol), and 53 ml of distilled water. The 3.9% stacking gel was formulated using 3.05 ml of distilled water, 0.65 ml of 30% acrylamide (29.2g acrylamide and 0.8gbisacrylamide), 1.25 ml of 4x Tris-Cl/SDS (pH 8.6), 25 μl of 10% (w/v) ammonium persulphate, and 5 μl of TEMED. The 10% separating gel was prepared using 6.25 ml of distilled water, 5.00 ml of 30% acrylamide (29.2g acrylamide and 0.8g bisacrylamide), 3.75 ml of 4x Tris-Cl/SDS (pH 8.8), 50 μl of 10% (w/v) ammonium persulphate, and 10 μl of TEMED.

Objective 5: Study the toxic (SGOT/SGPT) and genotoxic effect of pesticides on male albino mice.

5.1 Genotoxicity analysis

Immediately after cardiac puncture, blood smear was made on clean glass slides, preserved in absolute methanol for three minutes, and then allowed to air dry. For each group, five slides were prepared for each treated and untreated animals. The slides were stained with 10% May-Grunwald-Giemsa stain, and micronuclei (MN) frequency was measured by a single observer in coded slides. A total of 1000 erythrocytes (500 from each slide) from each mice were examined for the presence of MN at a 100x magnification under oil immersion microscope (Kakati et al., 2024).

5.2 Relative organ weight and toxicity marker analysis

After dissecting out the organs, the relative weight of kidney and liver were measured using a high-precision electronic balance (Model: PGB200, Wensar) and compared with the control groups.

Toxicity marker enzymes such as serum glutamic oxaloacetic transaminase (SGOT), serum pyruvic transaminase (SGPT), and creatinine level were analyzed following the standard protocol of the International Federation of Clinical Chemistry (IFCC). The limits of detection for test kits are 3 IU/L for SGOT, 5 IU/L for SGPT, and 0.1 mg/dl for creatinine (Kakati et al., 2024).

Statistical Analysis

All statistical analysis was carried out using OneWay ANOVA followed by Tukey's post hoc test in GraphPad Prism version 5.0. We conducted a normality test in Graph Pad Prism using the Kolmogorov-Smirnov test with the Dallal-Wilkinson-Lilliefor p-value ($\alpha = 0.05$) and determined that all data were normally distributed. For the statistical analysis, P value of 0.05 was taken. The p-value is a statistic used in hypothesis testing to evaluate the significance of the observed data. It indicates the probability of obtaining results at least as extreme as those observed, assuming the null hypothesis is true. In essence, the p-value measures how likely it is to observe the given data, or something more extreme, under the assumption that there is no real effect or difference.

● Results

Objective 1.0 Analysis of pesticides in tea leaves.

LCMS Analysis:

Finding secondary metabolites that could eventually lead to drug discovery depends heavily on the LC-MS analysis of the hydro-methanolic leaf extract of *C.sinensis*. The active compounds, along with their retention time and concentration are shown in Tables1, while the LC-MS chromatogram (+ve polarity & -ve polarity) is shown in Figures 1 and 2.

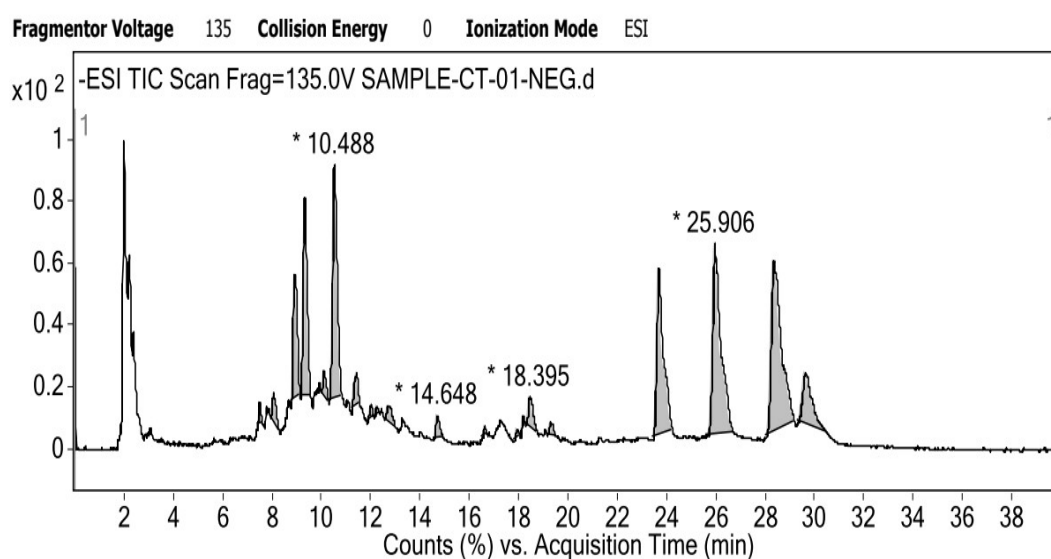


Figure 1: LC-MS chromatogram of the hydromethanolic extract of *C.sinensis* (-ve polarity)

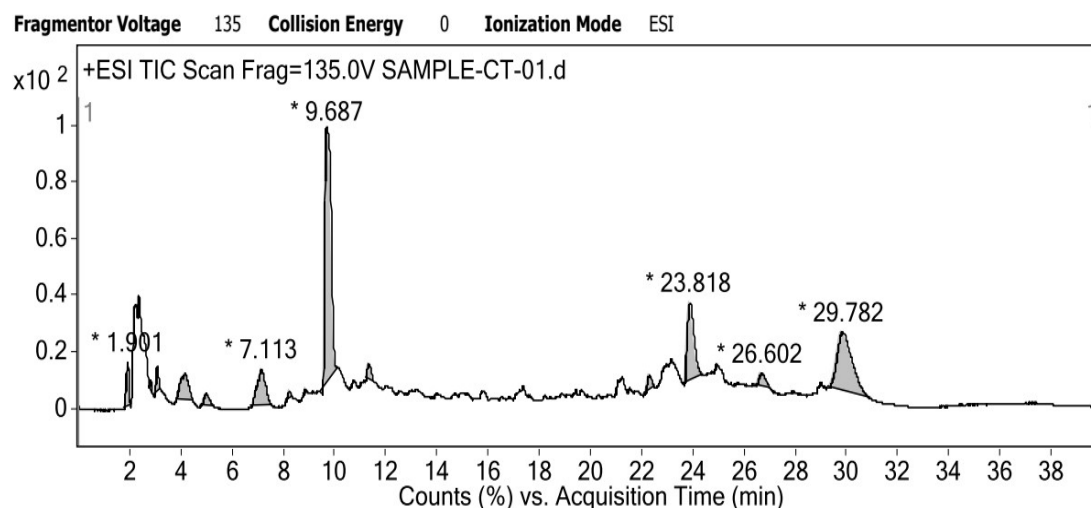


Figure 2: LC-MS chromatogram of the hydromethanolic extract of *C.sinensis*(+ve polarity)

Table 2: LC-MS analysis of the hydro-methanolic extract of Some selected toxic elements of *C.sinensis* (+ve & -ve polarity)

Pesticide/its residue	RT	Sample	Concentration $\mu\text{g/mL}$
Monocrotophos	7.1	CT-01	0.15
Lindane	9.6	CT-01	1
Alachlor	10.4	CT-01-NEG	0.0075
Aldrin	14.6	CT-01-NEG	0.10488
Quintozone	18.3	CT-01-NEG	0.00494
α -Chlordane	23.8	CT-01	0.5
Malathion	29.7	CT-01	0.3

Reference: Skoog, D. A., Holler, F. J., & Crouch, S. R. (2017). Principles of Instrumental Analysis (7th ed.).

The liquid chromatography-mass spectrometry (LC-MS) analysis of tea leaf samples identified the presence of multiple pesticide residues. The study employed high-resolution LC-MS to quantify and characterize these compounds.

Objective 2.0: Study the effect of pesticides on male germ cells of albino mice.

Sperm characteristics

Sperm count

In the current study, following administration of Lindane, a significant decrease ($P < 0.05$) in spermatozoa count was observed in both T1 and T2 groups when compared to the control group. This decrease in sperm count exhibited a concentration-dependent pattern, with the T2 group displaying the lowest value among all treatment groups. While the reduction in sperm count was more pronounced in the T2 group compared to the Cyp group, this difference did not reach statistical significance. Notably, there was a significant difference ($P < 0.05$) in sperm count between the T1 and T2 groups (Table 3).

Sperm viability

The results of the sperm viability analysis indicated that, in comparison to the control group, both the T1 and T2 treated groups exhibited a significantly lower level of viable sperm following lindane administration ($P < 0.05$). This decline in sperm viability was directly related to the concentration of lindane, with the T2 group displaying a more pronounced decrease in viability than the T1 group. Moreover, compared to the Cyp-treated group, the reduction in sperm viability in the T2 group was even greater, although this reduction did not reach statistical significance. Notably, there was a significant difference in sperm viability between both the T1 and T2 groups (Table 3).

Acrosome study

In the current study, the evaluation of acrosome demonstrated a notable decrease ($P<0.05$) in the number of intact acrosome sperms in both T1 and T2 groups treated with lindane compared to the control group. Furthermore, T2 treatment exhibited a more substantial reduction in intact acrosome sperm compared to the group treated with Cyp, although this difference did not reach statistical significance. Notably, in terms of acrosome integrity, both lindane-treated groups (T1 and T2) displayed significant differences ($P<0.05$) (Table 3).

Table3. Total sperm count in control and treated groups.

Treatments	Sperm count $\times 10^6$	Sperm viability %	Normal Acrosome %
C	387 $\pm$ 9.34	96 $\pm$ 1.05	86.9 $\pm$ 4.1
Cyp	252.2 $\pm$ 13.42 ^a	61 $\pm$ 4.02 ^a	52.3 $\pm$ 4.54 ^a
T1	341.4 $\pm$ 3.02 ^{ab}	80.2 $\pm$ 3.22 ^{ab}	72.23 $\pm$ 1.52 ^a
T2	308.43 $\pm$ 9.331 ^{ac}	70.78 $\pm$ 5.66 ^{ac}	64.98 $\pm$ 4.72 ^{ac}

All values are expressed in Mean $\pm$ SE. In the Table, C - Control group, Cyp- Cyclophosphamide treated group, T1-10 mg/kg bw)treated group, T2-25 mg/kg bw treated group. Superscript a- statistical significance ($P<0.05$) from the control group. b- statistical significance ($P<0.05$) from the Cyp group. c- statistical significance ($P<0.05$) from the T1 group.

Sperm Morphology

Lindane administration revealed the seven most frequently observed sperm defects (Figure 2). Defective sperm morphology was significantly higher in both the lindane-treated groups, T1 and T2, compared to the control group. Defects in sperm morphology increased in a concentration-dependent manner, where T2 revealed significantly more defects than T1. Moreover, when compared to the Cyp group, the T2 group exhibited more pronounced sperm defects, although the difference was not statistically significant ($P<0.05$) (Table 4, Figure 3).

Table 4. Sperm morphological abnormality in animals treated with control and lindane.

Treatment	% abnormal Sperm	Types of sperm tail abnormalities						
		Headless	Double tailed	Bent neck	Coiled tailed	Bent tail	looped	tailless
C	3.67±0.42	0.9	0.1	0.3	0.1	0.3	0.3	1.2
Cyp	34.7±2.45 ^a	7.0	4.6	5.8	5.4	5.1	3.9	5.3
T1	10.42±3.1 ^{ab}	3.5	0.2	0.9	0.4	1.0	0.6	2.1
T2	22.10±2.91 ^{ac}	6.9	4.8	5.1	5.2	5.4	3.6	5.6

All values are expressed in Mean ± SE. In the Table, C-Control group, Cyp-Cyclophosphamide treated group, T1-10 mg/kg bw)treated group, T2-25 mg/kg bw treated group.. Superscript a- statistical significance (P< 0.05) from the control group. b- statistical significance (P<0.05) from the Cyp group. c- statistical significance (P<0.05) from the T1 group.

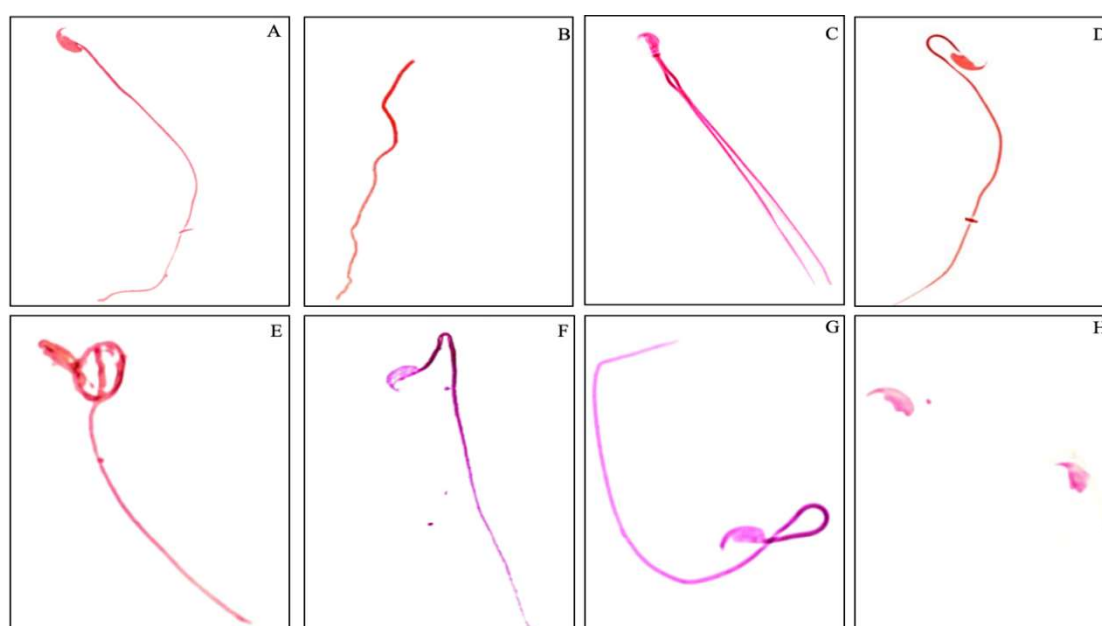


Figure3. Representative photomicrographs showing sperm morphologies observed from control and treated groups. The sperms were stained by eosin. a) normal sperm cell, b) headless, c) double tailed, d) bent neck, e) coiled tail, f) bent tail, g) looped tail, h) tailless. Magnification 400x.

Again, the examination of sperm head morphology unveiled the presence of nine distinct types of frequently observed sperm head defects, namely amorphous, hookless, hooked, beaked, banana-shaped, pin-headed, double-headed, giant, and dwarf (Figure 3). Like

the trends observed in sperm abnormalities, sperm head defects also exhibited a concentration-dependent increase. Notably, the T2 group displayed the highest incidence of sperm head abnormalities, particularly showing a greater prevalence of beaked sperm heads compared to other head defects, as outlined in Table 5, Figure 4.

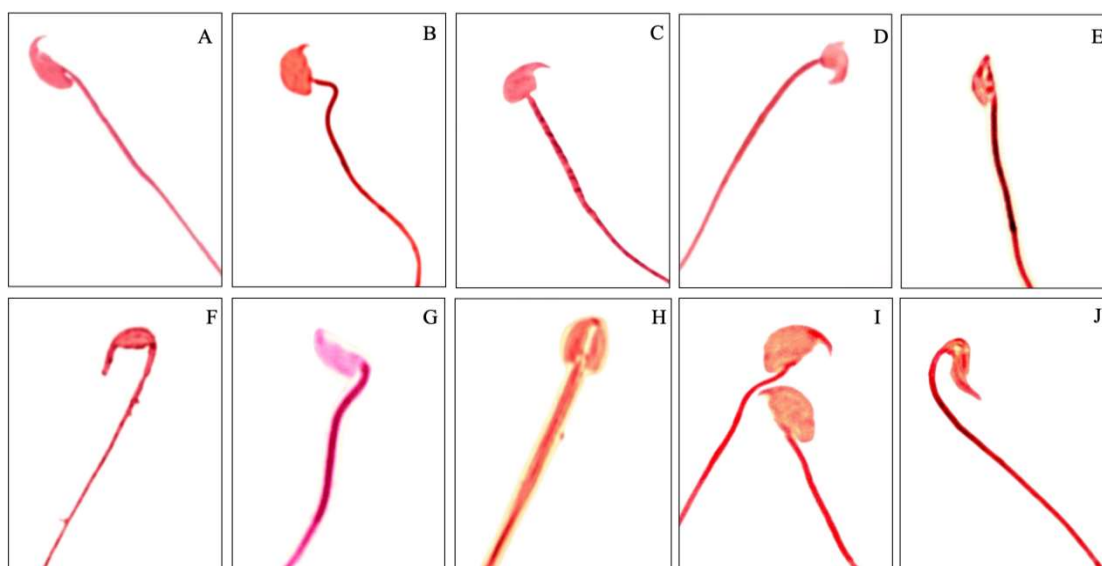


Figure 4. Representative photomicrograph of sperm head abnormalities observed in sperm abnormality assay: A: Normal sperm head; B: Amorphous head; C: Beaked; D: Hooked; E: Hookless; F: Pin headed; G: Banana shaped; H: Double headed; I: Giant and J: Dwarf headed. Sperms were stained by Eosin. Magnification 400x.

