

SCHOOL OF SCIENCE
Department of Biotechnology

CRITERIA 1

SUB CRITERIA 1.3.3

**Percentage of students undertaking field
projects / research projects / internships**

Academic Year

2019-2020


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

SCHOOL OF SCIENCE
Department Of Biotechnology

Total Number of Research Projects in UG and PG

Research Projects	Program	Total Number of students involved in research projects
	M. Sc Biotechnology	04

The students undertake mini and major projects for increasing their practical knowledge and experience. Students are encouraged to do their research in the Research Institutes, hospitals and Industries to encourage the research insight in them

Total Number of Research Projects/Internships in UG

Internships/Research Projects	Program	Total Number of students involved in Internship
	BSc Biotechnology	22

In the Biotechnology disciplines, there is mandatory Internship. In the curriculum design it has been incorporated into the programme and complete it as a mandatory part of final year training.

Total Number of Field Project/Industry visits in UG and PG

Expert Lecture/Industry visits/Hands on Training	Program	Total Number of students involved in field projects
	BSc Biotechnology	22
	M. Sc Biotechnology	04

Field visits / Industry Visits Field/ Industrial visits during the course of any programme gives students an insight on the internal working environment of the company. Biotechnology, students undertake field visits to research institutes, industries, sewage treatment plants, water treatment plants, etc. to enhance knowledge and enrich skills.


Dr. Omveer Singh
 REGISTRAR
 ITM University
 Gwalior (M.P.)



UNIVERSITY
GWALIOR • MP • INDIA

“ CELEBRATING DREAMS ”

Index

S.no	Component	Page No
1.	Scheme and Syllabus	1-06
2	Research Projects/Internships in UG	7-13
3.	Research Projects of PG	14-18
4.	Field Project/Industry visits in UG and PG	18-23


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

School of Sciences

NAME OF COURSE: B. SC. BIOTECHNOLOGY

SESSION 2017 ONWARDS

SEMESTER: VI

SUBJECT WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS

Sr. No.	Subject Code	Subject Name	Maximum Marks Allotted						Credits		Total Credits	
			Theory Slot			Practical Slot			Total Marks	L		P
			End Sem.	Mid Sem. MST (Two tests average)	Class Participation	End Sem.	Progressive Evaluation	Internal viva				
1	BSBT-601	Waste Management	40	30	30	-	-	-	100	4	0	04
2	BSBT-602	Food Microbiology	40	30	30	40	30	30	200	3	1	04
3	BSBT-603	Frontiers in Biotechnology & Microbiology	40	30	30	-	-	-	100	4	0	04
4	BSBT-604	Applied Biological Sciences	40	30	30	-	-	-	100	4	0	04
5	BSBT-605	Remedial technologies and climate change	40	30	30	-	-	-	100	2	-	02
6	BSBT 606	Major Project + Seminar	-	-	-	200+	-	-	300	2	-	02
7	BSBT -607	Biotechnology Lab	-	-	-	40	30	30	100	2	-	02
Total									1000			22



Dr. Y.C. Goswami
(Chairman)



Dr. Santosh Kumar
(Exam Superintendent)



Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)



Syllabus 2017-18

(SOS)(BSc_Biotechnology)

Title of the Course	Major Project
Course Code	BSBT 606 (P)

Part A

Year	3rd	Semester	6th	Credits	L	T	P	C
					0	0	6	6
Course Type	Project							
Course Category	Projects and Internship							
Pre-Requisite/s	Student must have basic knowledge of all the instruments, good laboratory practices, and subjective knowledge			Co-Requisite/s				
Course Outcomes & Bloom's Level	CO1- This study aims to evaluate the impact of internship programs on the professional as well as on personal development and skills. (BL2-Understand) CO2- The planning and organizing of project framework in the Logframe through the analysis of inputs, activities, results, purpose or outcome, and overall objective or goal as a result of strategy analysis and selection. (BL3-Apply) CO3- Formulate a project that is capable of achieving its intended purpose/objective, of addressing identified problems, of managing potential risks, of designing activities and realistic time frame. (BL6-Create) CO4- Designing a project framework that responds to particular problem with clear objectives, expected results and activities (BL6-Create) CO5- Project formulation helps to prepare students with clear understanding of outline of research work. (BL6-Create)							
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✓ Environment ✓		SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education) SDG8(Decent work and economic growth)				

Part B

Modules	Contents	Pedagogy	Hours
---------	----------	----------	-------


Dr. Omveer Singh
 REGISTRAR
 ITM University
 Gwalior (M.P.)

