3.2.1 Research funding received by the institution and its faculties through Government and non-government sources such as industry, corporate houses, international bodies for research project, endowment research chairs during the last five years

Sample Projects

PIPE COMPOSTING

Date: 24-06-2024

Submitted By:

HOLY CROSS COLLEGE (AUTONOMOUS),

NAGERCOIL.

Dr. A. Jancy Vini,
Assistant Professor of Mathematics,
Holy Cross College (Autonomous)
Nagercoil.

Principal Investigator

SEG Details

Final Project Report of Unnat Bharat Abhiyan

Institute Details	
Name of the Institute	HOLY CROSS COLLEGE (AUTONOMOUS) NAGERCOIL
AISHE Code	C- 41177
District	KANYAKUMARI
State	TAMILNADU
Name of the Regional Coordinating Institute	GANDHIGRAM RURAL INSTITUTE
Contact information	
Principal Coordinator Name	DR. S. PANIMAYA MERCY
Email id	panimayamercy@holycrossngl.edu.in
Contact number	9841608081
Principal Investigator Name	DR. A. JANCY VINI
Email id	jancyvini@holycrossngl.edu.in
Contact number	8056919176
Student team members	MS. V. SUSAN THARASA MS. R. MARY RONALDO
Project Information	
Title of the Project	PIPE COMPOSTING
Name of the Subject Expert Group	PROF. INDUMATHI M NAMBI
Name of village(s) where project development activities were carried out	POZHIKARAI
Date of commencement	02-02-2024
Planned date of closure	24-06-2024
Actual date of closure	24-06-2024

Project Progress

1. Description of the project (Technology, Methodology etc.,):

   Pipe composting is an eco-friendly process of composting, utilizing the microorganisms to decompose the organic matters to produce fertile manure.

2. Objectives as stated in the project proposal:

S.No	Objective
1	Reduce the generation of large amount of garbages from the individual household by reducing wastage
2	Recycle it to fertile manure
3	Reuse it for the kitchen gardens

3. Deviation made from original objectives, if any, while implementing the project and reasons thereof:

   No

4. Design specifications and drawings of the product

1. Materials Needed:

- **PVC Pipes**: Diameter 8 inches, length 4 feet.
- **End Caps**: PVC caps to close the top end of the pipe.
- **Compostable Waste**: Organic kitchen waste, garden clippings, etc.
- **Soil**: To layer between waste.

2. Design Specifications:

- **Pipe Length**: 4 feet.
- **Pipe Diameter**: 8 inches.
- **Compost Layers**: Alternate layers of organic waste and soil.

3. Installation:

- Dig a hole slightly deeper than the length of the pipe to bury one end securely.
- Insert the pipe vertically into the ground so that about 6-12 inches is above ground.
- Ensure the pipe stands upright and is stable.

4. Operation:

- **Loading**: Begin by adding a layer of soil at the bottom, then alternate between organic waste and soil.
- **Moisture**: Maintain adequate moisture by watering if the compost appears dry.

- **Harvesting**: Once the compost is ready (usually after 2-3 months), remove the pipe, harvest the compost, and use it for gardening.

5. Complete details on implementation- methods adopted, data collected supported by necessary table, charts, diagrams & photographs

1. Site Selection and Preparation:

- **Site Selection**: Choose a site that is easily accessible, has good drainage, and is close to the source of compostable waste.
- **Preparation**: Clear the area of debris and dig holes for the pipes as per the design specifications.

2. Materials Collection:

- **PVC Pipes**: Procure PVC pipes of 8 inches in diameter and 4 feet in length.
- **Other Materials**: Collect end caps, drill, organic waste, soil, cow dung, and cover material.

3. Construction and Installation:

- **Pipe Preparation**: Dig a hole slightly deeper than the length of the pipe to bury one end securely.

- **Cap Attachment**: Attach end caps to the top of the pipes.
- **Installation**: Bury the pipes vertically into the ground, ensuring 6-12 inches remain above ground level.

4. Operation:

- **Loading**: Fill the pipes with alternate layers of organic waste and soil.
- **Maintenance**: Regularly check moisture levels and ensure proper aeration by occasionally stirring the contents.

6. Current status of the project

• Number **of Pipes Installed**: A total of 24 composting pipes (12 sets) have been installed across the village.

• Households **Involved**: Approximately 12 households are actively participating in the composting initiative.
• Community **Engagement**: Regular workshops and training sessions are conducted to educate the villagers about the benefits and proper maintenance of the composting system.

7. Pictures from field supporting the claims (Pictures from each stage of the project and each stage of process. They should be substantiated with relevant information explaining the process)

- **Picture:**

- **Explanation:** Holes are drilled at intervals of 6 inches to ensure proper aeration within the composting pipe.

3. Pipe Installation

- **Description**: Pipes are installed vertically into the ground with the bottom end capped and buried.
- **Picture**:

- **Explanation**: The pipes are buried securely with 6-12 inches remaining above ground, ensuring stability.

4. Loading Organic Waste and Soil Layers

- **Description**: Alternate layers of organic waste and soil are added to the pipes.
- **Picture**:

- **Explanation**: The process starts with a layer of soil followed by layers of organic waste, ensuring optimal decomposition.

5. Regular Maintenance and Monitoring

- **Description**: The pipes are regularly checked for moisture content, and temperature is monitored to maintain optimal composting conditions.

moderate initial costs for materials and minimal operational expenses, offering a more financially sustainable solution. While both approaches provide waste management benefits and potential revenue streams, pipe composting proves more cost-effective, scalable, and community-oriented, with tangible environmental benefits such as reduced landfill waste and improved soil fertility. Therefore, the adopted proposal presents a more viable and beneficial option for waste management in the adopted villages.