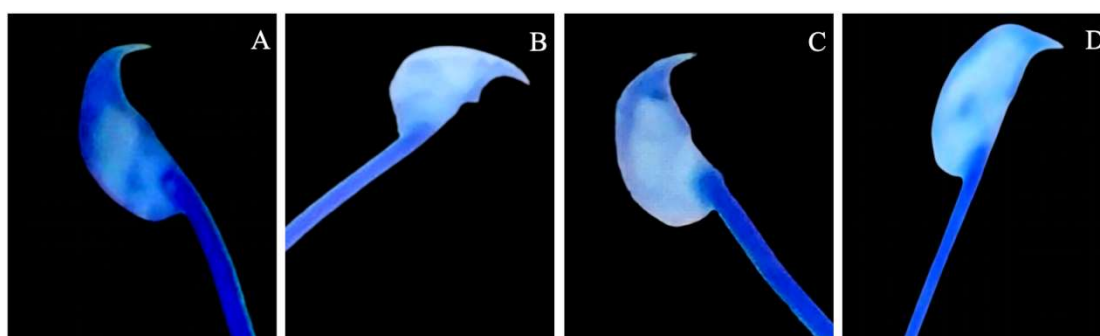


Figure 5. Representative photomicrograph of sperm with acrosome, (A) Control group, (B) Cyclophosphamide treated group, (C) T1 (10mg/kg treated group), (D) T2 (10mg/kg treated group). Sperms were stained by Commassie brilliant blue. Magnification 400x.

Acrosome analysis reveals that in the control group, the acrosome is intact. In the Cyp treated group, acrosome is absent. In the T1 group, acrosome is not distinct. Again, in the T2 group, acrosome is absent (Figure 5).

Table5. Sperm head abnormality in mice treated with control and Lindane.

Treatment	% abnormal Sperm	Types of sperm head abnormalities in %								
		Amorphous	Beaked	Hooked	Hook less	Pin headed	Double headed	Banana shaped	Giant	Dwarf
C	3.8±0.33	0.1	1.3	0.4	0.4	0.1	0.1	0.3	0.2	0.5
Cyp	37.7±3.13 ^a	1.1	8.2	2.0	5.1	1	2.7	2.9	2.8	3.3
T1	9.6±0.5 ^{ab}	0.3	2.7	1.2	1.4	0.3	1.6	1.7	0.8	0.7
T2	47.0±2.31 ^{ac}	0.9	6.7	1.7	4.2	2.1	3.1	3.0	2.2	3.1

All values are expressed in Mean ± SE. In the figure, C - Control group, Cyp- Cyclophosphamide treated group, T1-10 mg/kg bw)treated group, T2-25 mg/kg bw treated group. Superscript a- statistical significance (P<0.05) from the control group. b- statistical significance (P<0.05) from the cyp group. c- statistical significance (P<0.05) from the T1 group.

Objective 3: Study the effects of pesticides on histoarchitechture of testis, kidney and liver of albino mice.

Histoarchitechture of Testis, Liver and Lidney

Testis histoarchitechture

Photomicrographs of the Hematoxylin and Eosin (H&E)-stained testis sections from the control group showed normal histoarchitecture of the seminiferous tubules with regular spermatogenesis under microscopic examination [Figure 6(C)]. The Sertoli cells and germ cells within the seminiferous tubules appeared normal, and no histological lesions were observed. In contrast, the Lindane-treated groups showed structural alterations in the testicular sections, although the severity of the changes varied between the treated groups [Figure 6(T1 & T2)]. Compared to the control group, the treated groups showed irregular seminiferous tubules, reduced sperm quantity, loosely arranged spermatogonia, and a decrease in the number and size of

Leydig cells. In addition, vacuole formation and sloughing of cells into the lumen of the seminiferous tubules were observed. Similarly, the Cyp-treated group [Figure 6(Cyp)] showed fewer sperm cells and irregular spermatogenesis in the lumen of some seminiferous tubules, comparable to the T2 group (Figure 6).

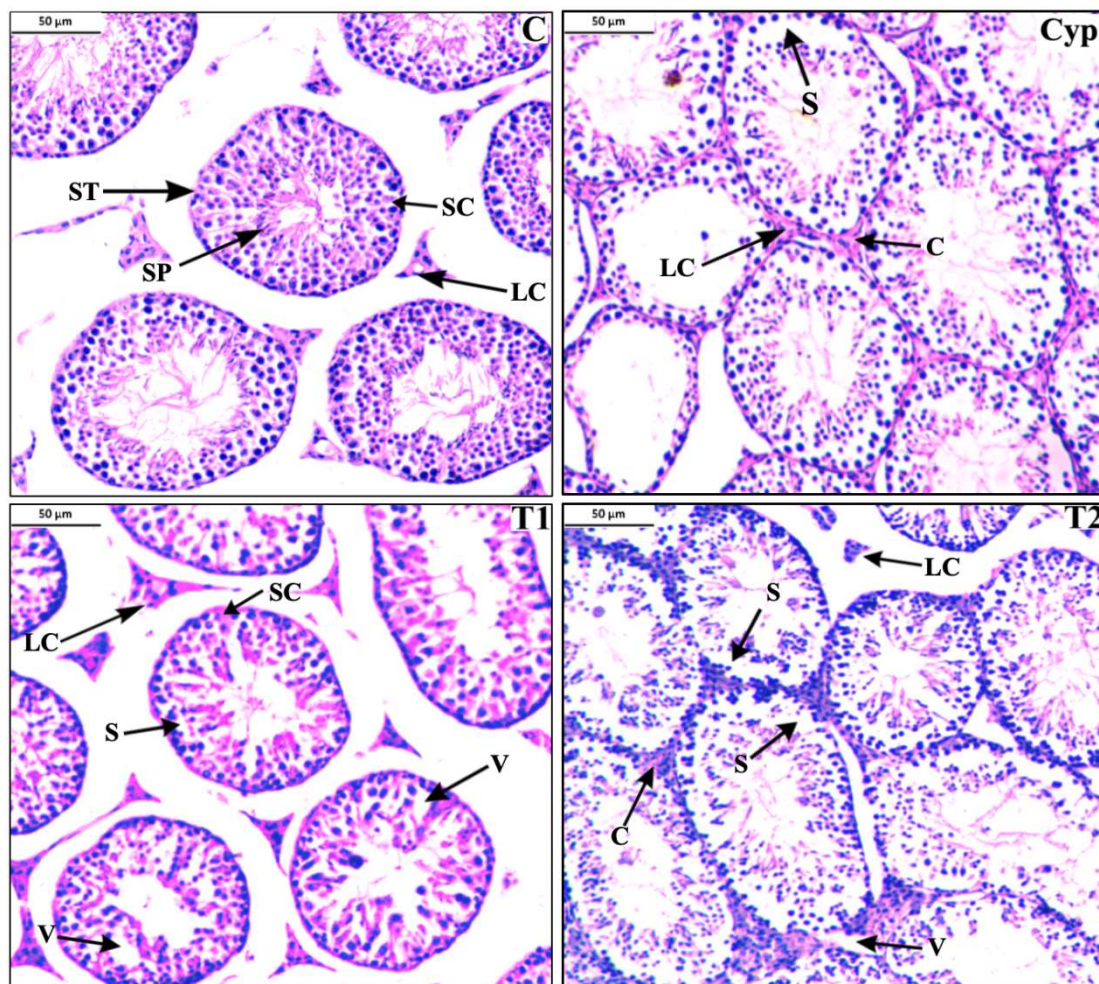


Figure 6. Photomicrographs of histoarchitecture of testis from different treated groups- C - Control group, Cyp- Cyclophosphamide treated group, T1-10 mg/kg bw) treated group, T2-25 mg/kg bw treated group. In the figure the abbreviations ST represents the seminiferous tubule; SC represents the Sertoli cell; LC represents - Leydig cell; V represents- vacuole; S- represents Sloughing of cells; SP represents Spermatozoa. Magnification- 40X- scale bar 50 µm.

Liver Histoarchitecture

Histological examination of liver sections from the control group revealed normal hepatic architecture without any observable lesions, with hepatocytes arranged

radially around the central vein (Figure 7). In contrast, the Lindane-treated groups (T1 and T2) showed marked histopathological alterations, including severe congestion of the portal vein within the hepatic triad, extensive infiltration of inflammatory cells, proliferation of Kupffer cells, hyperplasia of the portal vein, and discrete hemorrhagic areas [Figure 7(T1 & T2)]. The histopathological lesions observed in the Lindane-treated groups were comparable to those in the cyclophosphamide (Cyp)-treated group. However, the severity of liver damage in the T2 group was greater than that observed in the Cyp group [Figure 7(T2)].

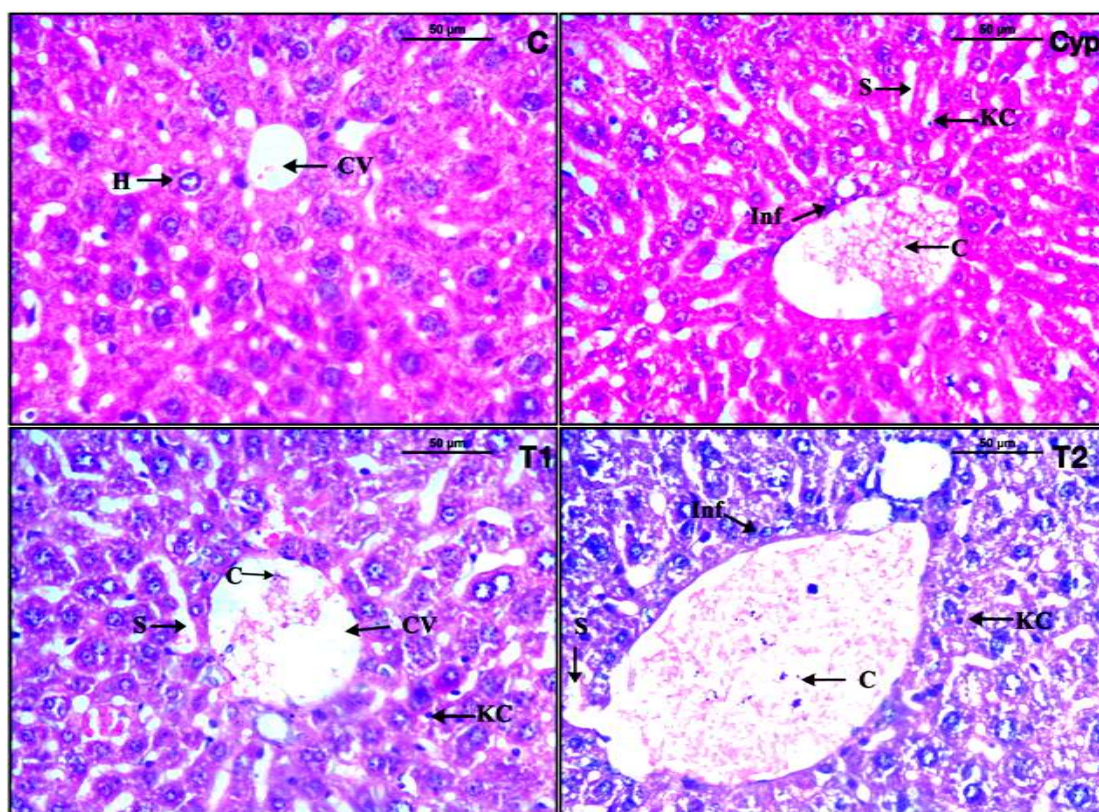


Figure 7. Photomicrographs of histoarchitecture of testis from different treated groups- C - Control group, Cyp- Cyclophosphamide treated group, T1-10 mg/kg bw) treated group, T2-25 mg/kg bw treated group. In the figure- CV represents central vein, S represents sinusoids, H represents hepatocytes and KC represents Kupffer cell, Inf represents infiltrations of inflammatory cells. Magnification- 10 $\times$, scale bar 200 μ m and 40 $\times$, scale bar 50 μ m.

Kidney histoarchitecture

Histological analysis of kidney sections from the control group showed normal renal architecture, with well-defined renal tubules and intact glomeruli (Figure 8). In

contrast, kidney sections from the treated groups [Figure 8(T1 & T2)] showed pronounced pathological changes, including extensive renal tubular cell necrosis (N) and significant infiltration of inflammatory cells (Inf). In addition, the T2 group exhibited glomerular shrinkage (SG) [Figure 8(T1 & T2)] and vascular congestion (C) [Figure 8(T2)]. Similar renal tissue degeneration and glomerular shrinkage were also observed in the Cyp-treated group [Figure 8(Cyp)]. Among all treated groups, the T2 group showed the most severe histopathological damage (Figure 8).

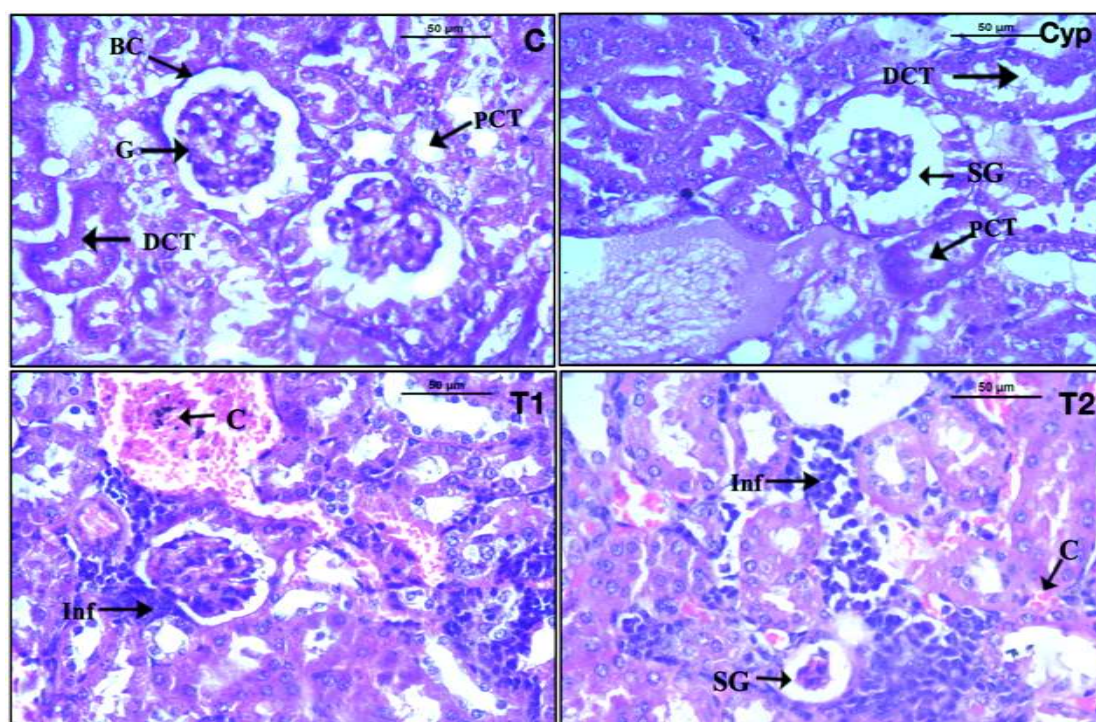


Figure 8-Photomicrographs of histoarchitecture of testis from different treated groups- C - Control group, Cyp- Cyclophosphamide treated group, T1-10 mg/kg bw) treated group, T2-25 mg/kg bw treated group. In the figure- G represent glomerulus, Inf represents infiltrations of inflammatory cells, C represents Congestion, SG- represents shrinkage of glomerulus, N represents necrosis, PCT represents the proximal convoluted tubule; DCT represents the distal convoluted tubule. Magnification- 10 $\times$, scale bar 200 μ m and 40 $\times$, scale bar 50 μ m.

Objective 4: Study the effect of pesticides on testicular protein expression in male albino mice.

SDS-PAGE Analysis of Testicular Proteins

Total testicular protein profiles resolved via 15% SDS-PAGE revealed distinct variations among the experimental groups (Figure 10). The vehicle control (Lane 1) exhibited well-defined protein bands across a wide molecular weight range (15-130 kDa). Exposure to Cyp (Lane 3) induced noticeable protein alterations, characterized by a decrease in the intensity of mid-to-high molecular weight bands (45-100 kDa) and an increased smearing pattern, indicating potential protein degradation.

Administration of Lindane treatment T1 showed a dose-dependent modulation of these profiles. While the lower dose (T1 at 10 mg/kg, Lane 4) remained largely comparable to the Cyp group, the higher dose (T1 at 25 mg/kg, Lane 5) partially restored band definition and altered intensity in the 55-70 kDa region, suggesting a protection against or adaptation to Cyp-induced proteomic alterations (Figure 9).