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
300	150	300	150		

Part E

Books	Sustainable solid waste management: issues, policies, and structures. Academic Foundation, New Delhi. Dhamija, U., (2009). Virendra Kumar Pandey Textbook of Food Microbiology 1st Edition Research methodology, C. R. Kothari, 6th Edition
Articles	https://www.sciencedirect.com/science/article/pii/S2666049020300244 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7150063/ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5037945/
References Books	Handbook of solid waste management, McGraw-Hill Publication, USA Kreith F, Tchobanoglous G (2002) John C. Ayres Microbiology of foods-2nd Edition Research methodology, Panneerselvam, R., Prentice Hall of India, New Delhi
MOOC Courses	https://nptel.ac.in/courses/105103205 https://nptel.ac.in/courses/126105013 https://nptel.ac.in/courses/121106007
Videos	https://nptel.ac.in/courses/105103205 https://nptel.ac.in/courses/126105013 https://nptel.ac.in/courses/121106007

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	1	-	1	-	-	-	-	-	-	-	2	-	1
CO2	1	1	3	1	-	-	2	-	-	-	-	-	-	1	3
CO3	1	3	-	2	3	-	-	-	-	-	-	-	1	1	-
CO4	1	-	1	2	2	-	1	-	-	-	-	-	2	3	1
CO5	1	-	1	2	1	-	-	-	-	-	-	-	2	3	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-


Dr. Omveer Singh
 REGISTRAR
 ITM University
 Gwalior (M.P.)



Department of Biotechnology & Microbiology
(Batch 2018-20)

NAME OF COURSE: M.SC. BIOTECHNOLOGY

SEMESTER - IV

SUBJECT WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS

S.No.	Subject Code	Subject Name & Title	Maximum Marks Allotted							Credits Allotted Subject wise			Total Credits
			Theory Slot			Practical Slot			Total Marks	Period per week			
			End Sem	Mid Sem. MST (Two tests average)	Class Participation	End Sem	Progressive Evaluation	Internal viva		L	T	P	
1.	BT-401	Research Project	-	-	-	200	-	-	200	-	-	14	14
2.	BT-402	Research Report and Presentation	-	-	-	100	-	-	100	-	-	-	04

Minimum Marks for passing in End Semester Practical – 50%

Dr. Y.C. Goswami
(Chairman)

Dr. Santosh Kumar
(Exam Superintendent)

Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)



Syllabus (M.Sc. Biotechnology)

Title of the Course	RESEARCH PROJECT & RESEARCH REPORT AND PRESENTATION
Course Code	BT 401/402

Part A

Year	2nd	Semester	4th	Credits	L	T	P	C
					0	0	14	14
Course Type	Project							
Course Category	Projects and Internship							
Pre-Requisite/s	Student must have basic knowledge of biotechnological laboratory skills			Co-Requisite/s				
Course Outcomes & Bloom's Level	<p>CO1- To provide students with the fundamental tools and practical skills required to generate competent and highly qualified post graduates. (BL2-Understand)</p> <p>CO2- To acquaint the students with the principles of biosafety and ethical perspectives of biotechnological systems. (BL2-Understand)</p> <p>CO3- To develop students' ability to apply knowledge and skills to solve theoretical and practical problems in biology and biotechnology. (BL5-Evaluate)</p> <p>CO4- To provide students with the basis for the life-long self-learning in an attempt to keep up with the continuous quick changes in the field of biotechnology. (BL3-Apply)</p> <p>CO5- To equip students with the necessary critical theoretical background, develop the analytical, and basic research skills that will help students to pursue higher education in reputed institutes at both national and international levels (BL4-Analyze)</p>							
Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✓ Gender ✗ Human Values ✓ Environment ✓		SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure)				

Part B

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level
---------	-------	---	---------------


Dr. Omveer Singh
 REGISTRAR
 ITM University
 Gwalior (M.P.)

Modules	Contents	Pedagogy	Hours
---------	----------	----------	-------

Module-I	Identification of a problem and formulation of a topic of project/thesis	Internship	BL3-Apply
Module-II	To have field work and data collection through a chosen methodology	Internship	BL4-Analyze
Module-III	Dissertation and Viva-Voce	Internship	BL5-Evaluate


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

Part C

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
300	150	300	150		

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	2	2	2	2	-	-	-	-	-	-	-	2	2
CO2	1	2	2	1	1	1	1	-	-	-	-	-	2	2	3
CO3	2	1	2	2	-	2	1	-	-	-	-	-	2	1	3
CO4	1	2	1	2	1	1	-	-	-	-	-	-	1	3	1
CO5	2	3	2	1	-	-	-	-	-	-	-	-	-	-	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-


Dr. Omveer Singh
 REGISTRAR
 ITM University
 Gwalior (M.P.)