2. Other information, if any

Financial position

S.No	Budget Head	Funds Sanctioned	Expenditure	% of total Cost
1	Site preparation cost	-	-	-
2	Equipment/ Machinery cost	40725	40725	81.45%
3	Running cost/ Manpower cost/ Electricity cost	9275	9275	18.55%
4	Miscellaneous Expenses	-	-	-
	Total			**100 %**

Did you secure funds from any other source, if yes, Please specify the amount and the organization. No

Project Feedback

Link of feedback videos of villagers (If any)	The villagers' feedback on the pipe composting project was largely positive. They expressed appreciation for the initiative, noting its potential to improve sanitation and reduce waste in their community. Many villagers were eager to participate, recognizing the environmental benefits and the possibility of producing valuable compost for their crops. Some concerns were raised about the initial setup and maintenance requirements, but overall, the community showed strong support and willingness to engage with the project.
Comments from the SEG	SEG appreciated the project's innovative waste management approach and its landfill reduction potential. They stressed the need for system efficiency, odor management, and leachate prevention, and suggested community engagement for better usage and participation. Overall, SEG's feedback was positive with constructive suggestions.
Comments from National Coordinating Institute (NCI)	They recommended rigorous monitoring, incorporating best practices, and robust participant training for maximum impact and scalability.
Clarification from Participating Institute (PI)	The Participating Institute (PI) requested clarification on the project's implementation details, monitoring processes, and participant training protocols.

BINDING STUDIES OF RUTHENIUM(II)-PHENANTHROLINE COMPLEXES WITH DNA ISOLATED FROM FRUIT EXTRACTS

Project Report Submitted to Tamil Nadu State Council for Science and Technology

Directorate of Technical Education, Chennai

Submitted by

P. DENSHIYA

&

A. SNOW HAVI THEV

Guide

Dr. SHEEBA DANIEL

DEPARTMENT OF CHEMISTRY

HOLY CROSS COLLEGE (AUTONOMOUS)

NAGERCOIL-629004

MAY 2022

CERTIFICATE

This is to certify that the project work entitled **"BINDING STUDIES OF RUTHENIUM(II)-PHENANTHROLINE COMPLEXES WITH DNA ISOLATED FROM FRUIT EXTRACTS"** being submitted to Tamil Nadu State Council for Science and Technology - Student Project Scheme, Directorate of Technical Education, Chennai is the bonafide work of **P. DENSHIYA** and **A. SNOW HAVI THEV**, under my guidance during the academic year 2021-2022

Place: Nagercoil

Date: 20-05-2022

Dr. Sheeba Daniel

(Guide)

DECLARATION

We hereby declare that this project work entitled **"BINDING STUDIES OF RUTHENIUM(II)-PHENANTHROLINE COMPLEXES WITH DNA ISOLATED FROM FRUIT EXTRACTS"** is being submitted to Tamil Nadu State Council for Science and Technology - Student Project Scheme, Directorate of Technical Education, Chennai is a record of the project work done by us during the period of study under the guidance of **Dr. Sheeba Daniel**, Assistant Professor, Department of Chemistry, Holy Cross College (Autonomous) Nagercoil.

Place: Nagercoil

Date: 20-05-2022

P. DENSHIYA Denshiya

A. SNOW HAVI THEV Snowhavi

ACKNOWLEDGEMENT

This project work is a collective effort and owes a lot of many hard working talented people. First we would like to thank the God Almighty for being gracious to us all throughout for the completion of our project work.

We wish to express our sincere thanks and deep sense of gratitude to our guide **Dr. Sheeba Daniel** for suggesting this research problem and for her valuable and genuine guidance, constant encouragement, untiring help, keen interest and co-operation throughout the period of investigation.

We accord our deep sense of gratitude to **Dr. G. Leema Rose**, Head of the Department of Chemistry, Holy Cross College (Autonomous), Nagercoil for her encouragement and support. We thank profusely all the teaching and non-teaching staff of the Department of Chemistry for their kind help and co-operation throughout our project work.

We accord out heartfelt thanks to **Dr. Sr. Anne Perpet Sophy**, Principal and Vice Principal **Dr. Sr. P. Leema Rose**, Holy Cross College, Nagercoil for providing all necessary facilities throughout the period of investigation.

We are extremely grateful to **Tamil Nadu State Council for Science and Technology, Directorate of Technical Education, Chennai** for giving financial assistance for doing this project under **Student Project Scheme**.

Finally, we would like to thank our beloved parents and all our well-wishers for giving encouragement, enthusiasm and invaluable assistance for us to complete this project within the limited time frame.

P. DENSHIYA
A. SNOW HAVI THEV

CONTENT

SYNTHESIS, CHARACTERISATION, BIOMEDICAL APPLICATION AND PHOTOCATALYTIC PROPERTIES OF NICKEL NANOPARTICLES FROM NICKEL NITRATE; A HYDROTHERMAL PROCESS

Project Report Submitted to Tamil Nadu State Council for Science and Technology

Directorate of Technical Education, Chennai

Submitted by

CHRISLIN MARIO. J.C

&

CATHERINE SHIJI. Y

Guide

Dr. Y. CHRISTABEL SHAJI

DEPARTMENT OF CHEMISTRY

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NAGERCOIL-629004

MAY 2022

CERTIFICATE

This is to certify that the project work entitled **"SYNTHESIS, CHARACTERIZATION, BIOMEDICAL APPLICATION AND PHOTOCATALYTIC PROPERTIES OF NICKEL NANOPARTICLES FROM NICKEL NITRATE ; A HYDROTHERMAL PROCESS"** being submitted to Tamil Nadu State Council for Science and Technology - Student Project Scheme, Directorate of Technical Education, Chennai is the bonafide work of **CATHERINE SHIJI. Y** and **CHRISLIN MARIO. J.C**, under my guidance during the academic year 2021-2022.

Place: Nagercoil

Date: 24-05-2022

Dr. Y. Christabel Shaji

(Guide)

DECLARATION

We hereby declare that this project work entitled **"SYNTHESIS, CHARACTERIZATION, BIOMEDICAL APPLICATION AND PHOTOCATALYTIC PROPERTIES OF NICKEL NANOPARTICLES FROM NICKEL NITRATE; A HYDROTHERMAL PROCESS"** is being submitted to Tamil Nadu State Council for Science and Technology - Student Project Scheme, Directorate of Technical Education, Chennai is a record of the project work done by us during the period of study under the guidance of **Dr. Y. Christabel Shaji**, Assistant Professor, Department of Chemistry, Holy Cross College (Autonomous) Nagercoil.

