



THE ASSAM  
ROYAL GLOBAL UNIVERSITY  
GUWAHATI

# CRITERION 1

## CURRICULAR ASPECTS

METRIC NO.  
1.3.3

# M.Sc. Biotechnology

Field Work / Research Project / Internship



Guwahati, Assam, India  
4P6F+QH7, Royal Path, Betkuchi, AHOM GAON, Guwahati, Assam  
781040, India  
Lat 26.112206°  
Long 91.72404°  
29/12/22 10:22 AM GMT +05:30

**A STUDY ON GREEN SYNTHESIS OF SILVER AND ZINC NANOPARTICLES  
USING ENHYDRA FLUCTUATIONS & TRIGONELLA FOENUM-GRAECUM  
LEAF EXTRACT FOR EVALUATION OF THEIR ANTIMICROBIAL ACTIVITY**

*A dissertation submitted for partial fulfilment of the requirement for the  
degree of Master of Science in biotechnology of*



**ROYAL GLOBAL UNIVERSITY**  
— GUWAHATI —

*Submitted by*

**Saahana Syed Juhi**

**Examination Roll No- 184151011**

**Registration no:1181063**

**Under the Supervision of**

**Dr. Rupesh Kumar**

**Assistant Professor**

**Department of Biotechnology The  
Assam Royal Global University**

**Betkuchi, Guwahati-781035**

**Assam, India**

**Session: 2018-2020**

*Awarded*  
*R*

Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam



ROYAL GLOBAL UNIVERSITY  
GUWAHATI

Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University, Betkuchi, NH-37, Ghy-781035, Assam, India.

**Dr. Rupesh Kumar**  
Assistant Professor

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Email: [rupesh.mbbt08@gmail.com](mailto:rupesh.mbbt08@gmail.com)

### CERTIFICATE OF THE SUPERVISOR

This is to certify that Ms. Saahana Syed Juhi, student of M.Sc. final semester, Department of Biotechnology has worked on the project entitled "**Green Synthesis of Silver and Zinc Nanoparticles Using *Enhydra fluctuans* & *Trigonella foenum-graecum* Leaf Extract for Evaluation of Their Antimicrobial Activity**" under my supervision towards the partial fulfillment of the award of the degree of M.Sc. in Biotechnology under The Assam Royal Global University, Guwahati.

*Rupesh*

Place: RGU, Guwahti

**Dr. Rupesh Kumar**

Date:13-08-2020

(Supervisor)

*Awarded*

Head of Department  
Department of Biotechnology  
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The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam

*Examined*  
*MS*  
*14/7/2020*

**CITRUS MAXIMA (BURM.) MERR. FRUIT JUICE AND PEEL  
EXTRACT MEDIATED SYNTHESIS OF SILVER  
NANOPARTICLES (AgNPs) AND IT'S APPLICATION IN  
ANTIMICROBIAL ACTIVITY & ENHANCEMENT OF PLANT  
GROWTH**

*A dissertation report submitted to The Assam Royal Global  
University, Guwahati in partial fulfilment for the award of the  
degree of Master of Science in Biotechnology*



**ROYAL GLOBAL UNIVERSITY**  
— GUWAHATI —

**Submitted By:**

**ABHIJIT SONOWAL**

**M.Sc. in Biotechnology (4<sup>th</sup> Semester)**

**Roll No-184151001**

**Reg. No.: 1181053**

*Abhishek*  
*[Signature]*

Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
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**Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Betkuchi, Guwahati-781035, Assam, India  
Session: 2019-2020**



ROYAL GLOBAL UNIVERSITY  
GUWAHATI

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Dr. Debajit Borah  
Assistant Professor

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**CERTIFICATE**

This is to certify that Mr. Abhijit Sonowal, student of M.Sc. in Biotechnology final semester of this department has undergone his project work entitled "*Citrus maxima (Burm.) Merr. fruit juice and peel extract mediated synthesis of silver nanoparticles (AgNPs) and its application in antimicrobial activity & enhancement of plant growth*", under my supervision and guidance towards the partial fulfilment of the award of the degree of M.Sc. in Biotechnology under Assam Royal Global University, Guwahati.

During the period his conduct was found satisfactory and I wish him all the success in his future.

