

**LOYOLA COLLEGE KUNKURI**  
**Dist – Jashpur (C.G.)**  
**Department of Biotechnology**  
**ANNUAL REPORT**  
**Session – 2019-20**

---

**Mission**

- To enhance the quality education by uplifting the hidden skills of students.
- To emerge as a global centre of learning , academic excellence and innovative research work.
- To deliver exceptional results in all educational aspects.
- To develop attitude for lifetime learning.
- To orient students towards research.

**Vision**

- To achieve high standard of excellence in performing research work.
- Imparting of quality biotechnology education and the inculcating the spirit of research through innovative teaching and research methodologies .
- To provide an atmosphere where student can learn up to level best and understand the use of Biotechnology in daily life as well as in professional life .
- To promote innovative studies and research work .
- To empower students through quality education in biotechnology.
- To establish a platform for creation and distribution of knowledge of biotechnology in real life.

**A Brief Note on Department of Biotechnology**

- It was established in the year 2005. The department of biotechnology is well equipped with all essential equipments and with extra infrastructure which support student to perform maximum research work with accuracy faculties are qualified , experienced energetic and are passionate about teaching profession , Biotechnology journals are Available in the library for students reference.

**Strength**

- We are committed continuous self improvement to achieve excellence in all our endeavors.

- We are committed to innovation in our teaching research and outreach to our communities.
- We conduct various activities in every academic year to excel our students.

### Department Highlights

**Name of department** : **Biotechnology**

**Number of staff** : 03

**Faculty members** : (1) Dileshwar Ram Yadav (Asst. Prof and Head)  
 (2) Vijay Kumar Vishwakarma. (Asst.Prof.)  
 (3) Mr. Anup Kumar Chouhan ( Lab. Tech.)

**Faculty profile** :

S.N	Name of faculty	Qualification	Teaching experience	Allotted classes
01	Dileshwar Ram Yadav	<b>M.Sc.</b> (Sant Gahira Guru University )	02 years	B.sc. I / II / III
02	Vijay Kumar Vishwakarma	<b>M.Sc.</b> ( Sant Gahira Guru University)	01 years	B.Sc. I / II/ III

**Laboratory facilities** :

- Well equipped spacious laboratory with sophisticated test and measuring instruments and equipments.

Name of instrument	Quantity
Laminar air flow	01
Autoclave	02
Incubator	03
B.O.D.(incubator)	01
Hot air oven	02
water bath	02
Centrifuge	01

Spectrophotometer	02
Electrophoresis unit	02
U.V. Transilluminator	01
Colony counter	01
pH meter	01
Weighing balance	01
Microscope	13
Computer setup	01
Glass pipette	10
Micro pipette	08
Hot magnetic stirrer	01
Refrigerator	01

**Library facilities :**

Name of Title	Writer name	Number of books
Biotechnology	B.D singh,S.N Jogdan U. Satyanarayana, KC Sony, Lehninger,Dubey and Maheshwari, S.B. Primrose , Immunology by Kub. y, Dolsy and Fatima, Bruce Alberts etc.	350

**Degree course:**

Course	Paper	subject
B.Sc. I	Paper first (29A)	Cell Biology Genetics and Microbiology.
	Paper second (29 B)	Biochemistry ,Biostastics and Computers.
B.Sc.II	Paper first (29 A)	Molecular biology and Biophysics.

	Paper second (29B)	Recombinant DNA Technology and Genomics.
B.Sc.III	Paper first (29A)	Environmental and plant Biotechnology.
	Paper second (29B)	Immunology.

- No. of students in B.Sc. I = 08
- No. of students in B.Sc. II = 14
- No. of students in B.Sc.III = 12
- Each paper contains five units, each unit holds ten marks for exam. The syllabus is approved by the Sant Gahira Guru University, Sarguja Ambikapur, C.G. The annual examination is conducted by the University once a year. The syllabus is well designed according to competitive exam such as NET, SET, GATE etc.

### **List of Practicals performed**

#### **B.Sc. I**

1. Laboratory rules, Tools, Equipments and other requirements in Microbiological laboratory.
2. Micrometry – Use of Ocular and stage Micrometer.
3. Counting of bacteria by counting chamber by plate count.
4. Preparation of media and cultivation techniques-
  - A. Basic liquid media (broth)
  - B. Basic solid media (agar slant and deep tubes)
  - C. Demonstration of selective and differential media
  - D. Isolation and enumeration of microorganism.
  - E. Isolation from air and soil
5. Smear and staining method-
  - A. Preparation of bacterial smear.
  - B. Gram positive and Gram negative staining.
6. Methods of obtaining Pure culture-
  - A. Streak plate method.
  - B. Pour plate method.
  - C. Spread plate method
  - D. Broth culture.
7. Growth and Biochemical techniques-

- A. Determination of bacterial growth curve.
- B. Amylase production test.
- C. Cellulase Production test.
- D. Estimation of Sugar in given solution.
- E. Extraction and separation of Lipids.
- F. Estimation of Proteins.
- G. Meiosis and Mitosis.