Place: Nagercoil

Date: 24-05-2022

CATHERINE SHIJI. Y

CHRISLIN MARIO. J.C

ACKNOWLEDGEMENT

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CATHERINE SHIJI. Y

CHRISLIN MARIO. J.C

CONTENT

FABRICATION OF Ni-Cu NANOPARTICLES INSITU MOF AS EFFICIENT CATALYSTS FOR DEHYDROGENATION REACTION

Project Report Submitted to Tamil Nadu State Council for Science and Technology

Directorate of Technical Education, Chennai

Submitted by

C.ABARNA JOSEPHIN

&

N. ANCY FELLO

Guide

DR. Y.CHRISTABEL SHAJI

DEPARTMENT OF CHEMISTRY

HOLY CROSS COLLEGE (AUTONOMOUS)

NAGERCOIL-629004

MAY 2023

CERTIFICATE

This is to certify that the project work entitled **"FABRICATION OF Ni-Cu NANOPARTICLES INSITU MOF AS EFFICIENT CATALYSTS FOR DEHYDROGENATION REACTION"** being submitted to Tamil Nadu State Council for Science and Technology - Student Project Scheme, Directorate of Technical Education, Chennai is the bonafide work of **C. ABARNA JOSEPHIN** and **N. ANCY FELLO**, under my guidance during the academic year 2022-2023

Place: Nagercoil **Dr. Y.Christabel Shaji**

Date: 20-05-2023 (Guide)

DECLARATION

We hereby declare that this project work entitled **"FABRICATION OF Ni-Cu NANOPARTICLES INSITU MOF AS EFFICIENT CATALYSTS FOR DEHYDROGENATION REACTION"** is being submitted to Tamil Nadu State Council for Science and Technology - Student Project Scheme, Directorate of Technical Education, Chennai is a record of the project work done by us during the period of study under the guidance of **Dr. Y.Christabel Shaji**, Assistant Professor, Department of Chemistry, Holy Cross College (Autonomous) Nagercoil.

C. Abarna Josphin

Place: Nagercoil **C.ABARNA JOSEPHIN**

N. Ancy Fello

Date: 20-05-2023 **N. ANCY FELLO**

ACKNOWLEDGEMENT

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We wish to express our sincere thanks and deep sense of gratitude to our guide **Dr. Y.Christabel Shaji** for suggesting this research problem and for her valuable and genuine guidance, constant encouragement, untiring help, keen interest and co-operation throughout the period of investigation.

We accord our deep sense of gratitude to **Dr. M.Anitha Malbi**, Head of the Department of Chemistry, Holy Cross College (Autonomous), Nagercoil for her encouragement and support. We thank profusely all the teaching and non-teaching staff of the Department of Chemistry for their kind help and co-operation throughout our project work.

We accord our heartfelt thanks to **Dr. Sr. Sahaya Selvi**, Principal and Vice Principal **Dr. Sr. P. Leema Rose**, Holy Cross College, Nagercoil for providing all necessary facilities throughout the period of investigation.

We are extremely grateful to **Tamil Nadu State Council for Science and Technology, Directorate of Technical Education, Chennai** for giving financial assistance for doing this project under **Student Project Scheme**.

Finally, we would like to thank our beloved parents and all our well-wishers for giving encouragement, enthusiasm and invaluable assistance for us to complete this project within the limited time frame.

C.ABARNA JOSEPHIN

N. ANCY FELLO

CONTENT

DEVELOPMENTAL TOXICITY STUDIES

USING THE ZEBRAFISH, *DANIO RERIO*

Project Report Submitted to the

Tamil Nadu State Council for Science and Technology,

DOTE Campus, Chennai

Project Code - BS-0322

by

K. VISHNU PRIYA

N. HARISHMA

Under the Supervision of

Dr. Jeni Chandar Padua

Assistant Professor, Department of Zoology,

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DEPARTMENT OF ZOOLOGY

HOLY CROSS COLLEGE (AUTONOMOUS)

NAGERCOIL 629 004

APRIL 2022

BONAFIDE CERTIFICATE

This is to certify that the research report entitled "**DEVELOPMENTAL TOXICITY STUDIES USING THE ZEBRAFISH, *DANIO RERIO",*** submitted by Ms. **K. VISHNU PRIYA** and **N. HARISHMA** was carried out under my supervision in partial fulfilment of the requirements of the Student Project Scheme awarded by Tamil Nadu State Council for Science and Technology during the academic year 2021-2022 and this work has not been submitted elsewhere for any other degree.

Signature of the Guide

Dr. Jeni Chandar Padua, M.Sc.,M.A.,B.Ed.,M.Phil.,Ph.D.,
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Dr. Jeni Chandar Padua, M. Sc., M.A., M. Phil., B. Ed., Ph. D.,

Assistant Professor

Department of Zoology,

Holy Cross College (Autonomous),

Nagercoil – 629 004.

CERTIFICATE

This is to certify that the dissertation entitled **"Developmental Toxicity Studies in the Zebrafish, Danio Rerio"** is a bonafide record of the research work done by **Ms. K.Vishnu Priya** and **Ms**. **N. Harishma** under my supervision in partial fulfilment of the requirements of the Student Project Scheme awarded by Tamil Nadu State Council for Science and Technology during the academic year 2021-2022**.**

Signature of the Guide

Dr. Jeni Chandar Padua, M.Sc.,M.A.,B.Ed.,M.Phil.,Ph.D.,
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Holy Cross College (Autonomous), Nagercoil
(Affiliated to Manonmaniam Sundaranar University)
Kanyakumari District, Tamilnadu, India.

DECLARATION

We do hereby affirm that the dissertation entitled **"Developmental Toxicity Studies in the Zebrafish, Danio Rerio"** in partial fulfilment of the requirements of the Student Project Scheme awarded by Tamil Nadu State Council for Science and Technology during the academic year 2021-2022, is a bonafide work of research work carried out by us under the guidance of **Dr. Jeni Chandar Padua, M.Sc.,M.A.,M.Phil.,B.Ed., Ph.D.,** Department of Zoology, Holy Cross College (Autonomous), Nagercoil during the academic year 2022-2023.

Ms. K.Vishnu Priya

Ms. N. Harishma

ACKNOWLEDGEMENT

We extend our sincere thanks to Tamil Nadu Government Council of Science and Technology, DOTE Campus, Chennai, for supporting this project.