*Approved*

Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Beitkuchi, Ghy-35, NH-37, Assam

*Debajit Borah*  
21/08/2020

Dr. Debajit Borah  
(Supervisor)

*Examined*  
*MB*  
14/8/2020

**GREEN SYNTHESIS OF SILVER NANOPARTICLES USING  
CITRUS AURANTIFOLIA AND THEIR ANTIMICROBIAL  
ACTIVITY**

*A dissertation report submitted for partial fulfillment of the Requirements  
for the Award of the degree of the Masters of Science in Biotechnology*



**ROYAL GLOBAL UNIVERSITY**  
— GUAHATI —

*Submitted by*

**MOUSUMI MAHANTA**  
**Examination Roll no.: 184151006**  
**Registration no: 1181058**

**Under the Supervision of**

**Dr. Rupesh Kumar**  
**Assistant Professor**  
**Department of Biotechnology**  
**The Assam Royal Global University**  
**Betkuchi, Guwahati-781035**  
**Assam, India**

**Session: 2018-2020**

*Approved*

*[Signature]*  
**Head of Department**  
**Department of Biotechnology**  
**Royal School of Biosciences**  
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**Betkuchi, Ghy-35, NH-37, Assam**



ROYAL GLOBAL UNIVERSITY  
GUWAHATI

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Dr. Rupesh Kumar Gupta

Phone: +91 -9508652508

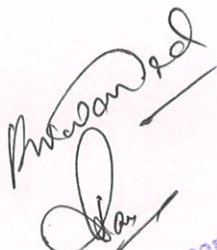
Assistant Professor

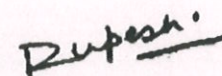
Email: [rupesh.mbbt08@gmail.com](mailto:rupesh.mbbt08@gmail.com)

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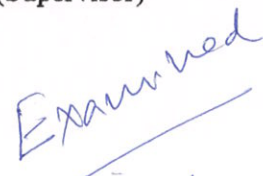
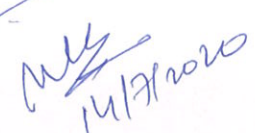
## CERTIFICATE OF THE SUPERVISOR

This is to certify that Mousumi Mahanta, student of M.Sc. final semester, Department of Biotechnology has worked on the project entitled “**Green synthesis of silver nanoparticles using *Citrus aurantifolia* and their antimicrobial activity**” under my supervision towards the partial fulfillment of the award of the degree of M.Sc. in Biotechnology under The Assam Royal Global University, Guwahati.

  
Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam

  
Dr. Rupesh Kumar Gupta

(Supervisor)

  
Examiner  
  
14/7/2020

A study on

**PHLOGACANTHUS THYRSIFORMIS FLOWER EXTRACT MEDIATED  
GREEN SYNTHESIS OF ZINC OXIDE NANOPARTICLES AND THEIR  
ANTI-MICROBIAL ACTIVITY AGAINST *M. SMEGMATIS***

A Report submitted in partial fulfilment of the requirements for the degree of  
*Master of Science in Biotechnology*

Under



THE ASSAM

ROYAL GLOBAL UNIVERSITY

Submitted by:

Priyanka Chhetri

Royal School of Biosciences  
Department of Biotechnology  
Masters of Science

Registration No.: 1191293

Roll No.: 194151016

*Handwritten signature*

Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam





ROYAL GLOBAL UNIVERSITY  
GUWAHATI

**Dr. Bhaskarjyoti Gogoi, Ph.D.**

Assistant Professor  
Department of Biotechnology  
Royal School of Biosciences  
Ph. No: 985446208 (M)  
Email ID: bgogoi1@rgu.ac

CERTIFICATE OF THE PRINCIPAL SUPERVISOR

This is to certify that the work presented in the thesis entitled "***Phlogacanthus thyriformis* flower extract mediated Green Synthesis of Zinc Oxide Nanoparticles and their Anti-Microbial activity against *M. Smegmatis***" submitted to the Department of Biotechnology, School of Biosciences, The Assam Royal Global University in partial fulfillment for the award of the degree of Master of Science in **Biotechnology** is a record of project work carried out by **Ms Priyanka Chhetri** under my supervision. She has fulfilled the requirements of the rules and regulations related to the nature and prescribed period of research at The Assam Royal Global University.

All helps received from various sources have been duly acknowledged.

No part of this thesis has been submitted elsewhere for award of any degree.

Date:  
Place: Guwahati, Assam

*Bhaskarjyoti Gogoi*  
(Bhaskarjyoti Gogoi)

Betkuchi, (Opposite to Tirupati Balaji Temple), Guwahati-781035, Assam (India)

*Examined*  
*Deviabrata Saini*  
*10/9/2024*

*Bhaskarjyoti Gogoi*  
Head of Department  
Department of Biotechnology  
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The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam

A study on  
**Development of Anti-Diabetic Ready to Eat Food**

A report submitted in partial fulfilment of the Requirements for the degree of the Masters of  
Science in Biotechnology.