## **B.Sc. II**

- 1. Isolation of DNA from plant cell.
- 2. Estimation of DNA by DPA method.
- 3. Isolation of RNA from yeast cell.

Experiment based on –

- 4. Centrifugation.
- 5. Spectrophotometer and Colorimeter.
- 6. Electrophoresis.
- 7. Paper chromatography and TLC.

Experiment based on Bioinformatics –

- 8. Retrieve DNA and protein sequences from Biological Database ( NCBI ).
- 9. Use of Tools studies

## **B.Sc. III**

- 1. Preparation of Tissue culture media.
- 2. Sterilization of plant materials.
- 3. Seed germination – Root, Shoot and callus culture.
- 4. Determination of TDS of water.
- 5. Determination of DO, BOD , COD of water.
- 6. Determination of Coliform MPN test .
- 7. Production of Enzymes / Antibiotics / Acids.
- 8. Effects of Biopesticides on microorganisms.
- 9. Antigen-Antibody interaction- Determination of Blood group and Rh factor.
- 10. WIDAL test.
- 11. VDRL test.
- 12. ELISA test.
- 13. Perform of Immuno-diffusion.

**Activities / workshop/ seminar conducted :**

Date	Activity	Details
1 <sup>st</sup> July 2019	Welcome of first year students.	<b>Orientation lecture</b> by Principal Dr. Fr. Telesphor Lakra and Rector of Loyola house Kunkuri Dr. Fr. Panka Toppo S.J.
Progressive from July to January	Unit wise test and regular classes according to syllabus.	The dept. conducted unit wise test for all year students for their better preparation.
Progressive from September to December	Seminar presentation	The department conducted topic wise seminar for all students indivisually in the presence of teaching staff and guest.
Progressive from September to December	Practical performance and record maintenance for all three years.	The department conducted practical exercise based on syllabus for all three year's students.
29 <sup>th</sup> December 2019	Environmental visit to observe Biodiversity	The dept. visited ' <b>Madheshwar nature park Mayali</b> ' as Environmental visit with B.Sc. life science students .
10 <sup>th</sup> October 2019	Educational tour	Dept. visited ' <b>Rajmohini Devi Agricultural research Institute Ambikapur</b> ' and ' <b>Devbhog dairy industry Ambikapur</b> ' along with life Science students.
January 2020	Model examination	The dept. organized Model exam. For all year students for their better performance in main annual examination

8 <sup>th</sup> February 2020	Seminar Presentation (guest lecture)	The department organized a seminar where <b>Dr. Ashish kumar</b> ,Dean of life science ,Sant Gahira Guru University delivered excellent information on the topic ‘ Scope of Microbiology’ and also provided some useful guidelines for the students.
February to March	Remedial classes	The department organized remedial classes after completion of syllabus for all three year students.

### **Other Innovative Practices :**

#### **Orientation of faculty members on skill development Scheme :**

Dr. Fr. Telesphor lakra ( Principal) conducted an orientation lecture on ‘ ***Skill Development scheme*** ’ under the guidance of Sant Gahira Guru University on 19/09/2019.

#### **Group discussion and Skill improvement :**

The department had organized a special group discussion programme once a week (on Saturday) in which we focused on the Student’s Oral Performance on the different topics according to their syllabus. This initiative aided student’s verbal communication with other staff members.

#### **Carrier Guidance programme :**

The department took an initiative to provide Carrier guidance to the life Science students once a month so that they can have knowledge and Ideas of their related fields and subjects.

**Picture .01 : *Orientation lecture* by Principal Dr. Fr. Telesphor Lakra and Rector of Loyola house Kunkuri Dr. Fr. Panka Toppo , S.J.**



**Picture .02: Lecture on “ Orientation of faculty members on Skill Development Scheme” by Principal Dr.Fr. Telesphor Lakra.**





**Picture .03 : Environmental visit ( *Madheshwar Nature Park Mayali* ) to Observe Biodiversity.**



**Picture .04 : Educational tour ( *Devbhog Dairy Industry Ambikapur, C.G.* )**



**Picture .05 : Educational tour ( *Rajmohini Devi Agricultural Research Institute* Ambikapur, C.G. )**



**Picture .06 : Seminar presentation ( Guest lecture ) by *Dr. Ashish kumar*, dean of Life Science , Sant. Gahira Guru University Ambikapur , ( C.G. ).**



**Picture .07 : Principal Dr. , Fr. Tetesphor Lakra Welcoming Dr. Ashish Kumar at Loyola College Kunkuri for Seminar Presentation.**



**Picture .08 : Carrier guidance programme on behalf of dept. of Microbiology and Biotechnology.**



**Picture.09 : Students of Microbiology performing their practical .**