With real pleasure, we record our indebtedness to our academic guide **Dr. Jeni Chandar Padua**, **M.Sc.,M.A.,M.Phil.,B.Ed., Ph.D.,** for her untiring efforts, valuable suggestions and faithful guidance throughout the work .

We express our sincere thanks **to Dr. Sahaya Selvi,** Principal **and Dr. Brisca Renuga**, Head of the Department of Zoology, Holy Cross College (Autonomous) Nagercoil for supporting the project work to be done inside the campus. We sincerely thank all the members of teaching and non- teaching staff of the department of zoology, for the kind support.

Ms. K.Vishnu Priya

Ms. N. Harishma

MASKING OF BITTERNESS OF ERYTHROMYCIN BY α -CYCLODEXTRIN INCLUSION

Project Report Submitted to Tamil Nadu State Council for Science and Technology

Directorate of Technical Education, Chennai

Submitted by

J. BINU HARISHMA

&

E.T. AKSHAYA

Guide

Dr. S. LIZY ROSELET

DEPARTMENT OF CHEMISTRY

HOLY CROSS COLLEGE (AUTONOMOUS)

NAGERCOIL-629004

MAY 2022

CERTIFICATE

This is to certify that the project work entitled **"MASKING OF BITTERNESS OF ERYTHROMYCIN BY α -CYCLODEXTRIN INCLUSION"** being submitted to Tamil Nadu State Council for Science and Technology - Student Project Scheme, Directorate of Technical Education, Chennai is the bonafide work of **J. BINU HARISHMA** and **E.T. AKSHAYA**, under my guidance during the academic year 2021-2022.

25/5/2022

Place: Nagercoil

Date: 20-05-2022

Dr. S. LIZY ROSELET

(Guide)

DECLARATION

We hereby declare that this project work entitled **"MASKING OF BITTERNESS OF ERYTHROMYCIN BY α -CYCLODEXTRIN INCLUSION"** is being submitted to Tamil Nadu State Council for Science and Technology - Student Project Scheme, Directorate of Technical Education, Chennai is a record of the project work done by us during the period of study under the guidance of **Dr. S. Lizy Roselet** Assistant Professor, Department of Chemistry, Holy Cross College (Autonomous) Nagercoil.

Place: Nagercoil

Date: 23-05-2022

J.BINU HARISHMA Binu

E.T. AKSHAYA Akshaya

ACKNOWLEDGEMENT

This project work is a collective effort and owes a lot of many hard working talented people. First we would like to thank the God Almighty for being gracious to us all throughout for the completion of our project work.

We wish to express our sincere thanks and deep sense of gratitude to our guide **Dr. S. Lizy Roselet** for suggesting this research problem and for her valuable and genuine guidance, constant encouragement, untiring help, keen interest and co-operation throughout the period of investigation.

We accord our deep sense of gratitude to **Dr. G. Leema Rose**, Head of the Department of Chemistry, Holy Cross College (Autonomous), Nagercoil for her encouragement and support. We thank profusely all the teaching and non-teaching staff of the Department of Chemistry for their kind help and co-operation throughout our project work.

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We are extremely grateful to **Tamil Nadu State Council for Science and Technology, Directorate of Technical Education, Chennai** for giving financial assistance for doing this project under **Student Project Scheme**.

Finally, we would like to thank our beloved parents and all our well-wishers for giving encouragement, enthusiasm and invaluable assistance for us to complete this project within the limited time frame.

J. BINU HARISHMA

E.T. AKSHAYA

CONTENT

LIST OF FIGURES

LIST OF TABLES

BIONANOPARTICLE INDUCED EMBRYO-FETAL TOXICITY IN ZEBRAFISH

Project Report Submitted to the

Tamil Nadu State Council for Science and Technology,

DOTE Campus, Chennai

Project Code- BS 577

by

P. S MOHAMED AFFRA
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J. SAHAYA JERITTA
A. ANTO NISHA

Under the Supervision of

Dr. Jeni Chandar Padua

Assistant Professor, Department of Zoology,

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DEPARTMENT OF ZOOLOGY

HOLY CROSS COLLEGE (AUTONOMOUS)

NAGERCOIL 629 004

MARCH 2021

BONAFIDE CERTIFICATE

This is to certify that this research report entitled "**BIONANOPARTICLE INDUCED EMBRYO-FETAL TOXICITY IN ZEBRA FISHES***"*, submitted by **Ms.Mohamed Affra P.S., Ms. Jelin Beula.J., Ms. J..Sahaya Jeritta** and **Ms. A. Anto Nisha** was carried out under my supervision in partial fulfilment of the requirements of the Student Project Scheme awarded by Tamil Nadu State Council for Science and Technology during the academic year 2021-2022 and this work has not been submitted elsewhere for any other degree**.**

Signature of the Guide

Dr. Jeni Chandar Padua, M.Sc.,M.A.,B.Ed.,M.Phil.,Ph.D.,
Asst. Professor, Department of Zoology
Holy Cross College (Autonomous), Nagercoil
(Affiliated to Manonmaniam Sundaranar University)
Kanyakumari District, Tamilnadu, India.

Dr. Jeni Chandar Padua, M. Sc., M.A., M. Phil., B. Ed., Ph. D.,
Assistant Professor
Department of Zoology,
Holy Cross College (Autonomous),
Nagercoil – 629 004.

CERTIFICATE

This is to certify that the dissertation entitled "**BIONANOPARTICLE INDUCED EMBRYO- FETAL TOXICITY IN ZEBRA FISH",** is a bonafide record of the research work done by **Ms.Mohamed Affra P.S., Ms. Jelin Beula.J., Ms. J..Sahaya Jeritta** and **Ms. A. Anto Nisha** under my supervision in partial fulfilment of the requirements of the Student Project Scheme awarded by Tamil Nadu State Council for Science and Technology during the academic year 2021-2022.

Signature of the Guide
Dr. Jeni Chandar Padua, M.Sc.,M.A.,B.Ed.,M.Phil.,Ph.D.,
Asst. Professor, Department of Zoology
Holy Cross College (Autonomous), Nagercoil
(Affiliated to Manonmaniam Sundaranar University)
Kanyakumari District, Tamilnadu, India.