Under



**ROYAL GLOBAL UNIVERSITY**  
GUWAHATI

*Examined*  
*Devalabeta Sharma*  
*10/9/2021*

Submitted by:

**Priyamvada Sharma**  
Royal School of Biosciences  
Department of Biotechnology  
Master of Science in Biotechnology  
Registration No.: 1191291  
Roll No: 194151014

*Forwarded*

*Sharma*  
Head of Department  
Department of Biotechnology  
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The Assam Royal Global University  
Betkuchi, City-35, NH-37, Assam

CERTIFICATE OF THE PRINCIPAL SUPERVISOR

This is to certify that the work presented in the thesis entitled "**Development of Anti-Diabetic Ready to Eat Food**" submitted to the Department of Biotechnology, School of Biosciences, The Assam Royal Global University in partial fulfillment for the award of the degree of **Master of Science in Biotechnology** is a record of project work carried out by **Ms. Priyamvada Sharma** under my supervision. She has fulfilled the requirements of the rules and regulations related to the nature and prescribed period of research at The Assam Royal Global University.

All helps received from various sources have been duly acknowledged.

No part of this thesis has been submitted elsewhere for award of any degree.

Date:

Place: Guwahati, Assam

*Examined*  
*Darabanta Sen*  
*12/9/2021*

*Bhaskarjyoti Gogoi*  
(Bhaskarjyoti Gogoi)

Betkuchi, (Opposite to Tirupati Balaji Temple), Guwahati-781035, Assam (India)

*[Signature]*  
Head, Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam

A study on  
**Production of *Musa acuminata* (banana) wine with longer shelf life**

A Report submitted in partial fulfilment of the requirements for the degree

of

**Master of Science in Biotechnology**

Under



THE ASSAM

**ROYAL GLOBAL UNIVERSITY**

Submitted by:

**K. Monica Khrasi**

**Royal School of Biosciences**

**Department of Biotechnology**

**Master of Science in Biotechnology**

**Registration No.: 1191283**

**Roll No.: 194151006**

*Monica Khrasi*  
*[Signature]*

Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam



ROYAL GLOBAL UNIVERSITY  
GUWAHATI

DEPARTMENT OF BIOTECHNOLOGY  
ROYAL SCHOOL OF BIOSCIENCES


Dr. Debajit Borah  
Assistant Professor

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**CERTIFICATE**

This is to certify that Ms. K. Monica Khrasi, a student of M.Sc. in Biotechnology (roll no.194151006) final semester of this department had undergone their project work entitled "*Production of Musa acuminata (banana) wine with longer shelf life*", under my supervision and guidance towards the partial fulfillment of the award of the degree of M.Sc. in Biotechnology under the Assam Royal Global University, Guwahati.

During the period her conduct was found satisfactory and I wish her all the success in her future endeavors.

*Awarded*  


Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam

*Debajit Borah*  
25/1/21

**Debajit Borah**  
(Supervisor)

*Examined*  
*Devabrata Gohain*  
19/1/2021

**Dr. D. Borah-Asst. Prof.**  
Dept. of Biotechnology  
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Office address: The Assam Royal Global University, Guwahati-781035

**PRODUCTION OF INDUSTRIAL GRADE GOOSEBERRY FRUIT  
WINE WITH LONGER SHELF LIFE AND ESSENTIAL  
NUTRITIONAL VALUES**

A dissertation report submitted in partial fulfillment of the requirements for the degree of  
**Master of Science in Biotechnology**

**Under**



THE ASSAM

**ROYAL GLOBAL UNIVERSITY**

**Submitted by:**

**Emili Das**


**Royal School of Biosciences**

**Department of Biotechnology**

**Master of Science in Biotechnology**

**Registration No: 1191280**

**Roll No: 194151003**

*Approved*  
  
Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam



ROYAL GLOBAL UNIVERSITY  
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CERTIFICATE

This is to certify that **Ms. Emili Das**, student of **M.Sc. in Biotechnology** final semester of this department has undergone her project work entitled "**Production of industrial grade gooseberry fruit wine with longer shelf life and essential nutritional values**", under my supervision and guidance towards the partial fulfilment of the award of the degree of M.Sc. in Biotechnology under the Assam Royal Global University, Guwahati.

During the period her conduct was found satisfactory and I wish her all the success in her future endeavours.