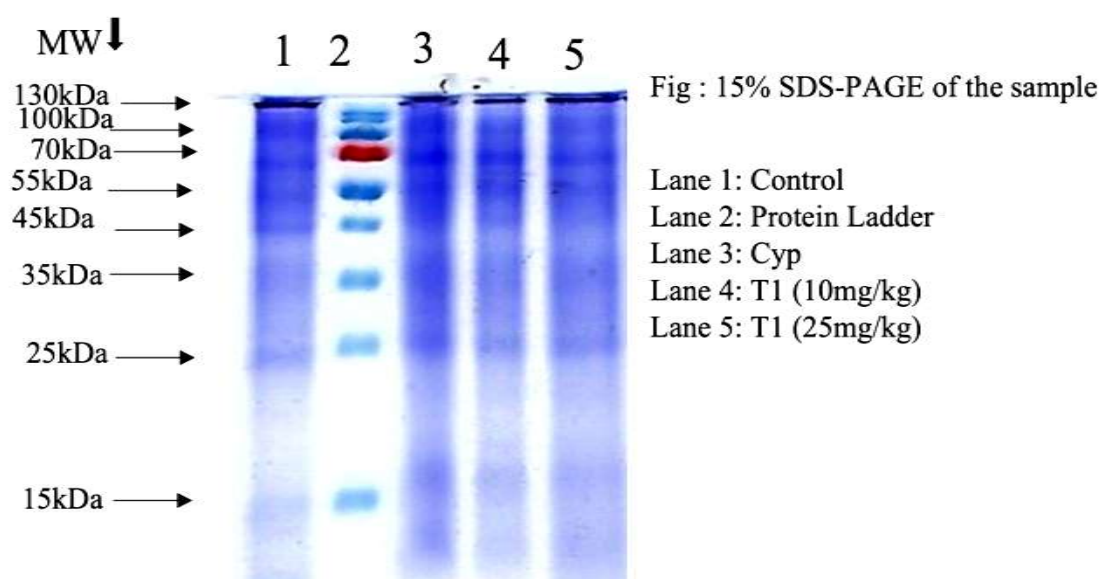


Figure 9: Photograph showing testicular protein separation by SDS Polyacrylamide Gel Electrophoresis. Lane 1: Control, Lane 2: Protein Ladder, Lane 3: Cyp, Lane 4: T1 (10mg/kg), Lane 5: T1 (25mg/kg). In the Lane 2 shows the molecular weight of standard marker.

Objective 5: Study the toxic (SGOT/SGPT) and genotoxic effect of pesticides on male albino mice.

Frequency of micronuclei in the RBC of treated and control mice

The genotoxic effect was assessed using the micronuclei assay. The assessment revealed that both the T1 and T2 groups experienced a significantly higher frequency of micronuclei in their red blood cells (RBCs) compared to the control group ($P<0.05$). This increase in micronuclei exhibited a concentration-dependent pattern, with the T2 group showing a higher frequency of micronuclei than the T1 group. Furthermore, compared to the Cyp-treated group, the T2 group had a greater number of micronuclei, although this difference was not statistically significant. However, it is important to note that the frequency of micronuclei in both the T1 and T2 groups differed significantly from one another ($P<0.05$), as indicated in Table 6 and Figure 10.

Table6. Relative weight of liver and kidney and enzyme activity of SGOT, SGPT, creatinine and the frequency of micro nuclei.

Groups	SGOT (U/L)	SGPT(U/L)	Creatinine(U/L)	Micronuclei
C	62.31±3.325	28.08±0.780	0.43±0.037	0.07±0.003
Cyp	194.30±6.471 ^a	67.41±3.329 ^a	0.98±0.047 ^a	6.01±0.023 ^a
T1	89.03±5.650 ^{ab}	38.90±2.321 ^{ab}	0.56±0.032 ^a	1.99±0.098 ^{ab}
T2	149.8±7.013 ^{ac}	52.70±1.787 ^{ac}	82.9±0.320 ^{ac}	4.98±0.201 ^{ac}

All values are expressed in Mean ± SE. Micronuclei are indicated as occurrence (frequency, %) in blood erythrocytes. In the figure, C - Control group, Cyp- Cyclophosphamide treated group, T1-10 mg/kg bw) treated group, T2-25 mg/kg bw treated group, SGOT- Serum Glutamic-Oxaloacetic Transaminase, SGPT- Serum glutamic pyruvic transaminase. Superscript a- statistical significance ($P<0.05$) from the control group. b- Statistical significance ($P<0.05$) from the cyp group. c- Statistical significance ($P<0.05$) from the T1 group.

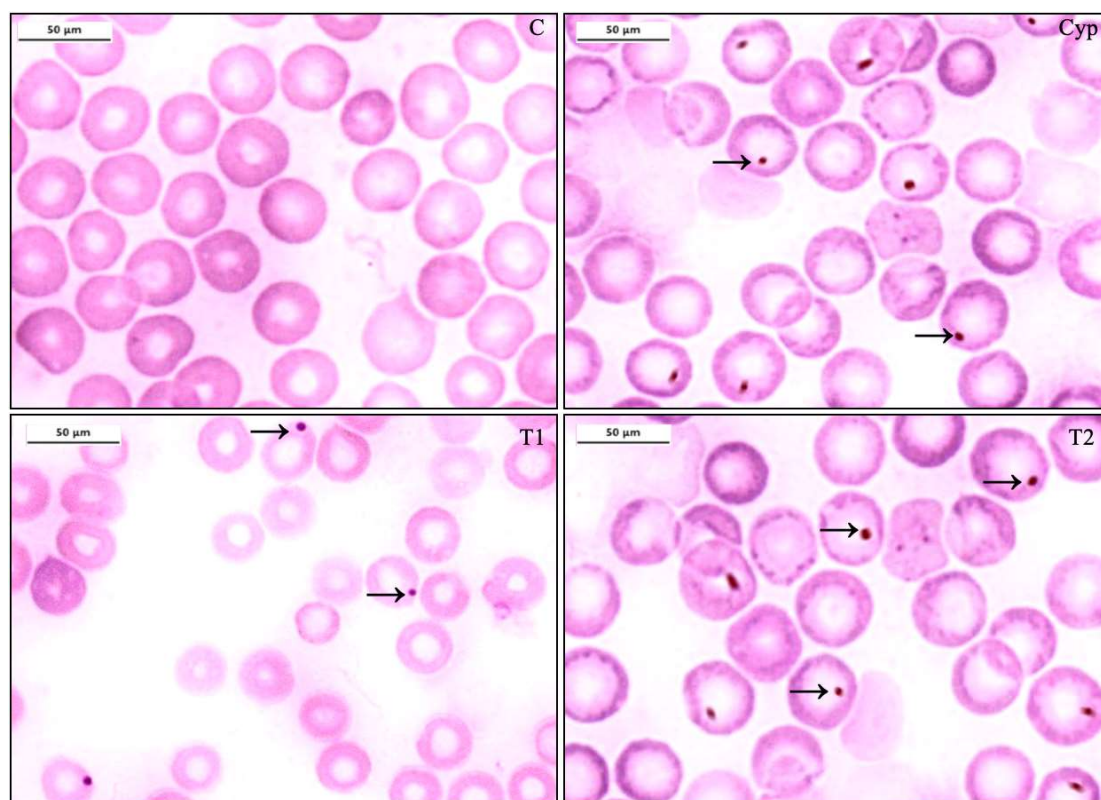


Figure 10. Photo-micrographic presentation of Giemsa stain of micronuclei of control and treated RBC cells of albino mice. C - Control group, Cyp- Cyclophosphamide treated group, T1-10 mg/kg bw) treated group, T2-25 mg/kg bw treated group . Magnification 100 $\times$.

The marker enzymes (SGOT, SGPT, and Creatinine)

Following treatment period, a significant increase in the levels of SGOT, SGPT, and creatinine was observed in the T1 and T2 groups compared to the control group (Table 5). These toxicity biomarker levels demonstrated variation dependent on the treatment concentration, with lower concentrations resulting in milder increases and higher concentrations causing more pronounced elevations. Specifically, the levels of SGOT and SGPT in the T1 group exhibited a statistically significant difference ($P < 0.05$) when compared to the Cyp group. However, the creatinine level in the T1 group did not show a significant difference from the Cyp-treated group. In contrast, the levels of SGOT, SGPT, and creatinine in the Cyp and T2 groups remained nearly similar, with no statistically significant differences. Notably, a significant difference ($P < 0.05$) in the levels of SGOT, SGPT, and creatinine was observed between the T1 and T2 groups (Table 6).

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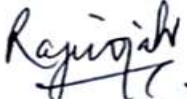
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Principal Investigator
Adv Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

25


[Signature(s) of the Investigator(s)]

[Signature(s) of the Investigator(s)]

Instructions:

- (i) All the information needs to be provided; otherwise the Progress Report will be treated as incomplete. In case of 'Nil' / 'Not Applicable' information, the same may be indicated.
- (ii) In case of multicentre project, a combined Progress Report should be submitted incorporating the progress of all components. The Project Co-coordinator/ PI will be responsible for this.
- (iii) *Please indicate the reporting period [i.e. Year 1/2/3/4/5].
- (iv) Submission of Progress Report by the end of the 11th month of grant sanction is linked with further continuation of the project and timely release of funds for the next year.

B2. Summary and Conclusions of the Progress made so far:

This study investigated the effects of pesticide exposure from tea farming in Biswanath district, Assam, on male reproductive health using albino mice as an experimental model. LC-MS analysis of *Camellia sinensis* leaf extracts detected several pesticide residues, including lindane, monocrotophos, malathion, aldrin, and α -chlordane. Based on its higher concentration, lindane was selected for toxicity evaluation. Male mice treated with lindane (10 and 25 mg/kg bw) for 35 days showed significant reproductive toxicity, including reduced sperm count, sperm viability, normal acrosome percentage, and increased sperm abnormalities in a dose-dependent manner. Histological analysis revealed severe alterations in the testis, liver, and kidney, such as irregular seminiferous tubules, reduced spermatogenesis, inflammatory cell infiltration, necrosis, and vascular congestion. SDS-PAGE analysis demonstrated alterations in testicular protein expression following pesticide exposure. Genotoxic assessment showed a significant increase in micronuclei frequency in treated groups. Furthermore, elevated SGOT, SGPT, and creatinine levels indicated hepatic and renal toxicity. Overall, the findings suggest that pesticide residues, particularly lindane, may adversely affect male fertility and organ health, highlighting the need for safer agricultural practices and increased awareness regarding pesticide exposure.

B3. Details of New Leads Obtained, if any:

1. Several harmful pesticide residues such as Lindane, Monocrotophos, Malathion, Aldrin, Alachlor, Quintozene, and α -Chlordane were detected in tea leaves from Biswanath district (Table 2).
2. Lindane was found in higher concentration compared to other pesticides, suggesting a major role in toxicity (Table 2).
3. Lindane exposure reduced sperm count, sperm viability, and acrosome integrity in male albino mice, indicating reduced fertility (Table 3).
4. Reproductive damage increased with higher pesticide concentration.
5. Pesticide exposure caused many sperm tail abnormalities such as headless, double-tailed, bent neck, coiled tail, bent tail, looped tail, and tailless sperm.(Fig 3)
6. Severe sperm head abnormalities such as amorphous, hookless, hooked, beaked, banana-shaped, pin-headed, double-headed, giant, and dwarf heads were observed.(Fig 4)
7. Acrosome damage in sperm indicated reduced fertilization ability (Fig 5).

8. Testicular tissue showed degeneration of seminiferous tubules, reduced Leydig cells, vacuolization, and sloughing of germ cells after pesticide exposure (Fig 6).
9. Liver tissue showed inflammation, congestion, Kupffer cell proliferation, hemorrhage, and liver cell damage, confirming hepatotoxicity (Fig 7).
10. Kidney tissue showed tubular necrosis, glomerular shrinkage, congestion, and inflammation, indicating nephrotoxicity (Fig 8).
11. Increased SGOT, SGPT, and creatinine levels confirmed liver and kidney dysfunction (Table 6).
12. Higher micronucleus frequency confirmed the genotoxic effect of pesticides (Fig 10).
13. Pesticides affected multiple organs simultaneously, including reproductive, liver, kidney, and blood systems (Fig 6,7,8) .
14. SDS-PAGE analysis showed altered testicular protein expression, indicating disruption of spermatogenesis-related proteins (Fig 9).
15. Protein degradation and altered band intensity suggested oxidative stress-induced cellular damage.
16. The study provides evidence that pesticide exposure may cause male reproductive disorders and infertility.

Future Perspectives

1. Molecular and genomic studies are needed to understand pesticide-induced reproductive toxicity.
2. Future research should focus on oxidative stress, apoptosis, DNA damage, and hormonal changes.
3. Long-term and transgenerational studies on tea garden workers are necessary to assess reproductive health effects.
4. Combined toxicity studies of multiple pesticides used in tea gardens should be conducted.
5. Research on antioxidants, protective treatments, and fertility-boosting medicinal plants may help reduce pesticide-induced reproductive toxicity and improve sperm quality, motility, and viability.
6. Regular biomonitoring, safer pesticide practices, and eco-friendly tea cultivation should be encouraged.
7. Further studies should investigate pesticide accumulation in soil, water, and the food chain.
8. The findings may help develop biomarkers for reproductive and occupational health assessment.

B4. Details of Publications & Patents, if any: No.

Section-C: Details of Grant Utilization

C1. Equipment Acquired or Placed Order with Actual Cost:

Capital Assets Acquired (wholly or substantially) Out of Government Grants

(Separate Register to be maintained by Grantee Institution)

(For the financial year 01.02.2023 - 30.04.2026)

(Financial figures given in this CAAC are shown in lakhs)

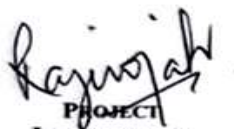
1.	Name of the Sanctioning Authority	:	Department of Biotechnology, Govt of India
2.	S. No. of Assets Register	:	11
3.	Name of the Grantee Institution	:	Chaiduar College
4.	Project No. & Date of sanction order	:	BT/NER/143/SP44407/2021
5.	Amount of the sanctioned grant for creation of capital assets	:	4.67455
6.	Whether any condition regarding the right of ownership of Govt. in the property or other assets acquired out of the grant was incorporated in the grant-in-aid sanction order	:	NIL
7.	Particulars of assets actually created or acquired <i>(Details as per enclosed format)</i>	:	enclosed in the Section C.
8.	Value of the assets as on date	:	3.98109
9.	Purpose for which assets utilized at present	:	Research purpose
10.	Encumbered or not	:	NIL
11.	Reasons, if encumbered	:	NIL
12.	Disposed of or not	:	NIL
13.	Reasons and authority, if any, for disposal	:	NIL
14.	Amount realized on disposal <i>(before initiating such disposal process prior approval of DBT shall be obtained)</i>	:	NIL
15.	Remarks	:	NIL

Details of Capital Assets Acquired During the Period

(Financial figures given in this CAAC are shown in lakhs)

S. N o.	Name of Equipment / Asset	Sanctioned Cost	Quantity Procured	Actual Cost (<i>Actual figure, not to roundoff</i>)	Date of Placing order	Date of Receiving Equipment	Payment Voucher No. with Date (<i>Copy of payment voucher(s) may please be enclosed</i>)	Balance to be reimbursed [<i>Provide reason(s) for fluctuation in price (if any)</i>]
	1	2	3	4	5	6	7	8
Sanctioned Equipment/Asset								
a.	Microtome Knife Sharpening Machine	0.339805	1	0.34220	24.07.2023	10.08.2023	CR/00012/BIO	no
b.	Laminar Air Flow	1.06050	1	0.80240	24.07.2023	10.08.2023	CR/00012/BIO	no
c.	Rotary Microtome	0.42000	1	0.37760	24.07.2023	10.08.2023	CR/00012/BIO	no
d.	Hot water Bath	0.21000	1	0.12390	24.07.2023	10.08.2023	CR/00012/BIO	no
e.	Mobile Freeze box	0.12600	1	0.10000	24.07.2023	10.08.2023	CR/00012/BIO	no
f.	Vertical Autoclave	0.85000	1	0.49999	24.07.2023	12.10.2023	CR/00013/BIO	no
g.	Horizontal Electrophoresis with Digital power Pack	0.41300	1	0.42000	24.07.2023	12.10.2023	CR/00013/BIO	Due to better product
h.	Air Conditioner	0.52500	1	0.43000	24.07.2023	18.11.2023	CR/00017/BIO	no
i.	Vortex	0.13650	1	0.12390	24.07.2023	07.01.2024	CR/00034/BIO	no
j.	Double Distilled Water Plant	0.42000	1	0.66670	24.07.2023	18.12.2023	CR/00040/BIO	Increase in Price

k.	Hot Plate	0.11550	1	0.09440	24.07 .2023	18.12.2 023	CR/00040 /BIO	no
Equipment/Asset acquired without sanction but for which the prior approval of the DBT was obtained								
a.								
b.								
c								
...								
.								
Total		4.67455	11	3.98109				


PROJECT INVESTIGATOR
 (Name, Signature and Stamp)
 Principal Investigator
 Adv. Level Institutional Biotech Hub
 Charduar College, Gohpur, Assam


FINANCE OFFICER OF THE INSTITUTION
 (Name, Signature and Stamp)
 Deputy Assistant / Accounts Officer
 Charduar College, Gohpur


HEAD OF THE INSTITUTION
 (Name, Signature and Stamp)
 Principal & Secretary
 Charduar College
 P.O.- Gohpur

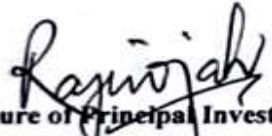
C2. Manpower Staffing and Expenditure Details:

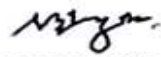
Expenditure (Manpower)						
Sl No.	Date & Year	Payment for the month of	Order No.	Amount paid to Ranjit Kakati (Project associate)	Amount paid to Aziz Hussain (Laboratory Assistant)	Total
1	01.07.2023	June, 2023	3 & 4	33,480.00	21,600.00	55,080.00
2	03.08.2023	July, 2023	6 & 7	33,480.00	21,600.00	55,080.00
3	06.10.2023	August & September, 2023	19	66,960.00	43,200.00	1,10,160.00
4	01.11.2023	October, 2023	21	33,480.00	21,600.00	55,080.00
5	30.11.2023	November, 2023	24	33,480.00	21,600.00	55,080.00
6	30.12.2023	December, 2023	27	33,480.00	21,600.00	55,080.00
7	01.02.2024	January, 2023	33	33,480.00	21,600.00	55,080.00
8	29.02.2024	February, 2023	38	33,480.00	21,600.00	55,080.00
9	27.03.2024	March, 2023	45	33,480.00	21,600.00	55,080.00
10	12.06.2025	01.04.2024-31.03.2025	54	4,01,760.00	2,59,200.00	6,60,960.00
11	16.03.2026	01.04.2025-31.03.2026	80	4,53,600.00	2,59,200.00	7,12,800.00

Due- Drawn Statement (3 Years)

Name of the Project Staff	Month and Year	Due	Drawn	Difference
Ranjit Kakati JRF/Project associate (1 year 10 months) + 12 Months SRF(Senior Project associate)	June, 2023	33480.00	33480.00	0.00
	July, 2023	33480.00	33480.00	0.00
	Aug, 2023	33480.00	33480.00	0.00
	Sept, 2023	33480.00	33480.00	0.00
	Oct, 2023	33480.00	33480.00	0.00
	Nov, 2023	33480.00	33480.00	0.00
	Dec, 2023	33480.00	33480.00	0.00
	Jan, 2024	33480.00	33480.00	0.00
	Feb, 2024	33480.00	33480.00	0.00
	March, 2024	33480.00	33480.00	0.00
	April, 2024	33480.00	33480.00	0.00
	May, 2024	33480.00	33480.00	0.00
	June, 2024	33480.00	33480.00	0.00
	July, 2024	33480.00	33480.00	0.00
	Aug, 2024	33480.00	33480.00	0.00
	Sept, 2024	33480.00	33480.00	0.00
	Oct, 2024	33480.00	33480.00	0.00
	Nov, 2024	33480.00	33480.00	0.00
	Dec, 2024	33480.00	33480.00	0.00
	Jan, 2025	33480.00	33480.00	0.00
	Feb, 2025	33480.00	33480.00	0.00
	March, 2025	37800.00	37800.00	0.00
	April, 2025	37800.00	37800.00	0.00
	May, 2025	37800.00	37800.00	0.00
	June, 2025	37800.00	37800.00	0.00
	July, 2025	37800.00	37800.00	0.00
	Aug, 2025	37800.00	37800.00	0.00
	Sept, 2025	37800.00	37800.00	0.00
	Oct, 2025	37800.00	37800.00	0.00
	Nov, 2025	37800.00	37800.00	0.00
	Dec, 2025	37800.00	37800.00	0.00
	Jan, 2026	37800.00	37800.00	0.00
	Feb, 2026	37800.00	37800.00	0.00
	March, 2026	37800.00	37800.00	0.00
Aziz Hussain 34 months Lab Assistant	June, 2023	21600.00	21600.00	0.00
	July, 2023	21600.00	21600.00	0.00
	Aug, 2023	21600.00	21600.00	0.00
	Sept, 2023	21600.00	21600.00	0.00
	Oct, 2023	21600.00	21600.00	0.00
	Nov, 2023	21600.00	21600.00	0.00
	Dec, 2023	21600.00	21600.00	0.00
	Jan, 2024	21600.00	21600.00	0.00
	Feb, 2024	21600.00	21600.00	0.00
	March, 2024	21600.00	21600.00	0.00

	April, 2024	21600.00	21600.00	0.00
	May, 2024	21600.00	21600.00	0.00
	June, 2024	21600.00	21600.00	0.00
	July, 2024	21600.00	21600.00	0.00
	Aug, 2024	21600.00	21600.00	0.00
	Sept, 2024	21600.00	21600.00	0.00
	Oct, 2024	21600.00	21600.00	0.00
	Nov, 2024	21600.00	21600.00	0.00
	Dec, 2024	21600.00	21600.00	0.00
	Jan, 2025	21600.00	21600.00	0.00
	Feb, 2025	21600.00	21600.00	0.00
	March, 2025	21600.00	21600.00	0.00
	April, 2025	21600.00	21600.00	0.00
	May, 2025	21600.00	21600.00	0.00
	June, 2025	21600.00	21600.00	0.00
	July, 2025	21600.00	21600.00	0.00
	Aug, 2025	21600.00	21600.00	0.00
	Sept, 2025	21600.00	21600.00	0.00
	Oct, 2025	21600.00	21600.00	0.00
	Nov, 2025	21600.00	21600.00	0.00
	Dec, 2025	21600.00	21600.00	0.00
	Jan, 2026	21600.00	21600.00	0.00
	Feb, 2026	21600.00	21600.00	0.00
	March, 2026	21600.00	21600.00	0.00
	Total	19,28,880.00	19,28,880.00	0.00


 (Signature of Principal Investigator)
 Principal Investigator
 Adv Level Institutional Biotech Hub
 Chaiduar College, Gohpur, Assam


 (Signature of Accounts Officer)
 Head Assistant / Accounts Officer
 Chaiduar College, Gohpur


 (SIGNATURE OF HEAD OF THE INSTITUTE)
 Principal & Secretary
 Chaiduar College
 P.O. Gohpur

C3. Details of Recurring Expenditure:
(Period 01/04/2023 to 31/03/2026)

DATED	VCRNO	DISBURSEMENTS	ICICACC NO. 325005001026 (BIO)
19/06/2023	CR/00001/BIO	CRRECURRING(BIO) (beingpaidtoassamtribuneforpublicationof advertisement)	6367.00
19/06/2023	CR/00002/BIO	CROVERHEADCHARGE (BIO) (beingpaidtochaiduarcollegeas overheadfund)	50000.00
15/07/2023	CR/00005/BIO	CRRECURRING(BIO) (beingpaidto dr.rajuojah,co-ordinator,adv.bio hub as contingency)	16427.00
06/08/2023	CR/00006/BIO	CRRECURRING(BIO) (beingpaidtoassamtribuneforpublicationof advertisement)	2729.00
05/10/2023	CR/00007/BIO	CRRECURRING(BIO) (paidtoranjitkakati,projectassociateforattendthe workshop at handique college)	2540.00
06/10/2023	CR/00010/BIO	CRWORKSHOP(BIO) (paid to dr. raju ozah, project investigator in connectionwithworkshopheldon21-23aug,2023)	63542.00
12/10/2023	CR/00011/BIO	CRWORKSHOP(BIO) (paid to dr. raju ozah, project investigator in connectionwithworkshopheldon25sep-1 october,2023)	90368.00
21/11/2023	CR/00016/BIO	CRRECURRING(BIO) (beingpaidtoassamtribuneforpublicationof advertisement)	4548.00
29/11/2023	CR/00018/BIO	CRRECURRING(BIO) (paidtoabnbhcomputechforreparingof refregirator)	5900.00
01/12/2023	CR/00021/BIO	CRRECURRING(BIO) (paidtoguwahatibiotechparkforsample testing)	2700.00
01/12/2023	CR/00022/BIO	CRRECURRING(BIO) (paidtorajuojahfordsc)	2500.00
03/01/2024	CR/00025/BIO	CRRECURRING(BIO) (paid toagnibhcomutechforsupplyofkattle)	2150.00
04/01/2024	CR/00026/BIO	CRRECURRING(BIO) (paidtomspawandevtradesuppliersfor maintainence of laboratory)	31500.00
12/01/2024	CR/00027/BIO	CRRECURRING(BIO) (paidtohemajiradioserviceforsupplyofbeeand etc)	49194.00
18/01/2024	CR/00028/BIO	CRRECURRING(BIO) (paidtonarayansa;esforlaboratoryequipmentand etc.)	167400.00

25/01/2024	CR/00029/BIO	CRWORKSHOP(BIO) (beingpaidtorajuojahforworkshopfrom24thto 30 jan,2024)	50000.00
12/02/2024	CR/00032/BIO	CRWORKSHOP(BIO) (beingpaidtodr.rajuojahfororientation programme)	47365.00
12/02/2024	CR/00033/BIO	CRTRAVEL(BIO) (beingpaidtoranjitkakatiastaforresearchfield works)	50344.00
21/02/2024	CR/00035/BIO	CRRECURRING(BIO) (beingpaidtobiswajyotinath(biswajyotitraders) internet collection and recharge for one year)	11000.00
04/03/2024	CR/00038/BIO	CRRECURRING(BIO) (beingpaidtonarayansalesandservicesfor computer reperring)	10450.00
04/03/2024	CR/00039/BIO	CRRECURRING(BIO) (beingpaidtoazizhussainforsampletestingat tezpur university)	5487.00
27/03/2024	CR/00041/BIO	CRRECURRING(BIO) (beingpaidtoassamchemicalandinstruments corporation for chemicals)	2300.00
27/03/2024	CR/00042/BIO	CRRECURRING(BIO) (beingpaidtoazizhussainforaccomodationcharge of guest house)	20000.00
27/03/2024	CR/00043/BIO	CRRECURRING(BIO) (beingpaidtoradhaenterpriseforconductingof research works)	34928.00
27/03/2024	CR/00044/BIO	CRRECURRING(BIO) (beingpaidtoazizhussainforsampletestingatiit guwahati)	1860.00
27/03/2024	CR/00047/BIO	CRRECURRING(BIO) (beingpaidtoplanters forsupplyof chemicals)	63715.00
27/03/2024	CR/00048/BIO	CRRECURRING(BIO) (beingpaidtoatriveneforsupplyofchemicals)	132774.00
27/03/2024	CR/00049/BIO	CRNONRECURRING(BIO) (beingpaidtoatriveneforsupplyofequipment)	48800.00
27/03/2024	CR/00050/BIO	CRWORKSHOP(BIO) (beingpaidtoraju ojahforworshop)	40000.00
26/05/2025	CR/00053/BIO	CROVERHEADCHARGE (BIO) (paidtochaiduarcollegeasoverheadfund,through pfms)	50000.00
10/06/2025	CR/00054/BIO	CRRECURRING(BIO) (paidto rajuojahforicssrspondorednational conference heldon24/11/2024throughpfms)	3700.00
13/06/2025	CR/00055/BIO	CRRECURRING(BIO) (paid toraju ojah forseminarthrough pfms)	9491.00
13/06/2025	CR/00058/BIO	CRRECURRING(BIO) (paidtorajuojahforparticipateofinternational cofference through pfms)	6650.00
19/07/2025	CR/00059/BIO	CRRECURRING(BIO) (paidtoindiancomputersystemforpurchaseofups through pfms)	2599.00

30/07/2025	CR/00060/BIO	CRRECURRING(BIO) (paid to vs industries for purchase of computer through pfms)	39042.00
18/09/2025	CR/00061/BIO	CRRECURRING(BIO) (paid to ms copier point for supply of laptop)	64500.00
19/09/2025	CR/00062/BIO	CRRECURRING(BIO) (paid to ms copier point for supply of printer)	36600.00
19/09/2025	CR/00063/BIO	CRWORKSHOP(BIO) (paid to dr. rajuo jah for workshop)	91540.00
19/09/2025	CR/00064/BIO	CRWORKSHOP(BIO) (paid to dr. raju o jah for training and workshop)	70320.00
19/09/2025	CR/00065/BIO	CRRECURRING(BIO) (paid to iit, guwahati for antioxidant test)	16520.00
25/09/2025	CR/00066/BIO	CRRECURRING(BIO) (paid to iit, guwahati for lcm test)	21000.00
25/09/2025	CR/00067/BIO	CRRECURRING(BIO) (paid to agriculture university sample test (ranjit kakati))	6800.00
11/10/2025	CR/00068/BIO	CRRECURRING(BIO) (paid to apple weighing for limited for analytical weighing scale, gem no. 64321916)	50001.00
11/10/2025	CR/00069/BIO	CRWORKSHOP(BIO) (paid to rajuo jah, investigator, biotech hub for workshop)	112830.00
11/10/2025	CR/00070/BIO	CRRECURRING(BIO) (paid to rajuo jah, investigator, to attend seminar assam science society)	1000.00
11/10/2025	CR/00071/BIO	CRRECURRING(BIO) (paid to rajuo jah, investigator, for entrepreneurship development programme)	17542.00
11/10/2025	CR/00072/BIO	CRRECURRING(BIO) (paid to trivenee for amc)	100000.00
11/10/2025	CR/00073/BIO	CRRECURRING(BIO) (paid to research institute iit guwahati for sample analysis)	81892.00
14/10/2025	CR/00074/BIO	CRRECURRING(BIO) (paid to trivenee for laboratory reagent)	102896.00
14/10/2025	CR/00075/BIO	CRNONRECURRING(BIO) (paid to trivenee for laboratory reagent)	99350.00
16/10/2025	CR/00076/BIO	CRWORKSHOP(BIO) (paid to ranjit kakati participation fee of seminar)	1000.00
16/10/2025	CR/00077/BIO	CRRECURRING(BIO) (paid to aziz hussain participation fee of seminar)	1000.00
16/10/2025	CR/00078/BIO	CRRECURRING(BIO) (paid to raju o jah, investigator for contingency)	9139.00

16/10/2025	CR/00079/BIO	CRRECURRING(BIO) (paidtoranjit kakati for purchaseoffile)	1520.00
16/10/2025	CR/00080/BIO	CRRECURRING(BIO) (paidtoazizhussainforpurchaseofsoftware subscription)	18798.00
17/10/2025	CR/00081/BIO	CRRECURRING(BIO) (paidtobioscienceguwahatforsample test)	68440.00
17/10/2025	CR/00082/BIO	CRWORKSHOP(BIO) (paidtoranjitkakatifortrainingprogrammeheldon rajib gandhi university)	22548.00
17/10/2025	CR/00083/BIO	CRWORKSHOP(BIO) (paidtoranjitkakatifortrainingprogrammeheldon rajib gandhi university)	10.00
16/03/2026	CR/00084/BIO	CROVERHEADCHARGE (BIO) (paidtochaiduarcollege,as overheadfund)	50000.00
23/03/2026	CR/00087/BIO	CRWORKSHOP(BIO) (paidtorajuojah,piasadvancepaymentforscience fair-2026 and workshop to be held on 26/03/2026)	19025.00
23/03/2026	CR/00088/BIO	CRTRAVEL(BIO) (paidto rajuojah,piofadvbiotechhubfor travellingand accomodation)	7537.00
23/03/2026	CR/00089/BIO	CRTRAVEL(BIO) (paidtoranjitkakati,projectassociateofadvbio tech hub for travelling)	1558.00
23/03/2026	CR/00090/BIO	CRTRAVEL(BIO) (paid toranjitkakati, project associateofadvbio techhubforawarenessprogrammeheldon30-31st january, 2026)	9080.00
Total			22,10,816.00
<i>(In words : Twenty two lakhs ten thousand eight hundred sixteen only)</i>			

Rajuojah
Principal Investigator
Adv Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

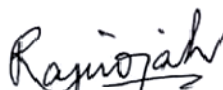
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Chaiduar College, Gohpur

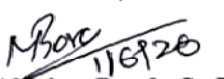
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Principal & Secretary
Chaiduar College
P.O.-Gohpur

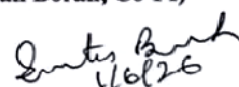
C4. Financial Requirements for the Next Year with Justifications: N/A

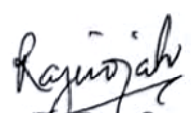
#Grant utilization details (UC&SE, Assets Certificate & manpower details) also required to be submitted separately as per the prescribed format

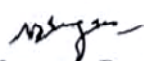
Signatures of Investigators:


(Dr. Raju Ojah, PI)


(Dr. Mohini Mohan Borah, Co-PI)


(Dr. Sushanta Borah, Co-PI)


(DR. RAJU OJAH)
PROJECT INVESTIGATOR
Principal Investigator
Adv. Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam


(NIRANJANA BHUYAN)
**FINANCE OFFICER OF THE
INSTITUTION**
Head Assistant / Accounts Officer
Chaiduar College, Gohpur


(DR. KISHOR SINGH RAJPUT)
HEAD OF THE INSTITUTION
Principal & Secretary
Chaiduar College
P.O.- Gohpur

Project Name: DBT-NER Advance- Level Institutional Biotech Hub at Chaiduar College, Biswanath, Assam (Phase-II)

Name of the PI/ Project Coordinator: Dr. Raju Ojah

Total Sanctioned Budget: 57, 52,175.00;

Start of the project date: 01/02/2023;

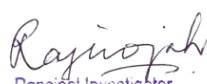
Duration: 3 Years

Output Indicators:

- **Project Status:** Single Institute
- **In case of Multi Institute:** academia–academia collaboration **OR** industry-academia collaboration)
- **No. of workshop/symposia/brainstorming meeting/ trainings organized in financial year:**

Outcome Indicators:

Year	1 st Year		2 nd Year		3 rd Year		Total	
Target (T)/ Achievements (A)	T	A	T	A	T	A	T	A
No. of manpower supported/ trained	614	932	614	1103	614	861	1842	2896
No. of female beneficiaries in the DBT funded project	300	323	300	670	300	508	900	1501
No. of publications	0	3	5	8	5	8	10	19
No. of Patents filed/ granted/commercialized	0	0	0	0	0	0	0	0
No. of products or technologies developed/ transferred/commercialized	0	0	2	2	1	1	3	3
Others	-	-	-	-	-	-	-	-

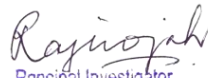

Principal Investigator
Adv Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

Signature & Stamp of PI/Project Coordinator

Objectives Status

(If multi-centric, separate for each centre)

Sanctioned objectives	Achievements vis-a-vis sanctioned objectives
1. Analysis of pesticides in tea leaves	The liquid chromatography-mass spectrometry (LC-MS) analysis of tea leaf samples identified the presence of multiple pesticide residues.
2. Study the effect of pesticides used in tea farming at Biswanath district on male germ cells of albino mice.	Many sperm head morphological abnormalities such as amorphous, hookless, hooked, beaked, banana-shaped, pin-headed, double-headed, giant, and dwarf forms were observed. Abnormal sperm morphology including headless sperm, double tails, bent necks, coiled tails, bent tails, looped tails, and tailless sperm were also detected. In addition, low sperm viability and abnormal acrosomes were observed in the study.
3. Study the effects of pesticides used in tea farming on histoarchitecture of testis, kidney and liver of albino mice.	Compared to the control group, the Lindane-treated groups showed severe abnormal histoarchitecture in the testis, liver, and kidney tissues, including disrupted seminiferous tubules, reduced spermatogenesis, inflammatory cell infiltration, necrosis, vascular congestion, and cellular degeneration, with the T2 group showing the most severe damage.
4. Study the effect of pesticides on testicular protein expression in male albino mice.	Lindane treated groups shows alteration of protein profile as compared to the control group
5. Study the toxic (SGOT/SGPT) and genotoxic effect of pesticides on male albino mice.	The Lindane-treated groups showed an increased frequency of micronuclei along with elevated SGOT, SGPT, and creatinine levels compared to the control group, indicating genotoxicity and liver and kidney damage.