Details of UG Research projects/Internship

Name of the School: School Science, ITM University, Gwalior.
Name of the Course and Branch: B.Sc. Biotechnology (Batch 2018-19)
Session: 2020– 2021
Total No. of Students enrolled: 19
Duration: 45 Days

List of Students


S.No	Roll No	Name Of Students	Name of Industry/Institute	Topic	Supervisor
1	BSBN1BT17002	Anjali Masih	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
2	BSBN1BT17003	Anshita Lundwani	Dept. of Biotechnology/Microbiology ITM University	Phytochemical analysis of <i>Prosopis juliflora</i>	Mrs. Neha Chauhan
3	BSBN1BT17004	Arpita Verma	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
4	BSBN1BT17005	Bhumika Sihare	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
5	BSBN1BT17006	Dheeraj Kumar	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
6	BSBN1BT17007	Dheeraj Rasgaiyan	Sahkari Dugdh Sangh Maryadit, Banmore, M. P	Milk Analysis and quality control	Mr. Atul Shrivastav Quality control manager
7	BSBN1BT17008	Diksha Shrivastva	Sahkari Dugdh Sangh Maryadit, Banmore, M. P	Analysis of milk and milk products	Mr. Atul Shrivastav Quality control manager

<https://prabandh.itmuniversity.ac.in/hod>


Dr. Omveer Singh
 REGISTRAR
 ITM University
 Gwalior (M.P.)

8	BSBN1BT17009	Harleen Rathore	Sahkari Dugdh Sangh Maryadit, Banmore, M. P	Milk Analysis and quality control	Mr. Atul Shrivastav Quality control manager
9	BSBN1BT17010	Jahanvi Shrivastava	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
10	BSBN1BT17011	Mansi Kumari	Dept. of Biotechnology/Microbiology ITM University	Phytochemical analysis of <i>Prosopis juliflora</i>	Mrs. Neha Chauhan
11	BSBN1BT17014	Mweemba Lweendo	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
12	BSBN1BT17016	Pragya Sahu	Dept. of Biotechnology/Microbiology ITM University	Phytochemical analysis of <i>Prosopis juliflora</i>	Mrs. Neha Chauhan
13	BSBN1BT17017	Prajakta More	Dept. of Biotechnology/Microbiology ITM University	Phytochemical analysis of <i>Prosopis juliflora</i>	Mrs. Neha Chauhan
14	BSBN1BT17018	Priyanka Achra	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
15	BSBN1BT17019	Rahul Aaric	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
16	BSBN1BT17020	Rahul Yadav	Sahkari Dugdh Sangh Maryadit, Banmore, M. P	Milk Analysis and quality control	Mr. Atul Shrivastav Quality control manager
17	BSBN1BT17021	Sanjeev Bhukal	Sahkari Dugdh Sangh Maryadit, Banmore, M. P	Analysis of milk and milk products	Mr. Atul Shrivastav Quality control manager

18	BSBN1BT17023	Vasundhra Singh	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
19	BSBN1BT17024	Dheeraj Ahirwar	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
20	BSBN1BT17025	Hachikombola Sheena	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
21	BSBN1BT17026	Somesh Dwivedi	Sahkari Dugdh Sangh Maryadit, Banmore, M. P	Analysis of Milk and Milk Products	Mr. Atul Shrivastav Quality control manager
22	BSBN1BT17027	Akanksha Chaturvedi	Sahkari Dugdh Sangh Maryadit, Banmore, M. P	Analysis of milk and milk products	Mr. Atul Shrivastav Quality control manager


Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

Dean
Prof. Richa Kothari
School of Sciences


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

List of Students of BSc Biotechnology 6th Semester (Batch 2018-21)

