

SCHOOL OF SCIENCE
Department of Biotechnology

CRITERIA 1

SUB CRITERIA 1.3.3

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

Academic Year

2020-2021


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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	25

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.


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"CELEBRATING DREAMS"

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School of Sciences

NAME OF COURSE: B. SC. BIOTECHNOLOGY

SESSION 2018 ONWARDS

SEMESTER: VI

SUBJECT WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS

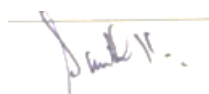
Sr. No.	Subject Code	Subject Name	Maximum Marks Allotted						Credits		Total Credits	
			Theory Slot			Practical Slot			Total Marks	L		P
			End Sem.	Mid Sem. MST (Two tests average)	Class Participation	End Sem.	Progressive Evaluation	Internal viva				
1	BSBT-601	Waste Management	40	30	30	-	-	-	100	4	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



Prof. Richa Kothari
(Dean)



Dr. Rita Sharma
(Coordinator & member)



Dr. Santosh Kumar
(Exam Superintendent)



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01/07/2024, 10:40

Syllabus-2018-2019

(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	<p>CO1- This study aims to evaluate the impact of internship programs on the professional as well as on personal development and skills.(BL2-Understand)</p> <p>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)</p> <p>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)</p> <p>CO4- Designing a project framework that responds to particular problem with clear objectives, expected results and activities(BL6-Create)</p> <p>CO5- Project formulation helps to prepare students with clear understanding of outline of research work.(BL6-Create)</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)				

Part B

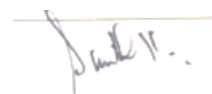
Modules	Contents	Pedagogy	Hours
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(Dean)



Dr. Rita Sharma
(Coordinator & member)



Dr. Santosh Kumar
(Exam Superintendent)



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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

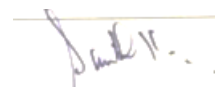
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	1	-	1	-	-	-	-	-	-	-	2	-	1
CO2	1	1	3	1	-	-	2	-	-	-	-	-	-	1	3
CO3	1	3	-	2	3	-	-	-	-	-	-	-	1	1	-
CO4	1	-	1	2	2	-	1	-	-	-	-	-	2	3	1
CO5	1	-	1	2	1	-	-	-	-	-	-	-	2	3	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Prof. Richa Kothari
(Dean)



Dr. Rita Sharma
(Coordinator & member)



Dr. Santosh Kumar
(Exam Superintendent)



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Department of Biotechnology & Microbiology
(Batch 2019-21)

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%

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(Dean)

Dr. Rita Sharma
(Coordinator & member)

Dr. Santosh Kumar
(Exam Superintendent)

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Syllabus (M.Sc. Biotechnology)

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

Part A

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

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	Contents	Pedagogy	Hours
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Richa Kothari

Prof. Richa Kothari
(Dean)


[Signature]
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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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-


Prof. Richa Kothari
(Dean)


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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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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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	BSBN1BT18001	Akanksha Kujur	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
2	BSBN1BT18002	Arpita Upadhyay	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
3	BSBN1BT18003	Deeksha Soni	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
4	BSBN1BT18004	Deepshikha Sharma	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
5	BSBN1BT18007	Mansi Gupta	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
6	BSBN1BT18009	Neeraj Yadav	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
7	BSBN1BT18010	Nikita Jaiswal	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
8	BSBN1BT18012	Pradeep Jauriya	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
9	BSBN1BT18013	Prerna Srivastava	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
10	BSBN1BT18014	Purvee Rohatgi	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
11	BSBN1BT18015	Rakshanda Nath	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
12	BSBN1BT18018	Sakshi Dwivedi	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer

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

13	BSBN1BT18019	Saumya Dixit	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
14	BSBN1BT18022	Siddhant Bhadouria	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
15	BSBN1BT18023	Srasti Gupta	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
16	BSBN1BT18025	Tanya Dandotiya	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
17	BSBN1BT18026	Tejasv Gupta	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer
18	BSBN1BT18027	Yash Datt	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
19	BSBN1BT18028	Nikita Jadon	Dept. of Biotechnology/Microbiology ITM University	"Haematological and Biochemical Parameters of Human Blood"	Mrs. Trapti Pathak
20	BSBN3BT20T01	Tiyasa Jana	CISF, Jiwaji University, Gwalior	Training on Analytical Instruments: HPLC, GC, LCMS, TGA, XRD, TEM, PSA and FTIR.	Dr. Sadhna Shrivastava Senior Scientific Officer


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Dean
Prof. Richa Kothari
School of Sciences

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

S.No	Roll Number	Name of student
1	BSBN1BT18001	Akanksha Kujur
2	BSBN1BT18002	Arpita Upadhyay
3	BSBN1BT18003	Deeksha Soni
4	BSBN1BT18004	Deepshikha Sharma
5	BSBN1BT18007	Mansi Gupta
6	BSBN1BT18009	Neeraj Yadav
7	BSBN1BT18010	Nikita Jaiswal
8	BSBN1BT18011	Pawan
9	BSBN1BT18012	Pradeep Jauriya
10	BSBN1BT18013	Prerna Srivastava
11	BSBN1BT18014	Purvee Rohatgi
12	BSBN1BT18015	Rakshanda Nath
13	BSBN1BT18018	Sakshi Dwivedi
14	BSBN1BT18019	Saumya Dixit
15	BSBN1BT18022	Siddhant Bhadouria
16	BSBN1BT18023	Srashti Gupta
17	BSBN1BT18025	Tanya Dandotiya
18	BSBN1BT18026	Tejasv Gupta
19	BSBN1BT18027	Yash Datt
20	BSBN1BT18028	Nikita Jadon
26	BSBN3BT20T01	Tiyasa Jana


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A
PROJECT REPORT ON

"Hematological and Biochemical Parameters of Human Blood"

Bachelor of Science
In
Biotechnology



"CELEBRATING DREAMS"

Under the Guidance of:

Mrs. Trapti Pathak

Asst. Prof.

Department of Life Science

ITM University, Gwalior

Submitted By

Mansi Gupta

B.Sc. (H.) Biotechnology, VI Semester

ITM University, Gwalior


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"CELEBRATING DREAMS"

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: 2020– 2021

Total No. of Students enrolled: 03

List of Students

S.No	Roll No	Name Of Students	Name of Industry/Institute	Topic	Supervisor
1	MSBN1BT19002	Minisha Bagaria	Regional Centre For Biotechnology, Faridabad (H.P)	Sub-Cellular Localization Of Hcv Ns3 & Ns5a Protein	Dr. Karthigeyan Dhanasekaran
2	MSBN1BT19003	Namrata Jha	CIF Jiwaji University, Gwalior (M.P.)	Therapeutic Approach Of Watermelon (<i>Citrullus Lanatus</i>) Rind: Biosynthesis And Characterization Of Selenium Nanoparticles	Dr. Sadhana Shrivastava Senior Scientific Officer, CIF Jiwaji University, Gwalior (M.P.)
3	MSBN1BT19004	Ritu Raj	Department of Microbiology, IMS, BHU, Varanasi (U.P)	Isolation of Salmonella typhi by clot culture method	Dr. Anju Dinkar


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"CELEBRATING DREAMS"

Annexure -I

SUB-CELLULAR LOCALIZATION OF HCV NS3 & NS5A PROTEIN

Thesis

Submitted in partial fulfillment for the award of the degree of
MASTER OF SCIENCE

in

Biotechnology



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"CELEBRATING DREAMS"

Submitted by

MINISHA BAGARIA

(MSBN1BT19002)

Under the guidance of

DR. KARTHIGEYAN DHANASEKARAN

Assistant Professor, Laboratory of Centrosome and Cilia Biology

REGIONAL CENTRE FOR BIOTECHNOLOGY,



United Nations
Educational, Scientific and
Cultural Organization

क्षेत्रीय क्षेत्र प्रौद्योगिकी केंद्र
Regional Centre
for Biotechnology

FARIDABAD - 121001, HARYANA, INDIA

2021

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

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"CELEBRATING DREAMS"

Annexure –III

CERTIFICATE (I)

This is to certify that the work titled "Sub-cellular Localization of HCV NS3 & NS5A Protein" submitted by **Minisha Bagaria, Roll No- MSBN1BT19002** in partial fulfillment for the award of degree of M.Sc. Biotechnology, ITM University, Gwalior has been carried out under my supervision.