Principal Investigator
Adv. Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

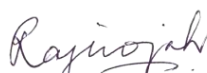
Signature of PI/Project Coordinator with Stamp

Quarterly Deliverables
(If multi-centric, separate for each centre)

S.N.	Quarterly Deliverables of the project (As per Sanction Order)	Achievement Status [Achieved/partially achieved/yet to start etc.]	Remarks (Achievement in detail /other)
1.	Outreach Activity and a Workshop was conducted	Achieved	Outreach activity on Biodiversity Awareness was conducted at Behali Wildlife Sanctuary with participants from nearby schools and a Teacher training workshop was also conducted on this quarter.
2.	Outreach Activity and a Hands on Training on Beekeeping was conducted	Achieved	Awareness on health and hygiene among the tea garden workers was conducted in various tea gardens in Biswanath District, Assam. Entrepreneurship Development and Beekeeping training was organized at Dipora, Gohpur Assam among the villagers to promote beekeeping and sustainable development.
3.	Hands on Training on Amphibian Taxonomy and Practical Classes to UG students of Zoology, Botany and Chemistry Honours students.	Achieved	6 days Hands on Training on Amphibian Taxonomy was conducted in collaboration with ZSI, Itanagar. Participants from different colleges and Universities as well as faculty members participated in the training. Practical classes and laboratory experiments were taught to UG students of Chaiduar College (Autonomous).
4.	Hands on training on occupational hazards and One Week Faculty Improvement Programme for Medical Entrance. Chaiduar College. On site	Achieved	A week long awareness and training was conducted among the tea garden workers on occupational hazards. Factory workers, pluckers, sprayers all participated in the event. A faculty improvement programme was also conducted to train the medical aspirants for their medical entrance examination.
5.	Workshop on Occupational Hazard and Safety among Tea Garden Workers and Hands on Training on Research Instrumentation to the students of Chaiduar College	Achieved	6 days workshop and training programme was conducted on Minikajan T.E. Assam on occupational hazard and safety to the Tea Garden labourers. A 3 day training session on Research Instrumentation was conducted by the Hub to the students of Chaiduar College where they were exposed about the instruments and its working principle in detail.
6.	Hands on Training on Instrumentation to	Achieved	A 3 day training session on Research Instrumentation was conducted by the

	students from Madhabdev University and Sustainable Mushroom Cultivation Awareness		Hub to the students of Madhabdev University where they were exposed about the instruments and its working principle in detail. An awareness programme and training on Oyester mushroom cultivation was conducted by the hub at Nalbari Village Gohpur, an adopted village of Chaiduar College.
7.	Mushroom Cultivation support and Training programme	Achieved	A training as well as support for Mushroom Cultivation was conducted by the Hub where the local people along with students were trained for sustainable mushroom cultivation. Seeds as well as poly bags were provided to the interested people in all the five adopted villages for mushroom cultivation.
8.	Hands on training on Bird Conservation and Ecotourism and Physiology and Anatomy Lectures to Department of MLT Chaiduar College Students	Achieved	A three day training and conservation programme was organized by the Hub at Behali WLS to students and villagers from nearby areas to promote biodiversity conservation and promote ecotourism as a passive income to the youths.
9.	Capacity Building Programme to frontline forest staff and An awareness programme on Turtle conservation on World Turtle Day.	Achieved	A training programme was organized by the hub in collaboration with forest department to train the front line forest staffs about biodiversity and its identification and conservation. An awareness programme was organized on World Turtle Day in collaboration with Kaziranga National Park and Temple Authorities at Nagshankar Temple to aware the locals and nearby school students to conserve and protect turtles.
10.	Hands on training on Research Instrumentation to UG and B.Sc (B.Ed) students from the Department of Chemistry Chaiduar College.	Achieved	Training and hands on was organized by the Hub on Research instrumentation and its working principle to the students of Department of Chemistry and B.Sc (B.Ed) students.
11.	5 Days workshop on “Biotechnology for Juniors” at Chaiduar College	Achieved	A 5 days workshop was organized by the Hub to school students of several nearby schools. Resource person from nearby colleges and universities delivered valuable lectures regarding biotechnology and science and motivated the young school students to increase their curiosity in science.
12.	Hands on training in Bioinformatics and Biostatistics to students of	Achieved	Training and practical was conducted on the topic Bioinformatics and Biostatistics to the students of

	Department of MLT and Science Fair 2026		Department of MLT Chaiduar College (A). Science Fair 2026 was conducted by the Hub, where students from nearby Schools and participated in various activities like art competition, quiz and science model exhibition. External Judges for the events were invited to supervise the events; all participants received joining certificates and memento from the Hub.
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 Principal Investigator
 Adv. Level Institutional Biotech Hub
 Chaiduar College, Gohpur, Assam

Signature of PI/Project Coordinator with Stamp

Details of Publications

(If multi-centric, combined details from all the centre)

Total no. of publications (If multi-centric project, combined number from all the centre): 12

Details of the publications [APA Format: Authors name, (Year), article title, Journal name, Volume, page No. (SCI Impact Factor-)]:

Journal Articles

1. Kakati R., Borah K.J., Borah D., Saikia Q., Hazarika A.(2024). Assessment of Water Quality and Heavy Metal Pollution in Leachate from Municipal Dumping Ground Located in Deepor Beel, a Ramsar Site. *Acta hydrotechnica* , 37(66):1-26. Impact Factor-0.71
2. Kakati, R., Adhikari, K., Saikia, Q., & Hazarika, A. (2024). Assessment of reproductive, genotoxic, and cytotoxic effects of leachate-contaminated water in male mice. *Heliyon*, 10(21), e40126. Impact Facotor-4.1
3. Sarma, P., Saikia, J. N., Hussain, A., Borah, U., & Roy, J. S. (2025). Understanding HIV: A review of pathogenesis and therapeutics. *Journal of Advances in Biology & Biotechnology*, 28(2), 520–525. <https://doi.org/10.9734/jabb/2025/v28i22012> Impact Factor- N/A
4. Dutta, A., Kakati, R., Deka, N., Hussain, A., Ojah, R., Borah, D., & Das, M. (2025). Phyto-chemical profiling, anti-oxidant and anti-microbial potential evaluation of the hydro-methanolic leaf extract of *Aristolochia assamica*, a new endemic species reported from N.E India. *Vegetos*. Impact Factor-1.32
5. Kakati, R., Dutta, A., Deka, N., Hussain, A., Ojah, R., Das, M., Tayung, K., & Borah, D. Plant organ-based variation in anti-microbial potential of *Aristolochia cathcartii* Hook.f.: An integrative approach using docking and ADME analysis.- under review (Journal Name : Natural Product Research)
6. Kakati, R., Dutta, A., Hussain, A., Ojah, R., Deka, N., Borah, D., Das, M., Tayung, K., Das, N., Hazarika, A., & Hazarika, A. Comparative analysis of anti-oxidant, anti-microbial and nutraceutical potential of *Garcinia* species: An integrative approach using molecular docking and ADME analysis-under review (Journal Name : Proceedings of Natural Academy of Science)

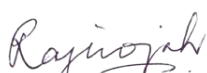
Conference Paper

1. Hussain, A., Kakati, T., Kakati, R., and Ojah, R.(2024). Entrepreneurship and modern bee keeping. Addressing food security : Interdisciplinary insights and sustainable approaches. Organised by PDUAM Behali.Date : 23-24 Nov, 2024.
2. Hussain, A., Kakati, R., and Ojah, R.(2024). Pesticides and its impact on human health and environment. National conference on recent trends in environmental pollution and health, organised by Dept of zoology, Nagaland University, Lumami. Date: 28-29 Nov, 2024.
3. Kakati, R., Hussain, A. and Ojah, R.(2024). Health consequences and microplastics : A study of potential impact on human life. organised by Dept of zoology, Nagaland University, Lumami. Date: 28-29 Nov, 2024.
4. Hussain, A., Kakati, R., and Ojah, R.(2025). Deltametrin toxicity: A comprehensive study on tea gardens of Biswanath district Assam India. International Seminar on Interdisciplinary Approaches for a Sustainable World. orgnaised by Chandra Nath Bezbaruah College, Bokakhat in Collaboration with Bodoland University, Kokrajhar Assam. Date: 6 & 7 Jan, 2025.

5. Kakati, R., Hussain, A. and Ojah, R.(2025). Carbon capture, storage and utilization for mitigating climate change. International Seminar on Interdisciplinary Approaches for a Sustainable World. organised by Chandra Nath Bezbaruah College, Bokakhat in Collaboration with Bodoland University, Kokrajhar Assam. Date: 6 & 7 Jan, 2025.
6. Kakati, R., Hussain, A. and Ojah, R.(2025). Integrating Science and Society. DBT-NER Biotech Hub Scientific Advancement of Local Communities. National Seminar on recent technology for sustainable development. Organized by Assam Science Society and Biswanath College. Date 8/03/2025
7. Kakati, R., Hussain, A. and Ojah, R.(2026). Reproductive toxicity of Lindane and its residues detected in *Camellia sinensis* L.: Effects of male fertility, testicular integrity, and oxidative stress in mice. Advancement of Bioscience research for a sustainable future. Organized by Biotech Hub, Bhattadev University. Date- 27 & 28 Feb, 2026.

Book Chapters

1. Kakati, R., Hussain, A., & Ojah, R. (2024). Biotechnology in medical sciences: Advances and applications. In M. Islam, B. K. Das, & M. C. Das (Eds.), Emerging research trends in biosciences (Vol. 2, pp. 67–74).Global net publication.
2. Karabi, K., & Kakati, R. (2024). Human–elephant conflict: A complex challenge in conservation and coexistence. In M. Islam, B. K. Das, & M. C. Das (Eds.), Emerging research trends in biosciences (Vol. 2, pp. 224–232).Global net publication.
3. Kakati, K., & Kakati, R. (2025). Wetland degradation and conservation in India: Anthropogenic drivers, ecological consequences, and governance strategies. In H. Phukon, S. Borah, P. Sarkar, & S. Devi (Eds.), Bioscape (Vol. 1, pp. 149–160).Mahabir Publication.
4. Kakati, T., Hussain, A., & Kakati, R. (2025). Exploring nanotechnology: From synthesis to sustainable applications. In H. Phukon, S. Borah, P. Sarkar, & S. Devi (Eds.), Bioscape (Vol. 1, pp. 406–419).Mahabir Publication.
5. Hussain, A., Kakati, R., & Ojah, R. (2026). Nanomaterials in the environment: Applications, risks, and future. In L. Chouhan & R. Chakravarty (Eds.), Materials for a sustainable tomorrow: Bridging science and society (pp. 104–114).
6. Kakati, R., Hussain, A., & Ojah, R. (2026). Health Problem of Tea Garden labour of Assam India: A comprehensive review. In S. Kakati (Ed.), Contours of Knowledge. (pp. 127-140).


 Principal Investigator
 Adv Level Institutional Biotech Hub
 Chaiduar College, Gohpur, Assam

Signature of PI/Project Coordinator with Stamp

Details of Patents

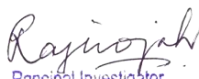
(If multi-centric, combined details from all the centre)

Total no. of Patents filed (If multi-centric project, combined number from all the centre): Nil

Total no. of Patents granted (If multi-centric project, combined number from all the centre): Nil

Details of the Patents filed/Granted [Title, application No.]:

- 1.
- 2.
- 3.


Principal Investigator
Adv Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

Signature of PI/Project Coordinator with Stamp

Details of Technologies Developed/ Transferred/Commercialized

(If multi-centric, combined details from all the centre)

Total no. of technologies commercialized (If multi-centric project, combined number from all the centre): Nil

Total no. of technologies transferred (If multi-centric project, combined number from all the centre): Nil

Total no. of technologies developed (If multi-centric project, combined number from all the centre): 3

Details of the technologies developed/ transferred/commercialized:

1. Organic Honey
2. Bio-Pesticide
3. Organic Mushroom

1. Title of the Technology: Training and Entrepreneurship Development on Scientific Beekeeping

DBT supported project name: Hands on Training on Beekeeping

Technology/ Product description [Including development of technology]

A week-long “Training & Entrepreneurship Development Programme on Scientific Beekeeping” was organized by the DBT-NER Advanced Level Institutional Biotech Hub, Chaiduar College, Gohpur, Assam, at Dipara village. As part of the initiative, five beehives with *Apis cerana indica* colonies and necessary accessories were installed in the backyard of Mr. Drona Sarma, where ample flowering plants and crops provide a suitable foraging environment. He was entrusted with their care and expressed gratitude for the opportunity. The programme attracted active participation from villagers and students. The programme was inaugurated by Dr. Kishor Singh Rajput. Dr. Mohini Mohan Borah delivered a session on honeybee biology, hive structure, and safe handling practices. Dr. Joydev Dutta explained apiary setup and colony management for better honey production. Mr. Hridaya Hazarika demonstrated honey extraction techniques and discussed its uses. Mr. Aziz Hussain spoke on the dos and don'ts of beekeeping, including pest and disease management. Mr. Ranjit Kakati highlighted the economic benefits and market potential of bee products. Guest speakers Mr. Mulan Gogoi and Mr. Padma Gopal Newar shared practical experiences and encouraged villagers to adopt beekeeping as a source of income. The programme concluded with remarks by Dr. Raju Ojah and a vote of thanks by Dr. Sushanta Borah, emphasizing continued support for future beekeeping initiatives.

Utility: Entrepreneurship Development

Commercialization status and details: Not Commercialized

Institute address: Chaiduar College, Gohpur, Biswanath, Assam-784168

Details of contact person: Dr. Ranjit Kakati (7002720065) and Aziz Hussain (7896647369)

Relevant image :



2. Title of the Technology: Development of Biopesticide

DBT supported project name: Development of Biopesticide

Technology/ Product description *[Including development of technology]:*

The Biotech Hub at Chaiduar College (Autonomous), working together with M.Sc. Zoology students from North Lakhimpur University, has developed an organic pesticide using locally available plants. This work was carried out as part of the students' M.Sc. dissertation, with guidance and support from the Biotech Hub. The pesticide was tested in tea fields and showed good results in controlling different tea pests. It can be a safer and eco-friendly alternative to chemical pesticides. This project shows how student research can be useful in solving real-life agricultural problems. It also promotes the use of

natural and locally available materials for pest control. Overall, the effort supports sustainable farming and helps in reducing the harmful effects of chemical pesticides on the environment.

Utility: Tea Pest

Commercialization status and details: Not Commercialized

Institute address: Chaiduar College, Gohpur, Biswanath, Assam-784168

Details of contact person: Dr. Ranjit Kakati (7002720065) and Aziz Hussain (7896647369)

Relevant image:



3. Title of the Technology: Sustainable Mushroom Cultivation

DBT supported project name: Sustainable Mushroom Cultivation

Technology/ Product description [Including development of technology]:

The “Entrepreneurship Development through Mushroom Cultivation” programme launched by the DBT-NER Advanced Level Institutional Biotech Hub, Chaiduar College, Gohpur, Assam, began with its inauguration at Pub Ghagra, Gohpur on August 13, 2025, where community representatives from five adopted villages joined to learn about the project’s objectives and benefits. The event featured addresses on the importance of mushroom farming for rural income generation, technical sessions on cultivation methods and economic opportunities, and active participation from project staff and villagers. This was followed by a Hands-on Training Programme on September 9, 2025, which provided practical

demonstrations of mushroom cultivation steps, distribution of spawn and PPE bags, and guidance on hygienic preparation and bag management. With strong enthusiasm and commitment from villagers, the initiative aims to establish mushroom cultivation units across all five adopted villages, fostering sustainable livelihoods and community-based entrepreneurship through applied biotechnology.