S.No	Roll Number	Name of student
1	BSBN1BT17002	Anjali Masih
2	BSBN1BT17003	Anshita Lundwani
3	BSBN1BT17004	Arpita Verma
4	BSBN1BT17005	Bhumika Sihare
5	BSBN1BT17006	Dheeraj Kumar
6	BSBN1BT17007	Dheeraj Rasgaiyan
7	BSBN1BT17008	Diksha Shrivastva
8	BSBN1BT17009	Harleen Rathore
9	BSBN1BT17010	Jahanvi Shrivastava
10	BSBN1BT17011	Mansi Kumari
11	BSBN1BT17014	Mweemba Lweendo
12	BSBN1BT17016	Pragya Sahu
13	BSBN1BT17017	Prajakta More
14	BSBN1BT17018	Priyanka Achra
15	BSBN1BT17019	Rahul Aaric
16	BSBN1BT17020	Rahul Yadav
17	BSBN1BT17021	Sanjeev Bhukal
18	BSBN1BT17023	Vasundhra Singh
19	BSBN1BT17024	Dheeraj Ahirwar
20	BSBN1BT17025	Hachikombola Sheena
21	BSBN1BT17026	Somesh Dwivedi
22	BSBN1BT17027	Akanksha Chaturvedi


Dr. Omveer Singh
 REGISTRAR
 ITM University
 Gwalior (M.P.)



UNIVERSITY

GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

A

Project Report On

**Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD,
and FTIR**



UNIVERSITY

GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

Submitted By:

Anjali Masih

BSBN1BT17002

For partial fulfillment of the Degree of

B.Sc. Biotechnology (Honors)

Under the Guidance of:

Dr. Sadhna Shrivastava

Senior Scientific Officer

CISE, Jiwaji University, Gwalior

Submitted to:

Department of Biotechnology/Microbiology

School of Sciences

ITM University, Gwalior


Dean
School of Science ITM University
Gwalior (M.P.) INDIA - 471001


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

A
Project Report On

Phytochemical analysis of *Prosopis juliflora*



Submitted By:
Anshita Lundwani
BSBN1BT17003

**For partial fulfillment of the Degree of
B.Sc. Biotechnology (Honors)**

Under the Guidance of:
Mrs. Neha Chauhan
Assistant Professor

**Department of Biotechnology/Microbiology
School of Sciences**

ITM University, Gwalior


Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-471001


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

A
Project Report On
**"Haematological and Biochemical Parameters of
Human Blood"**



Submitted By:

Arpita Verma

BSBN1BT17004

**For partial fulfillment of the Degree of
B.Sc. Biotechnology (Honors)**

Under the Guidance of:

Mrs. Trapti Pathak

Assistant Professor

**Department of Biotechnology/Microbiology
School of Sciences**

ITM University, Gwalior




Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

A
Project Report On
**"Haematological and Biochemical Parameters of
Human Blood"**



Submitted By:
Dheeraj Rasigiyan
BSBN1BT17007

**For partial fulfillment of the Degree of
B.Sc. Biotechnology (Honors)**

Under the Guidance of:
Mr. Atul Shrivastava
Quality control manager
Sahkari Dugdh Sangh Maryadit, Banmore, M. P

Submitted to:
Department of Biotechnology/Microbiology
School of Sciences

ITM University, Gwalior


Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-574001


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

Details of PG Research Projects

Name of the School: School of Science and Research, ITM University, Gwalior.

Name of the Course and Branch: M.Sc. Biotechnology

Session: 2019– 2020


Total No. of Students enrolled: 10

List of Students

S.No	Roll No	Name Of Students	Name of Industry/Institute	Topic	Supervisor
1	MSBN1BT17001	Arpita Regar	Department Of Biotech College of Science Cancer Hospital and Research centre Gwalior MP	Effect of salinity stress on growth of common bean Phaseolus Vulgaris	Dr Sadhana Chaturvedi
2	MSBN1BT17002	Diksha Sharma	Development Division Arzista Industries Pvt Ltd Hyderabad	Evaluation of laxative powder and its stability and efficacy	Dr Braj Gaurav Sharma
3	MSBN1BT17003	Hashmeet Kaur Bhogal	Development Division Arzista Industries Pvt Ltd Hyderabad	Evaluation of Nutraceuticals in Liver product	Dr Braj Gaurav Sharma
4	MSBN1BT17004	Madhuri Kalwani	HOD Epidemiology NJIL& OMD Agra	Detection of drug resistance in pulmonary Tuberculosis patients	Dr Amit Kumar Bansal Scientist E & Dr Shailendra Bhatnagar Director STDC Agra
5	MSBN1BT17005	Mukul Bansal	Department of Epidemiology NJIL& OMD Agra	Elucidating transmission dynamics of tuberculosis using RAPD marker	Dr Partha Sarathi Mohanty Scientist D & Dr Arvi Kumar Bansal Scientist –D
6	MSBN1BT17007	Saumya Khandelwal	Development Division Arzista Industries Pvt Ltd Hyderabad	Evaluation of Nutraceuticals calcium biscuits	Dr Braj Gaurav Sharma
7	MSBN1BT17008	Shivani Dhakar	Department Of Biotech College of Science Cancer Hospital and Research centre Gwalior MP	Response of Mung bean (Vigna Radiata L Wilezedck) seedlings to diff levels of Nacl salinity	Dr Sadhana Chaturvedi
8	MSBN1BT17010	Subhranshu Shekhar	MRD Life sciences Lucknow	Isolation screening and stain improvement of cellulose producing bacterial isolates from Municipal waste	Dr. Chitranshu Pandey Research Scientist
9	MSBN1BT17012	Varsha Tiwari	Department Of Biotech	Physiological and Biochemical response of	Dr Sadhana Chaturvedi 10


