Department of Biotechnology
(Year of Establishment: 2004)

VISION

To be a nationally acclaimed department, recognized for its excellence in teaching research and extension, committed to foster all-round development of the young talents and to actively contribute in the society through interdisciplinary research and active outreach programs

MISSION

- To provide a multidisciplinary quality learning experience to students, empowering them to dream big.
- To provide skill based education to the students and to equip them with innovative industrial and research updates leading towards their self-reliance and development as entrepreneurs.
- To strive for funding from government and non-government agencies to carry out innovative research in the department.
- To enhance multi-institutional collaboration at national and international levels by signing MoUs and by carrying out joint research activities.
- To serve the society by catering to the needs at local, national and international level with utmost commitment, integrity and enthusiasm.

COURSE OFFERED

Program	Intake	Year of Start	Admission procedure	Syllabus Pattern	Annual fees (INR)
M.Sc*.	40	2004	Entrance test	CBCS &LOCF	18330.00
Ph.D.	30	2008	Entrance test as per UGC guidelines	CBCS &LOCF	13100.00

***with embedded skill course (Quality control Chemist Microbiology) of Life Sciences Sector Skill Development Council (LSSSDC**)

Total Number of Students-PG = 69	**As on May 2022**
Total Number of Students-Ph.D. = 21 **JRF= 04** **Non-JRF = 17**	**As on May 2022 (JRFs and Non JRFs)**

ABOUT THE DEPARTMENT:

The Department of Biotechnology, Chaudhary Devi Lal University, Sirsa was established in June, 2004 with major funding from the State Government. The Department is located at the first floor of CV Raman Bhawan of the University. The first batch of the students was admitted in August, 2004. So far the department has produced about 600 post graduate and 29 Ph.D. students, most of them have preferred to go for higher studies, some are actively engaged in jobs in various fields while some have developed their own business. Currently, department is running M.Sc. (two year) and Ph.D programs. The Department of Biotechnology has two well aerated classroom for M.Sc. (Previous) and M.Sc. (Final) with defined sitting arrangement, electricity facility with power back-up, projector and smart boards. Department has one bioinformatics lab having twenty computers with LAN internet facility. Department has two well-equipped laboratories for M.Sc. Programme and four separate air-conditioned research laboratories for Ph.D. programme.

FACULTY

SrNo	Name of Teacher	Designation		Qualification	Specialization	Contact
1.	**Dr. Priyanka Siwach** 	**Professor & Chairperson**	**22.08.2008**	**Ph.D.**	Plant Biotechnology and Genomics	**E-mail: psiwach29@gmail.com** **Office Tel. 01666-247143**
3.	Dr. S.K. Gahlawat 	Professor	19.12.2008	Ph.D.	Animal Biotechnology & Immunology	E-mail: skgcdlu@gmail.com
2.	Dr. R. K. Salar 	Professor	02.08.2004	Ph.D.	Microbial Biotechnology	E-mail: rajsalar@rediffmail.com

4.	Dr. Joginder Singh 	Professor	04.09.2004	Ph.D.	Microbial & Environmental Biology	E-mail: duhanjs68@gmail.com
5.	Mr. Yashpal Grover 	Assistant Professor	10.08.2018	MSc. (NET)	----------	
6.	Ms. Meenakshi 	Assistant Professor	23.11.2020	MSc. (NET)		Meenaxi1714@gmail.com
7.	Dr. Pardeep Kumar 	Assistant Professor	18.11.2020	Ph.D.	Microbial & Environmental Biology	Email:pardeep.sadh@gmail.com

PARTICIPATION IN SKILL INDIA MISSION

1. MoU signed with Life Science Sector Skill Development Council (LSSSDC)
2. Under this MoU, a skill certificate course (QC-chemist- Microbiologist) is included as an embedded course in M.Sc. Biotechnology Program.
3. Three faculty members got trained as 'Trainers' for skill certificate courses

MAJOR ACTIVE COLLABORATIONS

1. MoU with **Lala Lajpat Rai University of Veterinary and Animal sciences, Hisar**. Under this MoU, two Ph.D. students are working on collaborative research projects and one national patent has been filed.
2. MoU with **Central Institute of Cotton Research, (ICAR Institute**). One joint research project of worth sixty lacs has been submitted to SERB, GOI for funding. One Ph.D. student has been involved in collaborative research project.

3. One faculty member worked in **Indian Institute of Technology, New Delhi** for one year by availing Sabbatical Leave. A **novel methodology for genome annotation** was developed out of this joint work, which got published in Nucleic Acids Research journal (**impact factor 16.97**). One Ph.D. student is having co-supervisor from IIT Delhi also.