Utility: Entrepreneurship Development

Commercialization status and details: Not Commercialized

Institute address: Chaiduar College, Gohpur, Biswanath, Assam-784168

Details of contact person: Dr. Ranjit Kakati (7002720065) and Aziz Hussain (7896647369)

Relevant image:



Ranjit Kakati
Principal Investigator
Adv Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

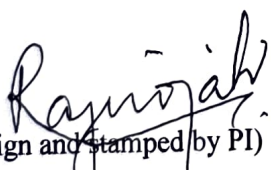
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Project No. : BT/NER/143/SP44407/2021

Title of the project : *DBT-NER Advanced –Level Institutional Biotech Hub at Chaiduar College, Biswanath, Assam (Phase-II)*

Name of PI :Dr. Raju Ojah

Sanctioned objectives	Achievements vis-a-vis sanctioned objectives
1. Analysis of pesticides in tea leaves	The liquid chromatography-mass spectrometry (LC-MS) analysis of tea leaf samples identified the presence of multiple pesticide residues.
2. Study the effect of pesticides used in tea farming at Biswanath district on male germ cells of albino mice.	Many sperm head morphological abnormalities such as amorphous, hook less, hooked, beaked, banana-shaped, pin-headed, double-headed, giant, and dwarf forms were observed. Abnormal sperm morphology including headless sperm, double tails, bent necks, coiled tails, bent tails, looped tails, and tailless sperm were also detected. In addition, low sperm viability and abnormal acrosomes were observed in the study.
3. Study the effects of pesticides used in tea farming on histoarchitecture of testis, kidney and liver of albino mice.	Compared to the control group, the Lindane-treated groups showed severe abnormal histoarchitecture in the testis, liver, and kidney tissues, including disrupted seminiferous tubules, reduced spermatogenesis, inflammatory cell infiltration, necrosis, vascular congestion, and cellular degeneration, with the T2 group showing the most severe damage.
4. Study the effect of pesticides on testicular protein expression in male albino mice.	Lindane treated groups shows alteration of protein profile as compared to the control group
5. Study the toxic (SGOT/SGPT) and genotoxic effect of pesticides on male albino mice.	The Lindane-treated groups showed an increased frequency of micronuclei along with elevated SGOT, SGPT, and creatinine levels compared to the control group, indicating genotoxicity and liver and kidney damage.


(Sign and stamped by PI)

Principal Investigator
Adv Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam


(Sign and stamped by the Administrative
Head of the institute)

Principal & Secretary
Chaiduar College
P.O.- Gohpur

Due- Drawn Statement

Project Name: DBT-NER Advance- Level Institutional Biotech Hub at Chaiduar College,
Biswanath, Assam (Phase-II)

[Name of the PI/ Project Coordinator: Dr. Raju Ojah]

**[Total Sanctioned Budget: 57,52,175.00;
Start of the project date: 01/02/2023;
Duration: 3 Years]**

Name of the Project Staff	Month and Year	Due	Drawn	Difference
Ranjit Kakati JRF/Project associate (1 year 10 months) + 12 Months SRF(Senior Project associate)	June, 2023	33480.00	33480.00	0.00
	July, 2023	33480.00	33480.00	0.00
	Aug, 2023	33480.00	33480.00	0.00
	Sept, 2023	33480.00	33480.00	0.00
	Oct, 2023	33480.00	33480.00	0.00
	Nov, 2023	33480.00	33480.00	0.00
	Dec, 2023	33480.00	33480.00	0.00
	Jan, 2024	33480.00	33480.00	0.00
	Feb, 2024	33480.00	33480.00	0.00
	March, 2024	33480.00	33480.00	0.00
	April, 2024	33480.00	33480.00	0.00
	May, 2024	33480.00	33480.00	0.00
	June, 2024	33480.00	33480.00	0.00
	July, 2024	33480.00	33480.00	0.00
	Aug, 2024	33480.00	33480.00	0.00
	Sept, 2024	33480.00	33480.00	0.00
	Oct, 2024	33480.00	33480.00	0.00
	Nov, 2024	33480.00	33480.00	0.00
	Dec, 2024	33480.00	33480.00	0.00
	Jan, 2025	33480.00	33480.00	0.00
	Feb, 2025	33480.00	33480.00	0.00
	March, 2025	37800.00	37800.00	0.00
	April, 2025	37800.00	37800.00	0.00
	May, 2025	37800.00	37800.00	0.00
	June, 2025	37800.00	37800.00	0.00
	July, 2025	37800.00	37800.00	0.00
	Aug, 2025	37800.00	37800.00	0.00
	Sept, 2025	37800.00	37800.00	0.00
	Oct, 2025	37800.00	37800.00	0.00
	Nov, 2025	37800.00	37800.00	0.00
	Dec, 2025	37800.00	37800.00	0.00
	Jan, 2026	37800.00	37800.00	0.00

Raju Ojah
Principal Investigator
Adv Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

Aziz Hussain 34 months Lab Assistant	Feb, 2026	37800.00	37800.00	0.00
	March, 2026	37800.00	37800.00	0.00
	June, 2023	21600.00	21600.00	0.00
	July, 2023	21600.00	21600.00	0.00
	Aug, 2023	21600.00	21600.00	0.00
	Sept, 2023	21600.00	21600.00	0.00
	Oct, 2023	21600.00	21600.00	0.00
	Nov, 2023	21600.00	21600.00	0.00
	Dec, 2023	21600.00	21600.00	0.00
	Jan, 2024	21600.00	21600.00	0.00
	Feb, 2024	21600.00	21600.00	0.00
	March, 2024	21600.00	21600.00	0.00
	April, 2024	21600.00	21600.00	0.00
	May, 2024	21600.00	21600.00	0.00
	June, 2024	21600.00	21600.00	0.00
	July, 2024	21600.00	21600.00	0.00
	Aug, 2024	21600.00	21600.00	0.00
	Sept, 2024	21600.00	21600.00	0.00
	Oct, 2024	21600.00	21600.00	0.00
	Nov, 2024	21600.00	21600.00	0.00
	Dec, 2024	21600.00	21600.00	0.00
	Jan, 2025	21600.00	21600.00	0.00
	Feb, 2025	21600.00	21600.00	0.00
	March, 2025	21600.00	21600.00	0.00
	April, 2025	21600.00	21600.00	0.00
	May, 2025	21600.00	21600.00	0.00
	June, 2025	21600.00	21600.00	0.00
	July, 2025	21600.00	21600.00	0.00
	Aug, 2025	21600.00	21600.00	0.00
	Sept, 2025	21600.00	21600.00	0.00
	Oct, 2025	21600.00	21600.00	0.00
	Nov, 2025	21600.00	21600.00	0.00
	Dec, 2025	21600.00	21600.00	0.00
	Jan, 2026	21600.00	21600.00	0.00
	Feb, 2026	21600.00	21600.00	0.00
	March, 2026	21600.00	21600.00	0.00


(Signature of Principal Investigator)

Principal Investigator
Adv Level Institutional Biotech Hub
Charduar College, Gohpur, Assam


(Signature of Accounts Officer)

Head Assistant / Accounts Officer
Charduar College, Gohpur

(SIGNATURE OF HEAD OF THE INSTITUTE)

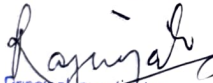

Principal & Secretary
Charduar College
P.O. Gohpur

CHAIDUAR COLLEGE

Cash Book for the period 01/04/2023 To 31/03/2026 of ADVANCE BIO TECH HUB

Print Date 26/05/2026

DATED	VCR NO	RECEIPTS	CASH	ICIC ACC NO 325005001026	DATED	VCR NO	DISBURSEMENTS	CASH	ICIC ACC NO 325005001026 (BIO)
19/06/2023	DR/00001/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	6367.00	19/06/2023	CR/00001/BIO	CR RECURRING (BIO) (being paid to assam tribune for publication of advertisement)	-	6367.00
19/06/2023	DR/00002/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	50000.00	19/06/2023	CR/00002/BIO	CR OVERHEAD CHARGE (BIO) (being paid to chaiduar college as over head fund)	-	50000.00
15/07/2023	DR/00003/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	16427.00	12/07/2023	CR/00003/BIO	CR MANPOWER (BIO) (being paid to ranjit kakati, project associate salary for the month of june/2022)	-	33480.00
15/07/2023	DR/00004/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	21600.00	15/07/2023	CR/00004/BIO	CR MANPOWER (BIO) (being paid to aziz hussain, project associate salary for the month of june/2022)	-	21600.00
15/07/2023	DR/00024/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	33480.00	15/07/2023	CR/00005/BIO	CR RECURRING (BIO) (being paid to dr. raju ojah, co-ordinator, adv bio hub as contingency)	-	16427.00
03/08/2023	DR/00005/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	21600.00	03/08/2023	CR/00051/BIO	CR MANPOWER (BIO) (being paid to ranjit kakati salary for the month of july, 2023)	-	33480.00
03/08/2023	DR/00006/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	33480.00	03/08/2023	CR/00052/BIO	CR MANPOWER (BIO) (being paid to aziz hussain salary for the month of july, 2023)	-	21600.00
07/08/2023	DR/00007/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	2729.00	06/08/2023	CR/00006/BIO	CR RECURRING (BIO) (being paid to assam tribune for publication of advertisement)	-	2729.00
06/10/2023	DR/00008/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	2540.00	05/10/2023	CR/00007/BIO	CR RECURRING (BIO) (paid to ranjit kakati, project associate for attend the workshop at handique college)	-	2540.00
07/10/2023	DR/00009/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	173702.00	06/10/2023	CR/00008/BIO	CR MANPOWER (BIO) (paid to ranjit kakati, project associate salary for the month of aug and sep.2023)	-	66960.00
13/10/2023	DR/00010/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	264978.00	06/10/2023	CR/00009/BIO	CR MANPOWER (BIO) (paid to aziz hussain, project assistant, salary for the month of aug and sep.2023)	-	43200.00
19/10/2023	DR/00011/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	91999.00	06/10/2023	CR/00010/BIO	CR WORKSHOP (BIO) (paid to dr. raju ozah, project investigator in connection with workshop held on 21-23 aug.2023)	-	63542.00


 Ranjit Kakati
 Principal Investigator
 Adv. Level Institutional Biotech Hub
 Chaiduar College, Gohpur, Assam

Cash Book for the period 01/04/2023 To 31/03/2026 of ADVANCE BIO TECH HUB

Print Date : 26/05/2026

DATED	VCR NO	RECEIPTS	CASH	ICIC ACC NO 325005001026
03/11/2023	DR/00012/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	55080.00
21/11/2023	DR/00013/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	4548.00
30/11/2023	DR/00014/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	103980.00
02/12/2023	DR/00015/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	5200.00
05/01/2024	DR/00016/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	88730.00
12/01/2024	DR/00017/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	49194.00
19/01/2024	DR/00018/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	167400.00
30/01/2024	DR/00019/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	50000.00
05/02/2024	DR/00020/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	55080.00
13/02/2024	DR/00021/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	110099.00
22/02/2024	DR/00025/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	11000.00
05/03/2024	DR/00022/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	71017.00
28/03/2024	DR/00023/BIO	DR DEPARTMENT OF BIO TECH (BIO) (department of bio technology)	-	475567.00
26/05/2025	DR/00026/BIO	DR DEPARTMENT OF BIO TECH (BIO)	-	1767688.00

DATED	VCR NO	DISBURSEMENTS	CASH	ICIC ACC NO 325005001026 (BIO)
12/10/2023	CR/00011/BIO	CR WORKSHOP (BIO) (paid to dr. raju ozah, project investigator in connection with workshop held on 25 sep- 1 october, 2023)	-	90368.00
12/10/2023	CR/00012/BIO	CR RECURRING (BIO) (paid to radha enterprise for laboratory goods)	-	174610.00
16/10/2023	CR/00013/BIO	CR NON RECURRING (BIO) (being payment to planters for supply of electrophoresis with digital power pack)	-	91999.00
01/11/2023	CR/00014/BIO	CR MANPOWER (BIO) (being paid to ranjit kakati salary for the month of october, 2023 as project assistant)	-	33480.00
01/11/2023	CR/00015/BIO	CR MANPOWER (BIO) (being paid to aziz hassan salary for the month of october, 2023 as lab. assistant)	-	21600.00
21/11/2023	CR/00016/BIO	CR RECURRING (BIO) (being paid to assam tribune for publication of advertisement)	-	4548.00
29/11/2023	CR/00017/BIO	CR NON RECURRING (BIO) (paid to abnibh computech for supply of lg air conditioner)	-	43000.00
29/11/2023	CR/00018/BIO	CR RECURRING (BIO) (paid to abnibh computech for reparing of refrigerator)	-	5900.00
29/11/2023	CR/00019/BIO	CR MANPOWER (BIO) (paid to ranjit kakati salary for the month of november, 2023)	-	33480.00
29/11/2023	CR/00020/BIO	CR MANPOWER (BIO) (paid to aziz hassan salary for the month of november, 2023)	-	21600.00
01/12/2023	CR/00021/BIO	CR RECURRING (BIO) (paid to guwahati biotech park for sample testing)	-	2700.00
01/12/2023	CR/00022/BIO	CR RECURRING (BIO) (paid to raju oha for dsc)	-	2500.00
03/01/2024	CR/00023/BIO	CR MANPOWER (BIO) (paid to ranjit kakati salary for the month of december, 2023)	-	33480.00
03/01/2024	CR/00024/BIO	CR MANPOWER (BIO) (paid to aziz hassan salary for the month of december, 2023)	-	21600.00

Ranjit
Principal Investigator
Adv Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

Print Date 26/05/2020

DATED	VCR NO	RECEIPTS	CASH	ICIC ACC NO 325005001026	DATED	VCR NO	DISBURSEMENTS	CASH	ICIC ACC NO 325005001026 (BIO)
25/02/2026	DR/00027/BIO	DR DEPARTMENT OF BIO TECH (BIO) (received from dbt, vide sanctioned no bt/ner/143/sp-444/07/2021, dtd. 25.2.2026)	-	800000.00	03/01/2024	CR/00025/BIO	CR RECURRING (BIO) (paid to agnibh comutech for supply of kattle)	-	2150.00
			-	-	04/01/2024	CR/00026/BIO	CR RECURRING (BIO) (paid to ms pawandev trade suppliers for maintainence of laboratory)	-	31500.00
			-	-	12/01/2024	CR/00027/BIO	CR RECURRING (BIO) (paid to dhemaji radio service for supply of bee and etc)	-	49194.00
			-	-	18/01/2024	CR/00028/BIO	CR RECURRING (BIO) (paid to narayan sa,es for laboratory equipment and etc.)	-	167400.00
			-	-	25/01/2024	CR/00029/BIO	CR WORKSHOP (BIO) (being paid to raju ojah for workshop from 24th to 30 jan,2024)	-	50000.00
			-	-	03/02/2024	CR/00030/BIO	CR MANPOWER (BIO) (being paid to ranjit kakati salary for the month of jan/2024)	-	33480.00
			-	-	03/02/2024	CR/00031/BIO	CR MANPOWER (BIO) (being paid to aziz hussain salary for the month of jan/2024)	-	21600.00
			-	-	12/02/2024	CR/00032/BIO	CR WORKSHOP (BIO) (being paid to dr. raju ojah for orientation programme)	-	47365.00
			-	-	12/02/2024	CR/00033/BIO	CR TRAVEL (BIO) (being paid to ranjit kakati as ta for research field works)	-	50344.00
			-	-	12/02/2024	CR/00034/BIO	CR NON RECURRING (BIO) (being paid to trivenee for supply of equipments)	-	12390.00
			-	-	21/02/2024	CR/00035/BIO	CR RECURRING (BIO) (being paid to biswajyoti nath (biswajyoti traders) internet collection and recharge for one year)	-	11000.00
			-	-	04/03/2024	CR/00036/BIO	CR MANPOWER (BIO) (being paid to ranjit kakati salary for the month of feb/2024)	-	33480.00
			-	-	04/03/2024	CR/00037/BIO	CR MANPOWER (BIO) (being paid to aziz hussain salary for the month of feb/2024)	-	21600.00

Rajiv Jha
Principal Investigator
Adv Level Institutional Biotech Hub
Charduar College, Gohpur, Assam