DECLARATION

We do hereby affirm that the dissertation entitled "**BIONANOPARTICLE INDUCED EMBRYO-FETAL TOXICITY IN ZEBRA FISH",** being submitted to Holy Cross College (Autonomous), Nagercoil, affiliated to Manonmaniam Sundaranar University, Tirunelveli, in partial fulfilment of the requirements of the Student Project Scheme awarded by Tamil Nadu State Council for Science and Technology **for which the** research work was carried out by us (**Ms.Mohamed Affra P.S., Ms. Jelin Beula.J., Ms. J..Sahaya Jeritta** and **Ms. A.Anto Nisha)** under the guidance of **Dr. Jeni Chandar Padua, MSc., M.A., M.Phil., B.Ed., Ph.D.,** Department of Zoology, Holy Cross College (Autonomous), Nagercoil during the academic year 2021-2022 and this work has not been submitted elsewhere for any other degree.

Mohamed Affra P.S.

Jelin Beula.J.

J..Sahaya Jeritta

A.Anto Nisha

ACKNOWLEDGEMENT

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With real pleasure, we record our indebtedness to our supervisor and guide **Dr. Jeni Chandar Padua, M.Sc., M.A., M.Phil., B.Ed., Ph.D.,** for her untiring efforts, valuable suggestions and faithful guidance throughout our tenure of this research work.

We are grateful to **Dr. Sr. Sahaya selvi,** Principal, Holy Cross College (Autonomous), Nagercoil and **Dr. Brisca Renuga,** Head of the Department of Zoology, for having given us the opportunity to pursue this research work in this college.

We sincerely thank all the members of teaching and non- teaching staff of the Department of Zoology, for the kind support.

Mohamed Affra P.S.

Jelin Beula.J.

J..Sahaya Jeritta

A.Anto Nisha

BINDING STUDIES OF RUTHENIM(II)PHENANTHROLINE-PHENDIONE COMPLEXES WITH AMINO ACIDS

Project Report Submitted to Tamil Nadu State Council for Science and Technology

Directorate of Technical Education, Chennai

Under the Guidance of

Dr. SHEEBA DANIEL

Submitted by

R.S. ANUSHA KUMARI (Reg. No: 218079)

&

X. DIANA (Reg. No: 218082)

DEPARTMENT OF CHEMISTRY

HOLY CROSS COLLEGE (AUTONOMOUS)

NAGERCOIL-629004

APRIL 2020

CERTIFICATE

This is to certify that the project work entitled **"BINDING STUDIES OF RUTHENIM(II)PHENANTHROLINE-PHENDIONE COMPLEXES WITH AMINO ACIDS"** being submitted to Tamil Nadu State Council for Science and Technology - Student Project Scheme, Directorate of Technical Education, Chennai is the bonafide work of **R.S. ANUSHA KUMARI** and **X. DIANA**, under my guidance and supervision during the academic year 2019-2020

Place: Nagercoil

Date: 16/06/2020

Dr. Sheeba Daniel

(Guide and Supervisor)

DECLARATION

We hereby declare that this project work entitled **"BINDING STUDIES OF RUTHENIM(II)PHENANTHROLINE-PHENDIONE COMPLEXES WITH AMINO ACIDS"** is being submitted to Tamil Nadu State Council for Science and Technology - Student Project Scheme, Directorate of Technical Education, Chennai is a record of the project work done by us during the period of study under the supervision and guidance of **Dr. Sheeba Daniel**, Assistant Professor, Department of Chemistry, Holy Cross College (Autonomous) Nagercoil.

Place: Nagercoil

Date: 16/06/2020

R.S. ANUSHA KUMARI Anusha

(Reg. No: 218079)

X. DIANA Diana

(Reg. No: 218082)

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This project work is a collective effort and owes a lot of many hard working talented people. First we would like to thank the God Almighty for being gracious to us all throughout for the completion of our project work.

We wish to express our sincere thanks and deep sense of gratitude to our guide and supervisor **Dr. Sheeba Daniel** for suggesting this research problem and for her valuable and genuine guidance, constant encouragement, untiring help, keen interest and co-operation throughout the period of investigation.

We accord our deep sense of gratitude to **Dr. G. Leema Rose, Head** of the Department of Chemistry, Holy Cross College (Autonomous), Nagercoil for her encouragement and support. We thank profusely all the teaching and non-teaching staff of the Department of Chemistry for their kind help and co-operation throughout our project work.

We accord out heartfelt thanks to **Dr. Sr. Anee Perpet Sophy**, Principal and Vice Principal **Dr. Sr. P. Leema Rose**, Holy Cross College, Nagercoil for providing all necessary facilities throughout the period of investigation.

We are extremely grateful to **Tamil Nadu State Council for Science and Technology, Directorate of Technical Education, Chennai** for giving financial assistance for doing this project under **Student Project Scheme.**

Finally, we would like to thank our beloved parents and all our well-wishers for giving encouragement, enthusiasm and invaluable assistance for us to complete this project within the limited time frame.

R.S. ANUSHA KUMARI

X. DIANA

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LIST OF FIGURES

LIST OF TABLES

SYNTHESIS, CHARACTERIZATION AND ANTIMICROBIAL SCREENING OF NOVEL SCHIFF BASE COMPLEXES

ज्ञान-विज्ञान विमुक्तये

UGC XII Plan Period

Final Report of the Minor Research project

Submitted to the University Grants Commission

Southern Regional Office

Hyderabad

DR. S. AJITH SINTHUJA

Principal Investigator

HOLY CROSS COLLEGE (AUTONOMOUS)

NAGERCOIL-629004

TAMILNADU

From

Dr.S. Ajith Sinthuja,
Assistant Professor of Chemistry,
Holy Cross College (Autonomous),
Nagercoil-629004.

To

The Joint Secretary,
University Grants Commission,
Southern Regional Office,
Hyderabad-500001.

Through: The Principal,Holy Cross College (Autonomous),Nagercoil

Sir,

Sub: Submission of Final Report of the Minor Research project-Reg.
Ref :UGC Reference File.No. MRP-6427/16 (SERO/UGC)

Herewith I submit thefinal Report of the work done on the Minor Research Project on **'Synthesis, Characterization and Antimicrobial Screening of Novel Schiff Base Complexes'** which is financially supported by UGC.I have completed the Minor Research Project and herewith the required information and necessary details are enclosed .I sincerely thank you for extending financial support to pursue the research project. Kindly accept the same and do the needful.