To the best of my knowledge and belief, the dissertation

- I. Is original piece of work of Candidate himself
- II. Has duly been completed?
- III. Is up to the standard both in respect of contents and language?
- IV. Fulfils the requirement of the ordinance relating to M.Sc. Degree of the University.
- V. Work has not been submitted partially or wholly to any other University or Institute for the award of this or any other degree or diploma.

DR. KARTHIGEYAN DHANASEKARAN

(SUPERVISOR)

Date: 27.06.2021

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

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Gwalior (M.P.)



"CELEBRATING DREAMS"

Report submitted to
Department of Life Science
School of Science
ITM University, Gwalior, M.P.
For the award of the degree
Of

Master of Science
in
Biotechnology



Submitted by
NAMRATA JHA

(MSBN1BT19003)

Under the guidance of

Dr. SONIA JOHRI

Dean of Academics, ITM UNIVERSITY, Gwalior, M.P.

Dr. SADHANA SHRIVASTAVA
Senior Scientific Officer, CIF|

Jiwaji University, Gwalior (M.P.)

ITM UNIVERSITY, GWALIOR- 474026 MP, INDIA

2021



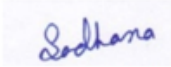

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Annexure –III

CERTIFICATE

CERTIFICATE OF THE SUPERVISOR

This is to certify that the work entitles “Therapeutic approach of watermelon (*Citrullus lanatus*) rind: Biosynthesis and characterization of selenium nanoparticles” is an original piece of research work done by Ms. Namrata Jha (Roll no. – MSBN1BT19003), under my guidance and supervision for the degree of Master of Science in Central Instrumentation Facility, Jiwaji University, Gwalior (M.P.) to the best of my knowledge and belief, the dissertation.


Dr. Sadhana Shrivastava
Senior Scientific Officer

Dr. Sadhana Shrivastava
Senior Scientific Officer
Central Instrumentation Facility Jiwaji
University, Gwalior – 474011, M.P.
Email: dr_sadhana59@rediffmail.com
Phone: +91 9425756284

Dated: 22-06-2021


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**ISOLATION OF SALMONELLA TYPHI
BY CLOT CULTURE METHOD**

Thesis

Submitted in partial fulfillment for the award of the degree of

MASTER OF SCIENCE

BIOTECHNOLOGY



Submitted by

RITU RAJ

(MSBN1BT19004)

Under the guidance of

DR. ANJU DINKAR

Assistant Professor, Department of Microbiology

IMS, BHU

BHU, VARANASI- 221005 UP, INDIA





CERTIFICATE

This is to certify that the thesis entitled "Isolation of salmonella typhi by clot culture method" is a bonafide research work carried out by "Ritu Raj" submitted in partial fulfillment for the award of the degree of "Master of Science" in Biotechnology, Department of School of Life Science, ITM UNIVERSITY, Gwalior MP, India. The Thesis embodies the record of original investigation carried out by her under my supervision. She has been duly registered and carried out the four months dissertation, and the thesis presented is worthy of being considered for the award of Master Degree. The research work has not been submitted for any degree of any other University.

Date: 19/06/21

Dr. Anju Dinkar

(Supervisor)

Dr. ANJU DINKAR
MD

Assistant Professor
Department of Microbiology
Institute of Medical Sciences
B.H.U., Varanasi-221005

BHU



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Note: Due to COVID -19 precautions, no industrial visit/training was done in the session 2020-21