Print Date : 26/05/2026

Cash Book for the period 01/04/2023 To 31/03/2026 of ADVANCE BIO TECH HUB

DATED	VCR NO	RECEIPTS	CASH	ICIC ACC NO 325005001026	DATED	VCR NO	DISBURSEMENTS	CASH	ICIC ACC NO 325005001026 (BIO)
			-	-	04/03/2024	CR/00038/BIO	CR RECURRING (BIO) (being paid to narayan sales and services for computer reperring)	-	10450.00
			-	-	04/03/2024	CR/00039/BIO	CR RECURRING (BIO) (being paid to aziz hussain for sample testing at tezpur university)	-	5487.00
			-	-	27/03/2024	CR/00040/BIO	CR NON RECURRING (BIO) (being paid to assam chemical and instruments corporation)	-	76110.00
			-	-	27/03/2024	CR/00041/BIO	CR RECURRING (BIO) (being paid to assam chemical and instruments corporation for chemicals)	-	2300.00
			-	-	27/03/2024	CR/00042/BIO	CR RECURRING (BIO) (being paid to aziz hussain for accomodation charge of guest house)	-	20000.00
			-	-	27/03/2024	CR/00043/BIO	CR RECURRING (BIO) (being paid to radha enterprise for conducting of research works)	-	34928.00
			-	-	27/03/2024	CR/00044/BIO	CR RECURRING (BIO) (being paid to aziz hussain for sample testing at iit guwahati)	-	1860.00
			-	-	27/03/2024	CR/00045/BIO	CR RECURRING (BIO) (being paid to ranjit kakati salary for the month of march, 2024)	-	33480.00
			-	-	27/03/2024	CR/00046/BIO	CR RECURRING (BIO) (being paid to aziz hussain salary for the month of march, 2024)	-	21600.00
			-	-	27/03/2024	CR/00047/BIO	CR RECURRING (BIO) (being paid to planters for supply of chemicals)	-	63715.00
			-	-	27/03/2024	CR/00048/BIO	CR RECURRING (BIO) (being paid to trivenee for supply of chemicals)	-	132774.00
			-	-	27/03/2024	CR/00049/BIO	CR NON RECURRING (BIO) (being paid to trivenee for supply of equipment)	-	48800.00
			-	-	27/03/2024	CR/00050/BIO	CR WORKSHOP (BIO) (being paid to raju ojah for worshop)	-	40000.00
			-	-	26/05/2025	CR/00053/BIO	CR OVERHEAD CHARGE (BIO) (paid to chaiduar college as over head fund, through pfms)	-	50000.00

Rajuojah
Principal Investigator
Adv Level Institutional Biotech Hub
Charduar College, Gohpur, Assam

Cash Book for the period 01/04/2023 To 31/03/2026 of ADVANCE BIO TECH HUB

Print Date 26/05/2026

DATED	VCR NO	RECEIPTS	CASH	ICIC ACC NO 325005001026 (BIO)	DATED	VCR NO	DISBURSEMENTS	CASH	ICIC ACC NO 325005001026 (BIO)
			-	-	10/06/2025	CR/00054/BIO	CR RECURRING (BIO) (paid to raju ojah for icssr spondored national conference held on 24/11/2024 through pfms)	-	3700.00
			-	-	13/06/2025	CR/00055/BIO	CR RECURRING (BIO) (paid to raju ojah for seminar through pfms)	-	9491.00
			-	-	13/06/2025	CR/00056/BIO	CR MANPOWER (BIO) (paid to ranjit kakati remuneration for the period of 01/04/2024 to 31/03/2025 through pfms)	-	401760.00
			-	-	13/06/2025	CR/00057/BIO	CR MANPOWER (BIO) (paid to aziz hussain as remuneration for the perion of 01/04/2024 to 31/03/2025 through pfms)	-	259200.00
			-	-	13/06/2025	CR/00058/BIO	CR RECURRING (BIO) (paid to raju ojah for participate of international cofference through pfms)	-	6650.00
			-	-	19/07/2025	CR/00059/BIO	CR RECURRING (BIO) (paid to indian computer system for purchase of ups through pfms)	-	2599.00
			-	-	30/07/2025	CR/00060/BIO	CR RECURRING (BIO) (paid to vs industries for purchase of computer through pfms)	-	39042.00
			-	-	18/09/2025	CR/00061/BIO	CR RECURRING (BIO) (paid to ms copier point for supply of laptop)	-	64500.00
			-	-	19/09/2025	CR/00062/BIO	CR RECURRING (BIO) (paid to ms copier point for supply of printer)	-	36600.00
			-	-	19/09/2025	CR/00063/BIO	CR WORKSHOP (BIO) (paid to dr raju ojah for workshop)	-	91540.00
			-	-	19/09/2025	CR/00064/BIO	CR WORKSHOP (BIO) (paid to dr raju ojah for traing and workshop)	-	70320.00
			-	-	19/09/2025	CR/00065/BIO	CR RECURRING (BIO) (paid to iit, guwahati for anti oxidant test)	-	16520.00
			-	-	25/09/2025	CR/00066/BIO	CR RECURRING (BIO) (paid to iit, guwahati for lcms test)	-	21000.00
			-	-	25/09/2025	CR/00067/BIO	CR RECURRING (BIO) (paid to agriculture university samlpe test (ranjit kakati))	-	6800.00
			-	-	11/10/2025	CR/00068/BIO	CR NON RECURRING (BIO) (paid to apple weighingfra limited for analytical weighing scale, gem no. 64321916)	-	50001.00

Ranjit Kakati
Principal Investigator
Adv Level Institutional Biotech Hub
Charduar College, Gohpur, Assam

Print Date : 26/05/2024

Cash Book for the period 01/04/2023 To 31/03/2026 of ADVANCE BIO TECH HUB

DATED	VCR NO	RECEIPTS	CASH	ICIC ACC NO 325005001026	DATED	VCR NO	DISBURSEMENTS	CASH	ICIC ACC NO 325005001026 (BIO)
			-	-	11/10/2025	CR/00069/BIO	CR WORKSHOP (BIO) (paid to raju ojah, investigator, bio tech hub for workshop)	-	112830.00
			-	-	11/10/2025	CR/00070/BIO	CR RECURRING (BIO) (paid to raju ojah, investigator, to attend seminar assam science society)	-	1000.00
			-	-	11/10/2025	CR/00071/BIO	CR RECURRING (BIO) (paid to raju ojah, investigator, for entrepreneurship development programme)	-	17542.00
			-	-	11/10/2025	CR/00072/BIO	CR RECURRING (BIO) (paid to trivenee for amc)	-	100000.00
			-	-	11/10/2025	CR/00073/BIO	CR RECURRING (BIO) (paid to research institute iit guwahati for sample analysis)	-	81892.00
			-	-	14/10/2025	CR/00074/BIO	CR RECURRING (BIO) (paid to trivenee for laboratory reagent)	-	102896.00
			-	-	14/10/2025	CR/00075/BIO	CR NON RECURRING (BIO) (paid to trivenee for laboratory reagent)	-	99350.00
			-	-	16/10/2025	CR/00076/BIO	CR WORKSHOP (BIO) (paid to ranjit kakati participation fee of seminar)	-	1000.00
			-	-	16/10/2025	CR/00077/BIO	CR RECURRING (BIO) (paid to aziz hussain participation fee of seminar)	-	1000.00
			-	-	16/10/2025	CR/00078/BIO	CR RECURRING (BIO) (paid to raju ojah, investigator for contingency)	-	9139.00
			-	-	16/10/2025	CR/00079/BIO	CR RECURRING (BIO) (paid to ranjit kakati for purchase of file)	-	1520.00
			-	-	16/10/2025	CR/00080/BIO	CR RECURRING (BIO) (paid to aziz hussain for purchase of software subscription)	-	18798.00
			-	-	17/10/2025	CR/00081/BIO	CR RECURRING (BIO) (paid to bioscience guwahati for sample test)	-	68440.00
			-	-	17/10/2025	CR/00082/BIO	CR WORKSHOP (BIO) (paid to ranjit kakati for training programme held on rajib gandhi university)	-	22548.00
			-	-	17/10/2025	CR/00083/BIO	CR WORKSHOP (BIO) (paid to ranjit kakati for training programme held on rajib gandhi university)	-	10.00
			-	-	16/03/2026	CR/00084/BIO	CR OVERHEAD CHARGE (BIO) (paid to chaiduar college, as over head fund)	-	50000.00

Ranjit
Principal Investigator
Adv Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

Print Date : 26/05/2024

Cash Book for the period 01/04/2023 To 31/03/2026 of ADVANCE BIO TECH HUB

DATED	VCR NO	RECEIPTS	CASH	ICIC ACC NO 325005001026
			-	-
			-	-
			-	-
			-	-
			-	-
			-	-
Total			.00	4533485.00

DATED	VCR NO	DISBURSEMENTS	CASH	ICIC ACC NO 325005001026 (BIO)
19/03/2026	CR/00085/BIO	CR MANPOWER (BIO) (paid to ranjit kakati, salary for the month of mapril,2025 to march, 2026)	-	453600.00
19/03/2026	CR/00086/BIO	CR MANPOWER (BIO) (paid to aziz hussain, salary for the month of mapril,2025 to march, 2026)	-	259200.00
23/03/2026	CR/00087/BIO	CR WORKSHOP (BIO) (paid to raju ojah, pi as advance payment for science fair-2026 and workshop to be held on 26/03/2026)	-	19025.00
23/03/2026	CR/00088/BIO	CR TRAVEL (BIO) (paid to raju ojah, pi of adv bio tech hub for travelling and accomodation)	-	7537.00
23/03/2026	CR/00089/BIO	CR TRAVEL (BIO) (paid to ranjit kakati, project associate of adv bio tech hub for travelling)	-	1558.00
23/03/2026	CR/00090/BIO	CR TRAVEL (BIO) (paid to ranjit kakati, project associate of adv bio tech hub for awareness programme held on 30-31st january, 2026)	-	9080.00
Total			-	4533485.00

Ranjit Kakati
Principal Investigator
Adv Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

Ranjit Kakati
Head Assistant / Accounts Officer
Chaiduar College, Gohpur

Ranjit Kakati
Principal & Secretary
Chaiduar College
P.O.-Gohpur



Office of the Principal
CHAIDUAR COLLEGE

Gohpur, Assam - 784168

Affiliated to Gauhati University

Recognised by UGC under Sections 2(f) & 12(B)

Accredited by NAAC

Kishor Singh Rajput
M.A. (Eco), M.P.S., M.Sc., Ph.D.
Principal



chaiduarcollege@gmail.com
www.chaiduarcollege.org
7896921031 / 03715-243158

Ref. No. CDC/KSR/26/ABH/01

Date: 01.06.2026

CERTIFICATE OF RETENTION OF CAPITAL ASSETS

This is to certify that the equipment and capital assets purchased out of the Non-Recurring grant sanctioned by the **Department of Biotechnology (DBT), Ministry of Science and Technology, Government of India, New Delhi**, vide Sanction Order No. [BT/NER/143/SP44407/2021] dated [01.02.2023] for the research project entitled: 'DBT-NER Advance- Level Institutional Biotech Hub at Chaiduar College, Biswanath, Assam (Phase-II) Effect of pesticides on male Fertility and genotoxicity of albino mice' under the Principal Investigatorship of [Dr. Raju Ojah PI], have been retained at [Chaiduar College] upon completion of the project.

It is further certified that:

All acquired assets have been duly entered in the official Asset/Stock Register of the institution.

The equipment is in good working condition and will be maintained and utilized for research and academic purposes by the institution.

The assets acquired wholly or substantially out of the DBT grant shall not be disposed of, encumbered, or transferred to any other institution/individual without the prior written approval of the Department of Biotechnology, Government of India.

The retention and management of these assets comply with the provisions laid down in the General Financial Rules (GFR) 2017.

Details of Retained Capital Assets:

Sl.No	Name of the Equipment/Asset	Quantity Procured
1.	Microtome Knife Sharpening Machine	1
2.	Laminar Air Flow	1
3.	Rotary Microtome	1
4.	Hot water Bath	1
5.	Mobile Freeze box	1
6.	Vertical Autoclave	1
7.	Horizontal Electrophoresis with Digital power Pack	1
8.	Air Conditioner	1
9.	Vortex	1
10.	Double Distilled Water Plant	1
11.	Hot Plate	1
Total		11


Principal
Chaiduar College
Gohpur, Biswanath-784168, Assam

Assets Acquired by *DBT-NER Advanced –Level Institutional Biotech Hub at Chaiduar College, Biswanath, Assam*

Project Title: *DBT-NER Advanced –Level Institutional Biotech Hub at Chaiduar College, Biswanath, Assam (Phase-II)* with focus area “ Effect of pesticides on male Fertility and genotoxicity of albino mice”

DBT Sanction Order No. & Date:

Letter No. : **BT/NER/143/SP44407/2021** **Date :** 01/02/2023

Name of Principal Investigator: Dr. Raju Ojah

Name of Co-PI/Co-Investigator: Dr. Mohini Mohan Borah

Dr. Sushanta Borah

Institute: Chaiduar College

Address with Contact Nos. (Landline & Mobile) & Email:

Landline: 03715-291058 **Mobile :** 8638537756

Email: biotechcdc23@gmail.com, chaiduarcollege@gmail.com.

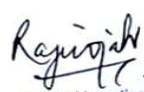
Total Cost: Rs 57,52,175. 00

The following equipment has been purchased with the financial assistance of the Department of Biotechnology. Ministry of Science & Technology. Government of India in the Project titled *DBT-NER Advanced –Level Institutional Biotech Hub at Chaiduar College, Biswanath, Assam (Phase-II)* with focus area “ Effect of pesticides on male Fertility and genotoxicity of albino mice” and implemented by **Dr Raju Ojah**, PI during the period from **Period 01/04/2023 to 31/03/2026**

Details of Equipment Procured During the Project Period

(Financial figures given in this equipment procured details are shown in lakhs)

S. No.	Name of Equipment(s)/ Asset(s) Acquired	Quantity Procured
a.	Microtome Knife Sharpening Machine	1
b.	Laminar Air Flow	1
c.	Rotary Microtome	1
d.	Hot Water Bath	1
e.	Mobile Freeze box	1
f.	Vertical Autoclave	1
g.	Horizontal Electrophoresis with Digital power pack	1
h.	Air Conditioner	1
i.	Vortex	1
j.	Double Distilled Water Plant	1
k.	Hot Plate	1
Total		11


Principal Investigator
Adv. Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam



DBT-NER ADVANCE-LEVEL INSTITUTIONAL BIOTECH HUB (PHASE-II)

CHAIDUAR COLLEGE (AUTONOMOUS), GOHPUR, ASSAM, 784168

PROJECT CODE: BT/NER/143/SP44407/2021

E-mail:biotechcdc23@gmail.com



RefNo. CDC/ABH/2026/06

Date : 29.03.2026

CERTIFICATE OF ASSETS REGISTER MAINTENANCE

This is to certify that the **Assets Register** of **DBT-NER Advanced Institutional Level Biotech Hub Phase-II at Chaiduar College, Biswanath, Assam**(DBT Sanction Order , Letter No. : **BT/NER/143/SP44407/2021** Date : 01/02/2023) has been duly maintained and updated for the period from period **01/04/2023** to **31/03/2026**. The register has been reviewed and found to contain accurate and complete records of the organization's assets, including:

- Asset identification details
- Asset descriptions
- Acquisition dates
- Purchase costs/values
- Asset locations
- Custodian/department details
- Depreciation records (where applicable)
- Disposal or transfer records (where applicable)

Based on the verification carried out, the Assets Register is maintained in accordance with the organization's policies and applicable accounting and asset management procedures.

This certificate is issued for official record and compliance purposes.