REGISTRAR
ITM University
Gwalior (M.P.)

			College of Science Cancer Hospital and Research centre Gwalior MP	cowpea (Vigna unguiculata L.Walp)	
10	MSBN1BT17013	Nupur	Development Division Arzista Industries Pvt Ltd Hyderabad	Comparative Evaluation of natural palmate with animal based available marketed product	Dr Braj Gaurav Sharma


Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-474001


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)



"CELEBRATING DREAMS"

A
DISSERTATION REPORT
ON

**"Elucidating the Transmission Dynamics of Tuberculosis Using Random
Amplified Polymorphic DNA (RAPD)"**



"CELEBRATING DREAMS"

SUBMITTED TO

Department of Biotechnology,
ITM University, Gwalior

In the partial fulfilment of the requirement for the degree of

MASTER OF SCIENCE
IN
BIOTECHNOLOGY
(SESSION - 2017-2019)



Under Supervision of:
Dr. Partha Sarthi Mohanty
Scientist D
Department of Epidemiology
NJIL&OMD Agra

Under the Co-supervision of:
Dr. Avi Kumar Bansal
Scientist D
Department of Epidemiology
NJIL&OMD Agra

Mukul Bansal
M.Sc. Biotechnology
ITM University

DEPARTMENT OF EPIDEMIOLOGY
NATIONAL JALMA INSTITUTE FOR LEPROSY & OTHER MYCOBACTERIUM DISEASES
TAJGANJ, AGRA


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)



DEPARTMENT OF LIFE SCIENCES

No. ITMU/D/SOLS/2018-2019/Roll. No-MSBN1BT17005

Date:-30/06/2019

CERTIFICATE

This is the certificate that Mr. Mukul Bansal student of M.Sc. Biotechnology has completed the dissertation project entitle "Elucidating the Transmission Dynamics of Tuberculosis Using Random Amplified Polymorphic DNA (RAPD)" under the guidance of Dr. Partha Sarathi Mohanty (Scientist-D) Department of Epidemiology, NJIL & OMD, Agra (U.P.) from January to June 2019. The project is being submitted to ITM University, in partial fulfilment for award of degree of Post-Graduation in Biotechnology.

No part of this report has been submitted for any other degree or diploma.

[Signature]
Dr. Sonja Johri
HOD
Department of Life Sciences
ITM University, Gwalior

[Signature]
Dr. Richa Kothari
Dean
School of Sciences
ITM University, Gwalior

HEAD
School of Life Sciences
ITM University, Gwalior

ITM University Turari Campus, AH-43 Bypass, Jhansi Road, Gwalior, Madhya Pradesh 475001INDIA
Fax: +91-751-2432988, Mail hodsols@itmunity.ac.in / deansos@itmunity.ac.in web: www.itmunity.ac.in

[Signature]
Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

[Signature]
Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

***“Physiological and biochemical response of cowpea
(Vigna unguiculata L. Walp)”***

“Seeds under sodium chloride salt stress condition”

DISSERTATION

SUBMITTED FOR THE PARTIAL

FULFILMENT OF THE DEGREE

MASTER OF SCIENCE

IN

BIOTECHNOLOGY

Session 2017-2019

Submitted by

Varsha Tiwari

MSBN1BT17012

UNDER THE SUPERVISION OF

Dr. Sadhna Chaturvedi

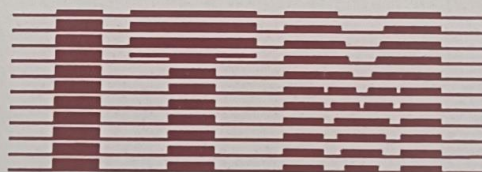
DEPARTMENT OF BIOTECHNOLOGY

COLLEGE OF LIFE SCIENCE

CANCER HOSPITAL AND RESEARCH INSTITUTE

GWALIOR-474001 (M.P)

TO



UNIVERSITY

GWALIOR • MP • INDIA

ITM University, Gwalior (M.P.)