Thanking You

Nagercoil
26-02-2020

Yours Sincerely,

Dr. S. Ajith Sinthuja

Encl:

1. Reference letter
2. Final Report of the Minor Research project
3. Utilization Certificate
4. Accession Certificate
5. Assest Certificate
6. Audited Statement of Expenditure

Acknowledgement

The Principal Investigator of the Minor Research Project is thankful to theUniversity Grants Commission, Southern Regional Office, Hyderabad, for the award of project and financial assistance to pursue the research work in the Department of Chemistry, Holy Cross College (Autonomous), Nagercoil, Tamil Nadu. The P.I. also conveys her sincere thanks to theauthorities of the Holy Cross College (Autonomous), Nagercoil, Tamil Nadu for providing the basic infrastructure facilities and support in the Department of Chemistry for the completion of the project successfully.

Dr. S. Ajith Sinthuja,
Principal Investigator,
Assistant Professor of Chemistry,
Holy Cross College (Autonomous),
Nagercoil, KanyaKumari Dist-629004,
Tamil Nadu, India.

Annexure - III

ज्ञान-विज्ञान विमुक्तये

UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI – 110 002

STATEMENT OF EXPENDITURE IN RESPECT OF MINOR RESEARCH PROJECT

1. Name of Principal Investigator : Dr. S. AJITH SINTHUJA

2. Dept. of Principal Investigator : Department of Chemistry

Name of College : Holy Cross College (Autonomous),Nagercoil-4.

3. UGC approval Letter No. : No.F.MRP-6427/16 (SERO/UGC)

4. Title of the Research Project : **Synthesis,Characterization and antimicrobial screening of novel Schiff base complexes**

5. Effective date of starting the project: 10th August 2017

6. a. Period of Expenditure : From 10-8-2017 to 30-12-2019

b. Details of Expenditure

S.No	Item	Amount Approved (Rs.)	Expenditure Incurred (Rs.)
i.	Chemicals and Glassware	45000	49565
ii	Equipment	20000	19550
iii	Contingency including special needs	18000	23366
iv.	Field Work/Travel	-	5800
	Total	83000	98281

7. If as a result of check or audit objection some irregularly is noticed at later date, action will be taken to refund, adjust or regularize the objected amounts.

8. It is certified that the grant of **Rs. 83000/- (Rupees Eighty three thousand only)** received from the University Grants Commission under the scheme of support for Minor Research Project entitled **"Synthesis,Characterization and antimicrobial screening of novel Schiff base complexes"**vide **UGC letter No. F.MRP-6427/16 (SERO/UGC)**has been fully utilized for the purpose for which it was sanctioned and in accordance with the terms and conditions laid down by the University Grants Commission.

SIGNATURE OF THE
PRINCIPAL INVESTIGATOR

PRINCIPAL
(Seal)

PRINCIPAL
Holy Cross College
(AUTONOMOUS)
Nagercoil - 629 004.

Annexure -VI

UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI – 110 002.

Final Report

Report of the work done on the Minor Research Project

1. Project report : Final

2. UGC Reference No.F. : MRP-6427/16 (SERO/UGC)

3. Period of report : From10-8-2017 to 30-12-2019

4. Title of research project : **Synthesis, Characterization and antimicrobial screening of novel Schiff base complexes**

5. (a) Name of the Principal Investigator: Dr. S. Ajith Sinthuja

(b) Dept. : Department of Chemistry

(c) College where work has progressed: Holy Cross College (Autonomous),Nagercoil-4.

6. Effective date of starting of the project : 10th August 2017

7. Grant approved and expenditure incurred during the period of the report:

a. Amount approved : Rs. 90000

b. Expenditure : Rs. 98281

c. Report of the work done: Attached(Please see Appendix- I)

8. Brief objective of the project :Attached (Please see Appendix- II)

9. Work done so far and results achieved and publications, if any, resulting from the work (Give details of the papers and names of the journals in which it has been published or accepted for publication): Enclosed

10. Has the progress been according to
original plan of work and towards achieving the objective :Yes

11. Please enclose a summary of the findings of the study. One bound copy of thefinal report of work done may also be sent to the concerned Regional Office of the UGC.

Enclosed (Please see Appendix- III)

12. Any other information -

SIGNATURE OF THE
PRINCIPAL INVESTIGATOR

PRINCIPAL

PRINCIPAL
Holy Cross College
(AUTONOMOUS)
Nagercoil - 629 004.

"QUANTIFICATION OF MICROPLASTICS (MP) IN RIVER PAZHAYAR OF KANNIYAKUMARI DISTRICT"

Dissertation submitted to Holy Cross College (Autonomous), Nagercoil
Affiliated to Manonmaniam Sundaranar University, Tirunelveli in
partial fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

in

ZOOLOGY

by

S.B. DHILSHA 2021APZ429

R. RAMYA 2021APZ434

DEPARTMENT OF ZOOLOGY

HOLY CROSS COLLEGE (AUTONOMOUS)

NAGERCOIL 629 004

November 2022

Dr. Mrs. F. Brisca Renuga, M. SC., M. Phil., B.Ed., Ph.D.,
Associate Professor
Head of the Department of Zoology,
Holy Cross College (Autonomous),
Nagercoil – 629 004.

CERTIFICATE

This is to certify that the dissertation entided "Quantification of Microplastics (Mp) In River Pazhayar of Kanniyakumari District"is a bonafide record of the research work done by Ms. S.B. Dhilsha (2021APZ429) and Ms. R.Ramya (2021APZ434) under my supervision during their tenure towards the partial fulfilment of the requirement for the award of the degree of Master of Science in Zoology at Holy Cross College (Autonomous), Nagercoil, affiliated to Manonmaniam Sundaranar University, Tirunelveli during the academic year 2022-2023. This dissertation or any part of this has not been submitted elsewhere for any other degree.