*Ms. Emili Das*

Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam

*Examined*  
*Devakanta Saha*  
*16/01/2021*

*Debajit Borah*  
*23/1/21*

**Dr. Debajit Borah**  
(Supervisor)

**Dr. D. Borah-Assl. Prof.**  
Dept. of Biotechnology  
Royal Global University  
Guwahati-781035

**ISOLATION AND PARTIAL CHARACTERIZATION OF PROBIOTIC  
MICROORGANISMS FROM A FEW TRADITIONALLY USED  
FERMENTED FOODS OF NORTH-EAST INDIA**

A Report submitted in partial fulfillment of the requirements for the degree of  
Master of Science in Biotechnology

Under



**ROYAL GLOBAL UNIVERSITY**  
- GUWAHATI -

Submitted by:

Daisy Narzary

Royal School of Bio-Science

Department of Biotechnology

Registration No: 1201376

Roll No.204151003

*Awarded*

Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam





ROYAL GLOBAL UNIVERSITY  
GUWAHATI

**Dr. Bhaskarjyoti Gogoi, Ph.D.**  
Assistant Professor  
Department of Biotechnology  
Department of Biosciences  
Ph. No: 9854346208 (M)  
Email ID: bgogoi1@rgu.ac

### CERTIFICATE OF THE PRINCIPAL SUPERVISOR

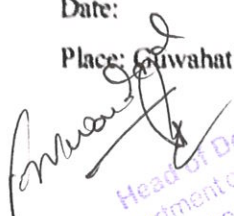
This is to certify that the work presented in the thesis entitled "*Isolation and partial characterization of probiotic microorganisms from a few traditionally used fermented foods of North-East India*" submitted to the Department of Biotechnology, School of Biosciences, The Assam Royal Global University in partial fulfillment for the award of the degree of Master of Science in **Biotechnology** is a record of project work carried out by **Daisy Narzary** under my supervision. He/She has fulfilled the requirements of the rules and regulations related to the nature and prescribed period of research at The Assam Royal Global University.

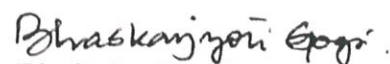
All helps received from various sources have been duly acknowledged.

No part of this thesis has been submitted elsewhere for award of any degree.


Date:

Place: Guwahati, Assam

  
Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam

  
(Bhaskarjyoti Gogoi)

Betkuchi, (Opposite to Tirupati Balaji Temple), Guwahati-781035, Assam (India)

  
Examined  
28/7/22

**ISOLATION AND PARTIAL CHARACTERIZATION OF PROBIOTIC  
MICROORGANISMS FROM A FEW TRADITIONALLY USED  
FERMENTED FOODS OF BOKO, ASSAM**

A Report submitted in partial fulfillment of the requirements for the degree of  
Masters of Science in Biotechnology

Under



**ROYAL GLOBAL UNIVERSITY**  
- GUWAHATI -

Submitted by:

Sumita Rabha

Royal School of Bio-Science

Department of Biotechnology

Registration No: 1201388

Roll no: 204151015

*Awarded*

Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
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ROYAL GLOBAL UNIVERSITY  
GUWAHATI

**Dr. Bhaskarjyoti Gogoi, Ph.D.**

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Department of Biosciences  
Ph. No: 9854346208 (M)  
Email ID: bgogoi1@rgu.ac

CERTIFICATE OF THE PRINCIPAL SUPERVISOR

This is to certify that the work presented in the thesis entitled "*Isolation and partial characterization of probiotic microorganisms from a few traditionally used fermented foods of North-East India*" submitted to the Department of Biotechnology, School of Biosciences, The Assam Royal Global University in partial fulfillment for the award of the degree of Master of Science in **Biotechnology** is a record of project work carried out by **Sumita Rabha** under my supervision. He/She has fulfilled the requirements of the rules and regulations related to the nature and prescribed period of research at The Assam Royal Global University.

All helps received from various sources have been duly acknowledged.

No part of this thesis has been submitted elsewhere for award of any degree.

*Bhaskarjyoti Gogoi*

Date: (Dr. Bhaskarjyoti Gogoi)

Place: Guwahati, Assam

*Approved*  
*R*  
Head of Department  
Department of Biotechnology  
Royal School of Biosciences  
The Assam Royal Global University  
Betkuchi, Ghy-35, NH-37, Assam

Betkuchi, (Opposite to Tirupati Balaji Temple), Guwahati-781035, Assam (India)

*Examined*  
*Sasmita*  
*11/7/22*