Dr. Prabandh

Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

Dr. Omveer Singh
Dr. Omveer Singh
REGISTRAR
ITM University¹⁴
Gwalior (M.P.)



DEPARTMENT OF LIFE SCIENCES

No. ITMU/D/SOLS/2018-2019/MSBN1BT17012

Date:- 15/06/2019

CERTIFICATE

This is certificate that VARSHA TIWARI student of M.Sc. Biotechnology has completed the dissertation project entitle "Physiological and biochemical response of cowpea (Vigna unguiculata L. Walp)" under the guidance of Dr. SADHNA CHATURVEDI, Ass. Prof. College of Life Science Cancer Hospital & Research Institute, Gwalior from January to June 2019. The project is being submitted to ITM University, in partial fulfilment for award of degree of Post-graduation in Biotechnology.

No part of this report has been submitted for any other degree or diploma.

Dr. Sonia Johri,
HOD

Department of Life Sciences
ITM University, Gwalior

HEAD
School of Life Sciences
ITM University, Gwalior

Dr. Richa Kothari
Dean

School of Sciences
ITM University, Gwalior

ITM University Turari Campus, AH-43 Bypass, Jhansi Road, Gwalior, Madhya Pradesh 475001INDIA
Fax: +91-751-2432988, Mail hodsol@itmuniiversity.ac.in / deansos@itmuniiversity.ac.in web: www.itmuniiversity.ac.in

Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

COMPARATIVE EVALUATION OF CALCIUM BISCUITS

Dissertation Report

Submitted to

ITM University Gwalior-474002, (MP)



In partial fulfillment of the requirement for the award of the degree

**Master of Science
(Biotechnology)**

By

**SAUMYA KHANDELWAL
(ROLL NO. MSBN1BT17007)**

Under the supervision of

DR BRAJ GAURAV SHARMA



**Research and Development Division
Azista Industries Pvt. Ltd, Hyderabad-500018**

Dr. L. K. Kothari
Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)



AZISTA INDUSTRIES PRIVATE LIMITED

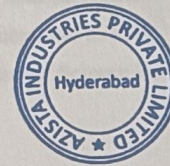
CIN: U29100TG2014PTCO96797

Date: 30-05-2019

No: AZT/RD/TR-1307

CERTIFICATE

This is to certify that the project entitled "Evaluation of Nutraceutical calcium biscuit" submitted by Ms Saumya Khandelwal to Azista Industries Pvt. Ltd, in fulfilment of requirements of the Master of Science in Biotechnology from ITM University, Gwalior is a bonafide record of the research work carried out by her, at the Research and Development Division, Azista Industries Pvt. Ltd, Hyderabad under my supervision and guidance. Ms Saumya Khandelwal has worked on this topic from 7th Jan 2019 to 29th May 2019. The results embodied in the report have not been submitted to any other University, Institute or Company for any purposes. The results of the studies are under the intellectual property right of the industry.



Braj Gaurav Sharma

Dr Braj Gaurav Sharma
Manager, Research & Development
Azista Industries Pvt Limited
Hyderabad.

Off.: Sy. No. 80-84, Melange Towers, 4th Floor, 'C' Wing, Patrikanagar, Madhapur, Hyderabad - 500 081, Telangana, INDIA. Tel. : 040-404
Factory : Plot No. 2C, APIC Food Park, Ekarlapally (Village), Kuppam - 517 425, Chittoor District (Andhra Pradesh), INDIA.

Dr. L. K. Kothari
Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)




Date:

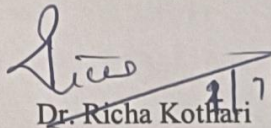
CERTIFICATE


This is to certify that Miss Saumya Khandelwal, student of M.Sc. Bio Technology has completed the dissertation project entitled **"EVALUATION OF NUTRACEUTICAL CALCIUM BISCUITS"** under the supervision of Dr. Braj Gaurav Sharma **Azista Industries Pvt. Ltd.** For a period of 6 months. The project report is being submitted to ITM UNIVERSITY, GWALIOR, M.P., in partial fulfillment for the award of Master of Science in Biotechnology.

No part of this report has been submitted for any degree or diploma.