Dr. F. Brisca Renuga

Dr. F. BRISCA RENUGA
Associate Professor
Department of Zoology
Holy Cross College (Autonomous)
Nagercoil - 629 004

DECLARATION

We do hereby affirm that the dissertation entitled "Quantification of Microplastics (Mp) In River Pazhayar of Kanniyakumari District", being submitted to Holy Cross College (Autonomous), Nagercoil, affiliated to Manonmaniam Sundaranar University, Tirunelveli, in partial fulfilment of the award of the degree of Master of Science in Zoology is based on our Ms. S.B. Dhilsha (2021APZ42) and Ms. R.Ramya (2021APZ429) research work carried out by us under the guidance of Mrs. Dr. F.Brisca Remiga M.Sc., M.Phil.,B.Ed.,Ph.D., Department of Zoology, Holy Cross College (Autonomous), Nagercoil during the academic year 2022-2023 and this work has not been submitted elsewhere for any other degree.

R. Ramya

R. RAMYA 2021APZ436

S. B. DHILISH 2021APZ429

ACKNOWLEDGEMENT

Frist and foremost we express our respect and heartfelt thanks to the Almighty God and our parent., for gives us the blessings and moral support for the completion of this project work.

Our sincere thanks to Tamil Nadu Government Council of Science and Technology for supporting this project. We are grateful to **Dr. Sr. Sahayaselvi**, principal, Holy Cross College (Autonomous), Nagercoil for having given us the opportunity to study in this college.

We express our sincere thanks to **Dr.Mrs. F.Brisca Renuga**., M.sc., M.Phil.,B Ed., pH.D., Associate professor and Head of the department of zoology, Holy Cross College (Autonomous) Nagercoil for suggesting valuable ideas and providing necessary facilities till the end of the project.

With real pleasure, we record our indebtedness to our academic guide **Dr. Mrs. F. Brisca Renuga., M.Sc., M.Phil, B.Ed., Ph.D.**, for her untiring efforts, valuable suggestions and faithful guidance throughout the work .

We sincerely thank all the members of teaching and non- teaching staff of the department of zoology, for the kind support.

Ms S. B. DHILISHA 2021APZ429 Ms. R. Ramya 2021APZ 434

HOLY CROSS COLLEGE (AUTONOMOUS), NAGERCOIL

DEPARTMENT OF ZOOLOGY

SERB-DST PROJRCT REPORT

MONITORING REPORT (2018 – 2021)

Project Title: Endocrinological approach to address optimized productivity of lobsters inhabiting coastal Kanyakumari

File Number: EMR/2016/007215

Principal Investigator (PI)
Dr. A. Shyla Suganthi
Department of Zoology
Holy Cross College, Nagercoil-629 004
Kanyakumari Dt., Tamil Nadu

Co- Principal Investigator
Dr. G. Anilkumar
Professor, School of Biosciences,
Vellore Institute of Technology (VIT)
Vellore – Tamil Nadu

SERB-DST PROJRCT REPORT
MONITORING REPORT (2018 – 2021)

1. Project Title: Endocrinological approach to address optimized productivity of lobsters inhabiting coastal Kanyakumari	**DST No:** File Number: EMR/2016/007215
2. PI (Name &Address): **Dr. A. Shyla Suganthi** Assistant Professor, Department of Zoology Holy Cross College, Nagercoil-629 004 Kanyakumari Dt., Tamil Nadu	**Date of Birth** 10.06.1966
3. Co-PI (Name & Address): **Dr. G. Anilkumar** Professor, School of Biosciences, Vellore Institute of Technology (VIT) Vellore – Tamil Nadu	**Date of Birth** 29.06.1951
4. Broad area of Research: Life Sciences **4.1 Sub Area:** Animal Sciences **5. Approved Objectives of the Proposal:** Research work under this proposal would have the following objectives: •To identify precisely the various lobster species inhabiting the coastal Kanyakumari. •To investigate precisely into the seasonal programming of growth and reproduction. •To study the strategies of optimized fecundity and development being practiced in the wild population of the lobster species. •To explore the possibility of induced breeding and/or growth.	
Date of Commencement: 22.03.2019	
Total cost of Project: Rs 2962200 **Sanctioned amount:** Rs. 21,64,298.00	

GFR 12 – A
[[See Rule 238 (1)]]
UTILIZATION CERTIFICATE (UC) FOR THE YEAR 2020-21
In respect of *NON-RECURRING*
as on 31.05.2021to be submitted toSERB
Isthe UC *(Provisional/Audited)*
(To be given separately for each financial year ending on 31st March)

1. Name of the grant receiving Organization : Holy Cross College (Autonomous), Nagercoil
2. Name of Principal Investigator(PI) : A. SHYLA SUGANTHI
3. SERB Sanction order no. & date : EMR/2016/007215; 21.03.2018
4. Title of the Project : Endocrinological approach to address optimized Productivity of lobsters inhabiting coastal Kanyakumari
5. Name of the SERB Scheme : Extra Mural Research (EMR) (CRG/NPDF/ECR...etc.)
5. Whether recurring or non-recurring grants :*NON-RECURRING*
6. Grants position at the beginning of the Financialyear

Carry forward from previousfinancialyear	:Rs. 4,595.00
Others,Ifany	:0
Total	: Rs. 4,595.00

7. Details of grants received, expenditure incurred and closing balances:(Actuals)

Unspent Balance of Grants received previous years [figure as at Sl. No. 7(iii)]	Interest Earned thereon	Interest deposited back to the SERB	Grants received during the year			Total Available funds (1+2-3+4)	Expenditure incurred	Closing Balances (5-6)
1	2	3	4			5	6	7
First Year			Sanction No (i)	Date(ii)	Amount(iii)			
Rs. 4595	Nil	Nil	Nil	Nil	Nil	Rs. 4595	Rs. 4595.00	Rs. 00

Component wise utilization of grants:

Grants-in-aid- General	Grant-in-aid-creation for capital assets	Total
NIL	NIL	NIL

Details of grants position at the end of the year

- Balance available at end offinancial year :Rs.00
- Unspent balance refunded to SERB (If, any) :Nil
- Balance (Carried forward to next financial year) if, applicable:Rs.00