Prepared By:

Name: Aziz Hussain

Designation: Lab. Assistant

Verified By:

Name: Dr. Ranjit Kakati

Designation: Senior Project Associate

Signature

Approved By:

Name: Dr. Raju Ojah

Designation: Project Investigator


Principal Investigator
Adv. Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

Signature: _____

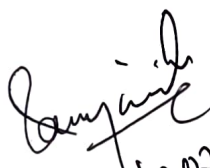
INDEX *Quality*

Advance Institutional Level Blotter Hub, Chaldar College Gohpur

List of Chemicals		
Sl. No	Name of the Chemical	Quantity
1	Glycine	3
2	Citric Acid Anhydrous	1
3	Sodium Sulphate Anhydrous	1
4	Ammonium peroxide	2
5	Oxalic acid dihydrate	1
6	di-Sodium hydrogen phosphate anhydrous	2
7	Calcium Chloride dihydrate	1
8	Glycerol	4
9	Ethanol	2
10	Sodium Hydroxide Solution 0.1N	1
11	Benedict's Reagent	2
12	Methanol	3
13	2-Propanol	6
14	Fehling's Solution A	1
15	Formaldehyde Solution	3
16	Sodium Citrate Solution	2
17	Paraffin wax	1
18	Pepsin	2
19	Eosine Solution	5
20	Acetocarmine Solution	3
21	Hematoxylin	3
22	Methylene Blue	2
23	Janus Green Solution	1
24	R.B.C. Diluting fluid	3
25	Phenol Reagent	1
26	Barfoed's Reagent	2
27	Phenolphthalein Solution	1
28	Thymolphthalein Solution	1
29	Folin & Ciocalteus Phenol Reagent	2
30	Stannous Chloride	1
31	Drogen Droff's Reagent	1
32	Eosin Yellow M.S.	2
33	N,N-Methylene biacrylamide	1
34	Acrylamide	2
35	Methyl Orange Solution	1
36	Orcinol Monohydrate	1
37	W.B.C. Diluting Fluid	2
38	Bromophenol Blue	2
39	Anthrone	2
40	Coomassive Brilliant Blue	1
41	Mercuric Chloride	1
42	Molisch's Reagent	2
43	Ninhydrin	1
44	Mayer's Solution	1

45	Leishman's Solution	2
46	Centia Violet	1
47	Toluidine Blue	1
48	Selvinioff's Reagent	1
49	Boulin's Fluid	1
50	Ninhydrin Solution	1
51	May & Grunwald's Staining Solution	1
52	Tetramethylenediamine	1
53	D.P.X. Mountant	1
54	Antimony Trichloride	1
55	Buffer Tablets(pH-4, pH-9.2)	1
56	Agarose	2
57	Tris Aminomethane	1
58	Bovine Albumin	1
59	Potassim Iodide	2
60	L-Ascorbic Acid	1
61	Ammonium Molybdate	1
62	Sodium Carbonate	2
63	Lead Acetate	3
64	Manganous Sulphate	1
65	Ammonium Carbonate	1
66	Sodium Iodide	1
67	Potassium Sodium Tartarate	1
68	Agar Agar Powder	1
69	Potassium Dihydrogen orthophosphate	1
70	Sodium Thiosulphate	2
71	Diphenyl Amine	1
72	Magnesium Sulphate	2
73	Sodium Chloride	2
74	Calcium Carbonate	1
75	Sodium Hydroxide Flakes	1
76	Aluminium Ammonium	1
77	Aluminium Sulphate	1
78	Sodium Salicylate	1
79	Benzoic Acid	1
80	Sodium Acetate	2
81	Ammonium Persulphate	1
82	Ferric Chloride	2
83	disodium hydrogen orthophosphate dihydrate	1
84	Paraformaldehyde	1
85	Potassium Dichromate	1
86	Potassium Chloride	1
87	Cupric Sulphate	1
88	Potassium Ferrocyanide	1
89	B-Mercaptoethanol	1
90	Xylene	6
91	Trifluoroacetic Acid	1
92	Toluene	1

93	tert-Butyl Alcohol	1
94	Wagner's Reagent	1
95	Acetic Acid glacial	3
96	Stannic Chloride Hydrated	1
97	Hydrogen Peroxide	1
98	Chloroform	4
99	Formaldehyde Solution	2
100	Hydrochloric Acid	4
101	Picric Acid	1
102	Glycerol Anhydrous	2
103	Liquor Ammonia	1
104	O-Xylene	2
105	Giemsa's Stain	1
106	1-Butanol	1
107	Silica Gel	1
108	2,6-Dichlorophenol	1
109	Ammonium Carbonate	1
110	Phenolphthalein Solution	1
111	Copper Sulphate	1
112	Maltose Monohydrate	1
113	Sodium Hydrogen Monohydrate	1
114	Peptone	1
115	Sodium Bicarbonate	1
116	Tris Base	1
117	Ammonium Sulphate	1
118	Nitric Acid	1
119	Phenol	1
120	Petroleum Ether	2
121	Sulphuric Acid	2
122	Domestic Phenyle	1


 20/6/2023.
 Principal Investigator
 Adv. Level Institutional Biotech Hub
 Charduar College, Charduar, Assam

Sl. No.	Item Name	Qty
1	Thermal Cycler (PCR)	1
2	Gel Documentation System	1
3	ELISA Reader	1
4	Electrophoretic Apparatus	1
5	Refrigerated Centrifuge	1
6	Deep Freeze -20°C	1
7	Binocular Microscope	1
8	Semi Automatic Biochemical Analyzer	1
9	SDS-PAGE Vertical Mini Gel System	1
10	UV-VIS Spectrophotometer	1
11	Light Microscope	2
12	Florescence Microscope	1
13	Incubator	1

(Issued to MLT)

Principal Investigator
Adv Level Institutional Biotech Hub
Chaiduar College, Gohpur, Assam

[illegible]

List of Instruments/Equipments of Biotech Hub
Project Code: BT/NER/143/SP44407/2021
Duration: 3 Years (2023-2026)

Sl. No.	Item Name	Supplier	Qty	Received Date
1	Laminar Air Flow	Radha Enterprise	1	10.10.2023
2	Knife Sharpening Machine	Radha Enterprise	1	10.10.2023
3	Hot Water Bath	Radha Enterprise	1	10.10.2023
4	Microtome Machine	Radha Enterprise	1	10.10.2023
5	Vertical Autoclave	Radha Enterprise	1	10.10.2023
6	Gel Electrophoresis	Planters	1	12.10.2023
7	LG Air Conditioner 1.5 Ton	Agnibh Computech	1	28.11.2023
8	Bajaj Electric Kettle	Agnibh Computech	1	30.12.2023
9	Realme Smart TV	Narayan Sales & Service	1	15.12.2023
10	UPS	Narayan Sales & Service	1	15.12.2023
11	Inverter	Narayan Sales & Service	1	15.12.2023
12	Inverter Battery	Narayan Sales & Service	2	15.12.2023
13	Laser Jet Printer	Narayan Sales & Service	1	15.12.2023
14	Printer Cartridge	Narayan Sales & Service	5	15.12.2023
15	Public Address System	Narayan Sales & Service	1	15.12.2023
16	Bee Hive	Dhemaji Radio Service	5	02.01.2024
17	Bee Veil	Dhemaji Radio Service	2	02.01.2024
18	Bee Gloves	Dhemaji Radio Service	2 pairs	02.01.2024
19	Bee Scraper	Dhemaji Radio Service	2	02.01.2024
20	Queen Excluder	Dhemaji Radio Service	5	02.01.2024
21	Vortex	Trivenee	1	07.01.2024
22	Honey Extractor	Dhemaji Radio Service	1	05.03.2024

[Signature]
Regional Investigator
Adv Level Institutional Biotech Hub
Chauduar College, Gohpur, Assam

6

Sl. No.	Item Name	Suplier	Qnty	Received Date
1	Double Distillation Water Plant	Assam Chemicals	1	24.07.2023
2	Hot Plate	Assam Chemicals	1	24.07.2023

(Issued to Zoology)

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List of Chemicals, Glasswares and other Necessary Items

SL. No	Item Name	Qty.	Supplier	Received Date
1	Beaker	6	Trivenee	27.03.2024
2	Beaker	6	Trivenee	27.03.2024
3	Beaker	6	Trivenee	27.03.2024
4	Beaker	6	Trivenee	27.03.2024
5	Reagent bottle	6	Trivenee	27.03.2024
6	Reagent bottle	6	Trivenee	27.03.2024
7	Reagent bottle	6	Trivenee	27.03.2024
8	Reagent Bottle(Amber)	2	Trivenee	27.03.2024
9	Dropping bottle	4	Trivenee	27.03.2024
10	Weighing Bottles	2	Trivenee	27.03.2024
11	Plastic Wash Bottle	6	Trivenee	27.03.2024
12	Burette kit	2	Planters	27.03.2024
13	Measuring cylinder	4	Trivenee	27.03.2024
14	Measuring cylinder	4	Trivenee	27.03.2024
15	Petri Dish	20	Trivenee	27.03.2024
16	Petri Dish	20	Trivenee	27.03.2024
17	Conical Flask	12	Trivenee	27.03.2024
18	Conical Flask with screw cap	2	Trivenee	27.03.2024
19	Funnel	5	Trivenee	27.03.2024
20	Funnel	5	Trivenee	27.03.2024
21	Pipettes	2	Trivenee	27.03.2024
22	Pipettes	2	Trivenee	27.03.2024
23	Mercury Thermometer	3	Trivenee	27.03.2024
24	Mortar & Pestle	2	Planters	27.03.2024
25	Centrifuge Tubes	2 pkt	Trivenee	27.03.2024
26	Test Tube	100	Trivenee	27.03.2024
27	Test Tube	100	Trivenee	27.03.2024
28	Test Tube	100	Trivenee	27.03.2024
29	Graduated Test Tube (Amber)	10	Planters	27.03.2024
30	Graduated Test Tube (Amber)	10	Planters	27.03.2024
31	Watch Glass	10	Trivenee	27.03.2024
32	Spirit Lamp	4	Trivenee	27.03.2024
33	Microscopic Slides (Plain)	20	Trivenee	27.03.2024
34	Microscopic Slides (Frozen)	20	Trivenee	27.03.2024
35	Whatman No. 42 Filter Paper	5	Planters	27.03.2024
36	Animal Cage	4	Trivenee	27.03.2024
37	Testosterone Kits	1	Planters	27.03.2024
38	SGOT Kit	2	Trivenee	27.03.2024



39	SGPT Kits	2	Planters	27.03.2024
40	ALP Kits	2	Trivenee	27.03.2024
41	Creatinine Kits	2	Trivenee	27.03.2024
42	Xylene (Extra Pure)	8	Planters	27.03.2024
43	Bouin's Fluid	1	Trivenee	27.03.2024
44	Glycerol	4	Trivenee	27.03.2024
45	Phosphate Buffered saline	2	Planters	27.03.2024
46	Ammonium Acetate	2	Planters	27.03.2024
47	May-Grunwald's Giemsa Stain Liquid	2	Planters	27.03.2024
48	Coomassie Brilliant Blue	2	Planters	27.03.2024
49	Ethanol	40	Planters	27.03.2024
50	Methanol	20	Planters	27.03.2024
51	Eosin Blue	2	Trivenee	27.03.2024
52	Hematoxylin	4	Trivenee	27.03.2024
53	Sodium Chloride	1	Planters	27.03.2024
54	Chloroform	1	Trivenee	27.03.2024
55	Cyclophosmamide Monohydrate	1	Trivenee	27.03.2024
56	Syringe 2ml	500	Trivenee	27.03.2024
57	Syringe 5ml	500	Trivenee	27.03.2024
58	Neubauer Chamber	10	Trivenee	27.03.2024
59	Sample container	4pkt.	Planters	27.03.2024
60	Aluminium Foil	40	Trivenee	27.03.2024
61	Tissue paper Roll	100	Trivenee	27.03.2024
62	Cover Slips	20	Planters	27.03.2024
63	Eight Channel Micropipette	1	Planters	27.03.2024
64	Micropipette 50 micro litre	2	Planters	27.03.2024
65	Micropipette 1000 micro litre	2	Planters	27.03.2024
66	Pipette Pump	2	Trivenee	27.03.2024
67	Micropipette Stand	1	Trivenee	27.03.2024
68	Pipette Stand	2	Trivenee	27.03.2024
69	Microtip Box (50 micro litre)	3	Trivenee	27.03.2024
70	Microtip Box (1000 micro litre)	3	Trivenee	27.03.2024
71	High Temperature Gloves	3	Trivenee	27.03.2024
72	Sterile Nitrile Gloves (Medium)	10	Trivenee	27.03.2024
73	Sterile Nitrile Gloves (Large)	10	Trivenee	27.03.2024
74	Slide Box	6	Trivenee	27.03.2024
75	Filter Tips Rack	4	Trivenee	27.03.2024
76	Test Tube Rack	4	Trivenee	27.03.2024
77	Eppendorf tube	4	Planters	27.03.2024
78	Pipette Tips (50 Micro litre)	5	Trivenee	27.03.2024

79	Pipette Tips (1000 Micro litre)	5	Trivenee	27.03.2024
80	Centrifuge Tubes	2	Trivenee	27.03.2024
81	N95 Particulate Respirator	1pkt	Trivenee	27.03.2024
82	Surgical mask	15	Trivenee	27.03.2024
83	Lab Coat	5	Trivenee	27.03.2024
84	Long Sleeve Gloves	5	Trivenee	27.03.2024
85	Biohazard bags	10	Trivenee	27.03.2024
86	Cuvette	10	Trivenee	27.03.2024
87	Absolute Alcohol	30	Trivenee	27.03.2024
88	Formaldehyde	5	Trivenee	27.03.2024
89	Propanol	2	Trivenee	27.03.2024
90	DPX	1	Trivenee	27.03.2024
91	HCL(Conc.)	1	Trivenee	27.03.2024
92	H2SO4 (Conc.)	1	Planters	27.03.2024
93	NH3 (Conc.)	1	Trivenee	27.03.2024
94	Glacial Acetic Acid	1	Trivenee	27.03.2024
95	ABO Blood Grouping Kit	2	Planters	27.03.2024
96	Diethyl Ether	1	Trivenee	27.03.2024
97	Paraffin wax	10	Planters	27.03.2024
98	L-Block	10	Trivenee	27.03.2024
99	Tissue Holder for Histology	10	Trivenee	27.03.2024
100	Coplin Jar	24	Trivenee	27.03.2024
101	Acetocarmine	1	Planters	27.03.2024
102	Cotton Roll	10	Trivenee	27.03.2024
103	Methylene Blue	1	Trivenee	27.03.2024
104	RBC Diluting Fluid	1	Planters	27.03.2024
105	WBC Diluting Fluid	1	Planters	27.03.2024
106	Bromophenol Blue	1	Trivenee	27.03.2024
107	Anthrone	1	Trivenee	27.03.2024
108	Leishman's Stain	1	Trivenee	27.03.2024
109	Buffer tablets (pH 4.0)	1	Trivenee	27.03.2024
110	Buffer tablets (pH 9.2)	1	Trivenee	27.03.2024
111	Agarose	1	Planters	27.03.2024
112	Tris Buffer	1	Planters	27.03.2024
113	PMSF	1	Planters	27.03.2024
114	2-Mercaptoethanol	1	Trivenee	27.03.2024
115	Ammonium Molybdate	1	Trivenee	27.03.2024
116	Nitric Acid (conc)	1	Planters	27.03.2024
117	Ice Pack	10	Trivenee	27.03.2024
118	Spatula	4	Trivenee	27.03.2024
119	Spoon Spatula	4	Trivenee	27.03.2024

120	Pointed Forceps	6	Trivenee	27.03.2024
121	Blunt Forceps	5	Trivenee	27.03.2024
122	Tongs	10	Trivenee	27.03.2024
123	Stirrer Beads (Magnet)	2	Trivenee	27.03.2024
124	PPE Kit	6	Trivenee	27.03.2024
125	Orbital Shaker	1	Trivenee	27.03.2024
126	Soxhlet	1	Trivenee	27.03.2024
127	UV Trans Illuminator	1	Trivenee	27.03.2024
128	Cell Counting Machine	1	Trivenee	27.03.2024
129	Urine Strip 2 Para	1	Trivenee	27.03.2024
130	Urine Strip 10 Para	1	Trivenee	27.03.2024
131	Hicrome UTI Agar	1	Trivenee	27.03.2024
132	Petri Dish	1	Trivenee	27.03.2024
133	Gram Stain Kit	1	Trivenee	27.03.2024
134	Slide	1	Trivenee	27.03.2024
135	Cover Slip	1	Trivenee	27.03.2024
136	Lipopolysaccharides	1	Trivenee	27.03.2024

Raju Gah Total 136
28/4 Principal Investigator
Adv Level Institutional Biotech Hub
Charduar College, Gohpur, Assam

List of Instruments

SL. No	Item Name	Qty.	Supplier	Received Date
1	pH Meter	1	Trivenee	27.03.2024
2	Centrifuge Machine	1	Trivenee	27.03.2024

Raju Gah total 02
28/4 Principal Investigator
Adv Level Institutional Biotech Hub
Charduar College, Gohpur, Assam

[illegible]

Account Head खाता	Folio पन्ना	Account Head खाता	Folio पन्ना
Quantity		Received Date	
01		31.04.2025	
01		01.09.2025	
01.		16.09.2025.	Revised to office 16/09/25
01		16.09.2025.	
01		10.10.2025	
10		16.10.2025	

Account Head खाता	Folio पन्ना	Account Head खाता	Folio पन्ना
SL No. 6. A4 paper.	Brand	Serial Number	Qty
7. Water Purifier	Aqua D. Pure	BOB36P32SK	1
8. Furniture			
i) Chairs (Wooden)	-	-	3
ii) Table (Wooden)	-	-	3
* Adjusted to Order 73			
9. Refrigerator	Godrej	250403547DR007067C	1

Account Head खाता	Folio पन्ना	Account Head खाता	Folio पन्ना
Received Date		Received By	
24/10/2025		Rajiv qd	
24/10/2025		Rajiv qd	
03/11/2025			
03/11/2025		} Debit Bank	
04/11/2025			

Date : 2/11/25

SL. No.	Items	Quantity
1.	Methanol(Best quality)	8 L <i>only 500 ml</i>
2.	Thermometer	5 pcs ✓
3.	Hygrometer	7 pcs <i>1 pc</i> ✓
4.	Petri disc (pair)	20 <i>9</i> ✓
5.	Micropipette (convertible) - (0-1000 microL)	01 ✓
6.	Micropipette (0-50microL)	01 ✓ <i>Rivera</i>
7.	Petri disc	01 <i>pk</i> ✓
8.	Appendroff tube (2ml)	01 pkt ✓
9.	Potato Dextrose Agar	01 ✓
10.	Malt Extract Agar	01 ✓
11.	ABO blood grouping KIT	01 ✓
12.	ABTS	01 ✓
13.	<u>Trolox</u>	01 ✓
14.	Potassium persulphate	01 ✓
15.	Sodium nitroprusside	01 ✓
16.	<u>Acetic acid</u>	01 ✓
17.	Sulfanilamide	01 ✓
18.	Phosphate buffer saline(PBS)	01 ✓
19.	<u>LPS</u>	02 <i>01</i> ✓
20.	Cyclophosphamide	02 <i>01</i> ✓
21.	DPPH	01 ✓
22.	Ascorbic acid	01 ✓
23.	Ammonium molybdate	01 ✓
24.	Sodium phosphate	01 ✓
25.	Sample container	01 box ✓
26.	Weight balance(High precision)	01 ✓
27.	pH meter electrod	01 ✓
28.	AMC for instruments	