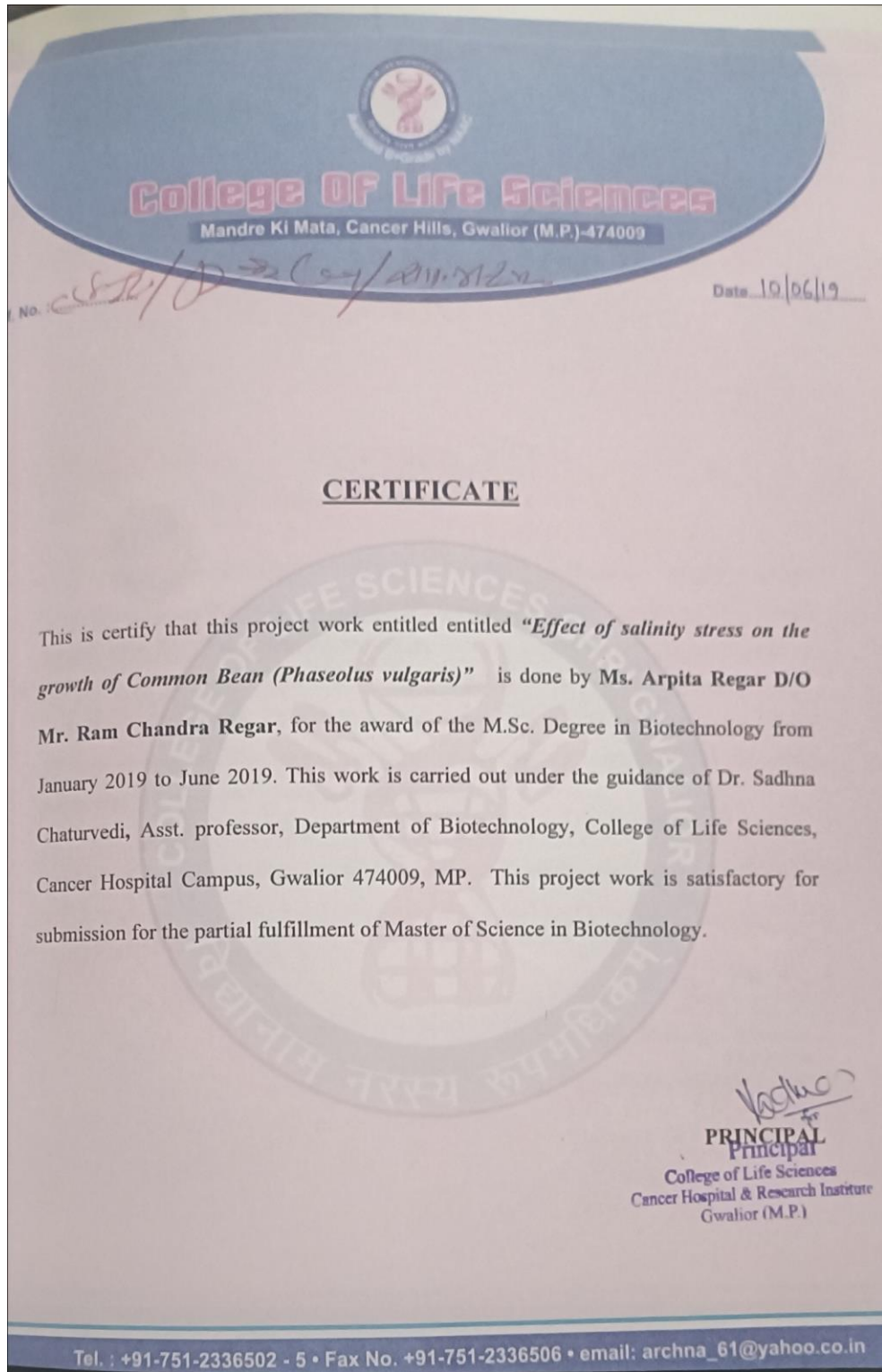

Dr. Sonia Johri
Head of the department
School of Sciences

HEAD
School of Life Sciences
ITM University, Gwalior


Dr. Richa Kothari
Dean
School of Sciences


Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-474001


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)



Dr. Archana
Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

*Response of Mungbean (Vigna radiata L.wilczek) seedlings to
different levels of NaCl salinity stress*