For SORNA & ASSOCIATES
Chartered Accountants

S. SORNA THARANI
Proprietor
M.No: 262644

UDIN: 22262644AEXVHC2137

GFR 12 – A
[(See Rule 238 (1)]]
UTILIZATION CERTIFICATE (UC) FOR THE YEAR 20-21
In respect of RECURRING
as on 31.05.2021to be submitted toSERB
Isthe UC Audited *(Provisional/Audited)*
(To be given separately for each financial year ending on 31stMarch)

1. Name of the grant receiving Organization : Holy Cross College (Autonomous), Nagercoil
2. Name of Principal Investigator (PI) : A.ShylaSuganthi
3. SERB Sanction order no. & date : EMR/2016/007215 dated : 21 March,2018
4. Title of the Project : Endocrinological approach to address optimized Productivity of lobsters inhabiting coastal Kanyakumari
5. Name of the SERB Scheme :Extra Mural Research (EMR) (CRG/NPDF/ECR ..... etc.)
6. Whether recurring or non-recurring grants :***RECURRING***
7. Grants position at the beginning of the financialyear

Carry forward from previousfinancialyear	:	Rs. 4,98,273.00
Others, If any	:	0
Total	:	Rs. 4,98,273.00

8. Details of grants received, expenditure incurred and closing balances:(Actuals)

Unspent Balance of Grants received previous years [figure as at Sl. No. 7(iii)]	Interest Earned thereon	Interest deposited back to the SERB	Grants received during the year			Total Available funds (1+2-3+4)	Expenditure incurred	Closing Balances (5-6)
1	2	3	4			5	6	7
			Sanction No (i)	Date(ii)	Amount(iii)			
Rs. 4,98,273.00	13168	NIL	NIL	NIL	NIL	5,11,441.00	5,08,901.00	2,540

Component wise utilization of grants:

Grants-in-aid- General	Grant-in-aid-creation for capital assets	Total
5,08,901	Rs. NIL	Rs. 5,08,901

Details of grants position at the end of the year

- Balance available at end offinancialyear :Rs 2,540.00
- Unspent balance refunded to SERB(Ifany) : --
- Balance (Carried forward to next financial year) ifapplicable :Rs. 2,540.00

For SORNA & ASSOCIATES
Chartered Accountants

S. Sorna Tharani
S. SORNA THARANI
Proprietor
M.No: 262644

UDIN: 22262644AEXVHC2137

Annexure-II

REQUEST FOR ANNUAL INSTALMENT WITH UP-TO-DATE STATEMENT OF EXPENDITURE

1. SERBSanctionOrderNoanddate :EMR/2016/007215; 21.03.2018
2. Name ofthePI :A.ShylaSuganthi
3. Total ProjectCost : Rs.29,62,200/-
4. RevisedProjectCost : NIL
5. DateofCommencement : 21.03.2018
6. StatementofExpenditure :

(Month wise expenditure incurred during current financial year)

Month &year	Expenditure incurred/committed
April, 2020	Nil
May, 2020	45,750.00
June, 2020	70,047.00
July, 2020	2000.00
August, 2020	Nil
September, 2020	Nil
October, 2020	60,925.00
November, 2020	Nil
December, 2020	Nil
January, 2021	48,262.00
February, 2021	89,941.00
March, 2021	1,96,571.00
TOTAL	**Rs. 5,13,496.00**

1. Grant received in eachyear:
   a. 1st Year :Rs. 13,46,000/-
   b. 2nd Year : ----
   c. 3rd Year :Rs. 8,00,000
   d. Interest, if any : Rs. 20,543/-
   e. Total(a+ b+c+d) : Rs.2166543/-

For SORNA & ASSOCIATES
Chartered Accountants

S. Sorna Tharani

S. SORNA THARANI
Proprietor
M.No: 262644

UDIN:22262644AEXYHC2137

Statement of Expenditure

(to be submitted financial year wise i.e. DOS* to 31st March of that financial year say 2020, 01-04-2020 till 31.05.2021+1year and so on)

Sr No (I)	Sanctioned Heads (II)	Total Funds Allocated (indicate sanctioned or revised (III)	Expenditure Incurred				Total Expenditure till.. (VII = IV + V +VI)	Balance as on (date) (VIII = III– VII)	Requirement of Funds up to 31st March next year	Remarks (if any)
			1st Year (DOS to 31st March next year) (IV)	2 Year (1st April to 31st March next year) (V)	3rd Year & so on (1st April to 31stMarch next year) (VI)	2021-2022 (1st April to 31st March next year)				
1.	Manpower costs	9,97,200.00	NIL	2,11,860.00	2,11,860.00	1,47,660.00	5,71,380.00	4,25,820.00	-	(Non-JRF)
2.	Consumables	6,00,000.00	NIL	91,467.00	96,364.00	1,33,202.00	3,21,033.00	2,78,967.00	-	
3.	Travel	1,50,000.00	NIL	45,148.20	12,929.00	42,313.00	1,00,390.20	49,610.00	-	
4.	Contingencies	1,50,000.00	NIL	81,589.65	13,426.00	12,784.00	1,07,799.65	42,201.00	-	
5.	Others, if any	NIL	NIL	NIL	NIL	NIL	NIL	NIL	-	
6.	Equipment	7,96,000.00	NIL	7,95,900.00	NIL	NIL	795900.00	100.00	-	
7.	Overhead expenses	2,69,000.00	NIL	77,019.00	13,240.00	1,77,537.00	2,67,796.00	1204.00	-	
8.	Total	29,62,200.00	NIL	13,02,983.85	3,47,819.00	5,13,496.00	21,64,298.00	7,97,902	-	

Shyla Suganthi

Name and Signature of Principal Investigator

Date:18.02.2022

Dr. Sr. Anne Perpet Sophy

Signature of Competent financial authority

PRINCIPAL
Holy Cross College
(Autonomous)
Nagercoil - 629 004.

Date:18.02.2022

SORMA & ASSOCIATES * NAGERCOIL * FRN: 0246930

* DOS – Date of Start of project

Note:

1. Expenditure under the sanctioned heads, at any point of time, should not exceed funds allocated under that head, without prior approval of SERB i.e. Figures in Column (VIII)shouldnotexceedcorrespondingfiguresin Column (III)
2. Utilization Certificate (Annexure III) for each financial year ending 31st March has to be enclosed along with request forcarry-forward permission to the next financial year.