THRUST AREAS OF RESEARCH

- Microbial Biotechnology
- Plant Biotechnology
- Animal Biotechnology

INNOVATIONS

Sr. No.	Patent granted/filed	Patent No.	Year of grant /file	Current status
1	**Granted (National)**	**360050**	**02/03/2021**	**Seeking collaboration and funding for further steps towards commercialization**
2.	**Filed (National)**	No. 202111022744	Tem/E-1/25655/2021-DEL	**Under Publication**

PUBLICATIONS

- More than 300 research and review papers have been published in reputed national and international journals. Some papers are published in journals with notably high impact factor like Nucleic Acids research (IF 16.97), Bioinformatics (IF 6.96), Food Research International (IF 6.475), ……, Fish and Shellfish Immunology (IF 4.58), Biophysical journal (IF 4.3), while some papers have high citations score of ……

- Nine books have been published by faculty members with international publishers :
  - Molecular Biology: Principles and Practices (authors: Priyanka Siwach and Namita Singh), 2007, Laxmi Publications, ISBN: 978-81-318-0270-0.
  - Bioinformatics Computing (Editors: Vikram Singh. Dilbag Singh and Joginder Singh), 2007, Narosa Publishing House, ISBN: 978-81-7319-794-9
  - Biotechnology: Prospects and Applications (Editors: R.K. Salar, S.K. Gahlawat, P. Siwach, J.S. Duhan), 2014, Springer, ISBN: 978-81-322-1683-4)
  - Plant Biotechnology: Recent Advancements and Developments (Editors: S.K. Gahlawat, R. K. Salar, Priyanka Siwach, J.S Duhan, Suresh Kumar, Pawan Kaur), 2017, Springer, ISBN: 978-981-10-4731-2, DOI 10.1007/978-981-10-4732-9.

- Advances in Animal Biotechnology and its Applications (Editors: S.K. Gahlawat, J.S Duhan, R. K. Salar, Priyanka Siwach, Suresh Kumar, Pawan Kaur), 2018, Springer, ISBN: 978-981-10-4702-2.
- Thermophilic Fungi-Basic Concepts and Biotechnological Applications (Raj Kumar Salar), 2018, CRC Press, ISBN: 978-0-8153-7070-3
- Advances in Animal Disease Diagnosis (Gahlawat, Suresh Kumar and Maan, Sushila), 2021, CRC Press. ISBN 9780367530518
- Pearl Millet: Properties, Functionality and its Applications (Sneh Punia, Anil Kumar Siroha, Kawaljit Singh Sandhu, Suresh Kumar Gahlawat, Maninder Kaur), 2020, CRC Press ISBN 9780367354862.
- Chia and Quinoa-Superfoods for health (Authors: Manju Nehra, Suresh Kumar Gahlawat), 2022, CRC Press, ISBN: 978-0-367-52939-0

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DEPARTMENTAL RESEARCH ADVISORY COMMITTEE

1. Prof. Priyanka Siwach	Convener
2. Prof. S.K. Gahlawat	Member
3. Prof. R.K. Salar	Member
4. Prof. Joginder Singh	Member
5. Prof. Anil Sindhu (Department of Biotechnology DCRUST, Murthal, Haryana)	Member (Outside Expert)

POST GRADUATE BOARD OF STUDIES & RESEARCH IN BIOTECHNOLOGY

1. Prof. Priyanka Siwach	Chairperson
2. Prof. S.K. Gahlawat	Member
3. Prof. R.K. Salar	Member
4. Prof. Joginder Singh	Member
5. Prof. Sushila Maan (Department of Animal Biotechnology, LUVAS, Hisar, Haryana)	Member (Outside Expert)
6. Prof. Neeraj Dilbaghi (Department of Bio & Nanotechnology, GJUS&T, Hisar, Haryana)	Member (Outside Expert)

7. Mr. Bharat Bhusan Rattan (Zydus Pharmaceutical) — Member (Industry person)

UNDER GRADUATE BOARD OF STUDIES IN BIOTECHNOLOGY

1. Prof. Priyanka Siwach — Chairperson
2. Dr. Vinod Kumar (JCD) — Member
3. Dr. Namita Singh (GJU) — Member (Outside Expert)
4. Dr. P.K. Jaiwal (MDU) — Member (Outside Expert)

MAJOR RESEARCH PROJECTS SANCTIONED:

Sr. No.	**Research Project Title**	**Principal Investigator**	**Date of Sanction**	**Sanctioned Amount**
1.	Modulation of phenolic content and antioxidant activity of barley and pearl millet using Solid State Fermentation	Dr. Raj Kumar Salar (P.I.)	2012-15	13,03,300.00
2.	Association mapping of fibre traits in Gossypium arboretum L. accessions using SSR, ISSR and AFLP markers	Dr. Priyanka Siwach (P.I.)	2012-15	11,58,800.00
3.	Development of easy and inexpensive Loop-mediated isothermal amplification (LAMP) kit for the detection of bacterial fish pathogens	Dr. S.K. Gahlawat (P.I.) & Dr. J.S. Duhan (Co-P.I.)	2011-14	10,75,932.00
4.	Biodegradation of Xenobiotics by Microorganisms isolated from Hotspring soils	Dr. Raj Kumar Salar (P.I.)	2007-09	4,32,860.00

SOME NOTABLE ALUMNI

Sr. No.	Alumni	Present Designation	Graduating Batch
1.	Dr Jarnail Singh	Postdoctoral Associate, Southern Illinois University, School of Medicine	2013

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2.	Dr. Praveen Dubey 	Post-doctoral fellowship, University of Alabama at Birmingham, USA	2009
3.	Dr. Jyoti Joshi 	Research Scientist, Dalhousie University Helifex, Canada	2009
4.	Dr. Girish Chander Pandey 	Assistant Professor, Bansathali Veedyapeeth	2009
5.	Dr. Baldev Singh 	Research Associate Georgetown University, Washington DC, USA	2009
6.	Dr. Dilip Kumar Markandey 	Scientist, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi	2012
7.	Dr. Anita Rani Gill 	Assistant Professor, Guru Jambheswar University of Science & technology, Hisar	2009

8.	Dr. Suresh Rohilla 	PGT Biology HES-II, Department of Secondary Education Haryana	2013
9.	Dr. Khushboo Sethi 	Research Associate, National Research centre on Equines, Hisar.	2016
10.	Dr. Ravinder Kumar 	Assistant Professor, Guru Jambheswar University of Science & technology, Hisar	2011
11.	Dr. Naresh Kumar 	Scientific Officer (DNA), Department of Home, Govt. of Himachal Pradesh.	2012
12.	Dr. Sukhvinder Singh 	Principal Investigator Dept. of food science& technology Maharaja Ranjit Singh University, Bathinda	2011
13.	Priyanka Gautam	Ph.D. scholar, Department of Neurology, Institute of Medical sciences, Banaras Hindu University, Varanasi	2015
14.	Alka 	Assistant Professor, Jagannath University, Bhadurgarh	2017
15.	Ajay Singh 	Senior Scientific Officer, Genestrings molecular diagnosis lab, IGI, Airport New Delhi	2018

16.	Bharat Sharma 	Junior Production Manager, IFFCO Kisan Sanchar Ltd. Haryana	2019
17.	Aarti	Assistant Professor of biotechnology, F.C. College, Hisar	2019
18.	Malkeet Singh	Jr. Scientist, Pathkits healthcare Pvt. Ltd. Gurugram	2020
19.	Amjad khan	Jr. Scientist, Axiwa Biotech	2020
20.	Bhumika Rajora	Clinical Research Coordinator at Adesh Institute of Medical Sciences & Research, Bathinda	2021

FACILITIES AVAILABLE IN THE DEPARTMENT:-

1) Real Time PCR (Q3, ThermoFischer)
2) Biosafety Cabinet
3) Plant growth chamber
4) CO2 Incubator (eppendrof)
5) PCR Workstation.
6) Gel documentation system (BioRad)
7) 2. Thermocycler (BioRad)
8) Thermocycler (ABI)
9) Gel electrophoresis units (03)
10) Nanodrop Spectrophotometer (Thermo Scientific)
11) Refrigerator (-80 ^{0}C)
12) Spectrophotometers (3)
13) Laminar airflow (06)
14) Deep Freeze -20^{o}C (03)
15) Refrigerators (06)
16) BOD incubators (06)
17) Shaker incubators (03)
18) Ice flaking machine (01)
19) Refrigerated circulating liquid bath
20) Autoclaves (05)
21) Refrigerated centrifuges (02)

22) Hot air Ovens (05)

23) Microwave oven (02)

24) Precision balances (04)

25) Inverted microscope (01)

26) Photomicrographic unit (01)

27) Spinwin (02)

28) Cryogenic cylinders

29) Air curtains

30) Digital dry bath

31) Distillation units (02)

32) Rotary vacuum evaporator

Ph. D. DEGREE AWARDED TILL DATE (as on May 1, 2022)= 29

RESEARCH TOPICS OF THE CURRENTLY ENROLLED PH.D. STUDENTS:

S/ No.	**Name of the Candidate**	**Name of the Guide / Co-Guide**	**Topic of Research as approved by DRC**
1.	Megha	Dr. Priyanka Siwach	**Assembly, annotation and mirna characterization of expressed sequence tags (ests) obtained from *gossypium arboreum* l.**
2.	Nidhi Saini	Dr. S.K. Gahlawat/ Dr. Viney Lather	***In silico* and phytochemical screening of various medicinal plants for different therapeutic activities**
3.	Surinder Paul	Dr. Joginder Singh / Dr. Ratan Tiwari	**Elucidating heat tolerance mechanism in wheat genotype K7903 (HALNA)**
4.	Ravinder	Dr. J. S. Duhan	**Preparation, characterization and evaluation of fungicide loaded nanoformulations against fungal diseases in vegetable crops**
5.	Shivangi	Dr. S.K. Gahlawat/ Dr. Subhash Kajla	**Developing transgenic tomatoes expressing *Aspergillus niger* phytase to reduce micronutrient malnutrition in human**
6.	Mr. Ajay Kumar	Dr. S.K. Gahlawat	**Development of Molecular Diagnostic Method(s) for Detection of Pathogens causing Diseases in *Litopenaeus vannamei***
7.	Ms. Monika Punia	Dr. S.K. Gahlawat/ Dr. Sushila Mann	**Development of Molecular Diagnostic Method(s) for Detection of Enteric Viruses in Livestock**
8.	Ms. Deepika	Dr. S.K. Gahlawat	**Biosynthesis, Characterization, Antimicrobial and Anticancer activity of Dual Drug Loaded Polymeric Nanoparticles**

9.	Ms Asha	Dr. R.K. Salar/Dr. Rajesh Thakur	**Polymeric nano encapsulation of essential oils for control of storage pests**
10.	Shiwani Chahal	Dr. Priyanka Siwach/Prof. B. Jayaram	**'Bioactivity Informatics, Metabolomics and Transcriptomics studies of *Terminalia arjuna* (Roxb.) Wight and Arn with special reference to cardioprotective properties'**
11.	Inderjeet Singh	Dr. Priyanka Siwach/Dr. Satish K. Sain	**Genetic diversity analysis among the prevalent strains of 'Cotton Leaf Curl virus Disease' (CLCuD) causing Begomoviruses in North India**
12.	Anita Rani	Dr. Priyanka Siwach	**Studies on micropropagation and *in vitro* production of selected oleananes of *Terminalia arjuna*(Roxb.) Wight and Arn.**
13.	Ajay Kamboj	Dr. J. S. Duhan	**Studies on endophytic fungi for production of bioactive compounds from agrowastes using solid state fermentation**
14.	Mohit		
15.	Deepika	Dr. Raj Kumar Salar	**Studies on modulation of nutraceutical properties of red sorghum (Sorgham bicolar(L.) Moench) using solid state fermentation**

LIBRARY FACILITIES

A number of latest books are available on each course in the Central Library. Three and five books can be issued at a time to each student and scholar, respectively. Various journals have been subscribed by this department and online journals have also been subscribed by the University to strengthen the research activities. A reading hall is also available round the clock for the students in the Central Library.

CULTURAL/CO-CURRICULAR ACTIVITIES

1. The department understands the importance of co-curricular and extra-curricular activities. The students are encouraged to participate in various activities beyond their course curriculum. Following five clubs have been constituted related to different activities:

- Academic and Innovation Club
    - (Teachers In-charge: Prof. S.K. Gahlawat & Dr. Pardeep Kumar)
- Life Skills and Capacity Building Club
    - (Teachers In-charge: Prof. Priyanka Siwach & Mr. Yashpal Grover)
- Awareness Activity Club

- (Teachers In-charge: Prof. R.K. Salar & Ms. Meenaxi)

- Sports and Cultural Activities Club
  - (Teachers In-charge: Prof. J.S. Duhan & Ms. Meenaxi)
- Extension Activities Club
  - (Teachers In-charge: Prof. Priyanka Siwach, Prof. J.S. Duhan & Dr. Pardeep Kumar)

2. The students of the department actively participate in the following activities, conducted in the University: Institute and/or participated by students outside the institute.

Special Annual Winter Camp

a. Sports, Cultural, Literary Activities,
b. NCC
c. Annual Intra-Faculty and Inter-Faculty Cultural and Sports Competitions,
d. Inter-University Youth Festivals,
e. Wall magazines
f. Yoga and Karate Classes for girls
g. Celebration of National Days
h. Bhakti Sangeet
i. Yoga Day
j. Science Day
k. Value Day (on Deepavali)
l. Teacher's Day
m. Special events are organized on birth anniversary of renowned persons
n. NSS Camps and Cleanliness Drives throughout the year

TRAINING AND PLACEMENT

The university has a fully dedicated Career and Counseling Cell. More than 70 per cent students are well placed in reputed institutes/industry/ Govt. departments or have moved for higher studies.

-Sd.-

Chairperson