DISSERTATION

SUBMITTED FOR THE PARTIAL

FULFILMENT OF THE DEGREE

MASTER OF SCIENCE

IN

BIOTECHNOLOGY

Session 2017-2019

Submitted by

Shivani Dhakar

MSBN1BT17008

UNDER THE SUPERVISION OF

Dr. Sadhna Chaturvedi

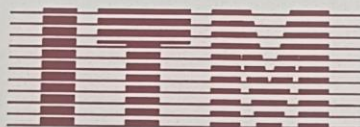
DEPARTMENT OF BIOTECHNOLOGY

COLLEGE OF LIFE SCIENCE

CANCER HOSPITAL AND RESEARCH INSTITUTE

GWALIOR-474001 (M.P)

TO



UNIVERSITY

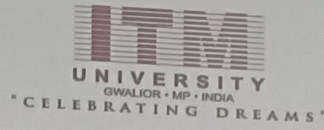
GWALIOR • MP • INDIA

ITM UNIVERSITY

GWALIOR (M.P.)

Dr. Kothari
Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)



DEPARTMENT OF LIFE SCIENCES

No. ITMU/D/SOLS/2018-2019/MSBN1BT17008

Date:- 15/06/2019

CERTIFICATE

This is certificate that **SHIVANI DHAKAR** student of M.Sc. Biotechnology has completed the dissertation project entitle "**Response of Mungbean (*Vigna radiata* L.wilczek) seedlings to different levels of NaCl salinity stress**" under the guidance of **Dr. SADHNA CHATURVEDI, Ass. Prof. College of life Science Cancer Hospital & Research Institute, Gwalior** from **January to June 2019**. The project is being submitted to ITM University, in partial fulfilment for award of degree of Post-Graduation in Biotechnology.

No part of this report has been submitted for any other degree or diploma.

Dr. Sonia Johri,
HOD

Department of Life Sciences
ITM University, Gwalior

HEAD
School of Life Sciences
ITM University, Gwalior

Dr. Richa Kothari
Dean

School of Sciences
ITM University, Gwalior

Dean
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

**Details of One day Educational Visit (UG/PG)
to
One Day Educational Visit to Govt. Fish Farm
Gole Ka Mandir, Gwalior**

**Date:21/01/2019
Department of Biotechnology and Microbiology
School of Sciences**

II Year B.Sc Biotechnology & I & Yr M. Sc Biotechnology – Brief Summary

Objective

The **object of the program is** to focus get aware the students with the aquatic life and provide an opportunity for researchers, students, and professionals to learn about aquaculture practices firsthand. It allows individuals to gather practical knowledge about fish farming techniques, sustainability practices, and challenges faced by the industry.


The Department of life sciences has organized one day educational local visit for the students of B.Sc. Biotechnology VI semester on 21/Jan./2019. The aim of visit to have better understanding of the subject by the students and it was also helpful for partial fulfillment of the syllabus Applied Biology (BSBT-605). Because in that syllabus they have aquaculture techniques. Fish culture and carp culture are the main types of aquacultures. So, we have decide and organized one day educational visit to **govt. Fish Farm in Gwalior**. That Is located at **Gole Ka Mandir, Gwalior, (M.P.)**

Total no. of students were 27 went to this visit.

On that day Teacher Mentors were:-

- 1. Mrs. Trapti Pathak, (Asst. Prof.)**
- 2. Mr. Sukhveer singh, (Lab Instructor)**

We reach at Gwalior fisheries at 12:00 pm. For study about carp culture which is a part of zoology syllabus. The students exposed to different species of Carp fishes and their rearing & culture method. The students have seen China pattern for fish culture at fisheries centre. They had also collect Gambusia fishes form there. They learn about Hatchery, Nursery, Breeding and Stocking of fishes. We spend approx 2 hrs. at fisheries.


Dr. Umveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

There was our guide is Ms. Smita Mishra, Worked as junior breeding of fishes scientist. The visit is essential for ABL. Every student enjoyed the tour and was satisfied with it. They also requested for such tours to be organized at frequent intervals

OUTCOMES

After visiting fish farms, the students would have attained the following specific skills

- Manage and maintain and aquaculture system on their own, either as an employee or at the level of an entrepreneur.
- Design, install/establish different concepts of aquaculture practices on technologically sound principles
- Skilled to propagate environment friendly and ecologically sustainable aquaculture practices.
- Apply the principles of economics to ensure profitability of own business / that of a business enterprise. Create awareness among the masses through extension activities regarding the need for popularizing the concepts of aquaculture.




Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)



Government Fish Farm, Gwalior


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)



Government Fish Farm, Gwalior



Government Fish Farm, Gwalior


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)