3. Evaluative Report of the Department

1. Name of the Department
   Department of Botany

2. Year of establishment
   1960

3. Is the Department part of a School/Faculty of the university?
   Yes, Department of Botany is a part of PG School of Life Sciences and Faculty of Science

4. Names of programmes offered (UG, PG, M. Phil., Ph.D., Integrated Masters; Integrated Ph.D., D. Sc., D.Litt., etc.)
   Department offers UG (Pass) and (Hons.) courses in Botany at two constituent colleges of this university while PG, Ph. D. and D.Sc. programmes are offered in the Department of Botany itself.
   UG – B.Sc. (Pass course)
   B.Sc. (Honours)
   PG - M. Sc. in Botany & Biotechnology
   Ph.D. in Botany & Biotechnology
   D.Sc. in Botany & Biotechnology

5. Interdisciplinary programmes and departments involved
   Instrumentation and Research facilities available at this center are made available to the students of other departments of the University including Departments of Zoology and Chemistry. Facilities available at this center are also used by students of Medical, NBPGR and CDRI and vice versa. Some of faculty members of this department are also participating in programmes run by CCT.

6. Courses in collaboration with other universities, industries, foreign institutions, etc.
   Department of Botany has informal collaborations with some of the institutions, receives funding for student seminars/workshops related to course curricula.

7. Details of programmes discontinued, if any, with reasons
   No programme has been discontinued in past five years.

8. Examination System:
   University has adopted annual scheme for UG exams in Botany and semester system with Choice Based Credit System for PG exams in Botany& Biotechnology. Department is also running one semester Pre Ph.D. course work in Botany& Biotechnology.

9. Participation of the department in the courses offered by other departments

Instrumentation and Research facilities available at this center are made available to the students of other departments in the University as and when required. Faculty members of this department are also involved are other programmes organized by Microbiology at Zoology departments and Department of Environmental Science.

10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

Following is the details of faculty in this department:

	Sanctioned	**Filled**	**Actual (including CAS & MPS)**
Professor	02	02	02 (01-CAS & 01-Selected)
Associate Professors	08	NIL	13-CAS
Asst. Professors	42	23	23-Selected
Others	-	-	-

11. Faculty profile with name, qualification, designation, area of specialization experience and research under guidance

Following is the details of faculty in this department:

Name	**Qualification**	**Designation**	**Specialization**	**No. of Years of Experience**	**No. of Ph.D./ M. Phil. students guided for the last 5 years**
Prof. Kailash Agrawal,	M.Sc., Ph.D.	Professor & Head	Plant Pathology, Seed Pathology & Microbiology	29	07
Prof.(Mrs.) Meenakshi Sharma	M.Sc., Ph.D.	Professor	Medical Mycology	30	04
Dr.(Mrs.) Manjula K. Saxena	M.Sc. , Ph.D.	Associate Professor	Ecology, Env. Biotech, Limnology	31	06
Dr. (Mrs.) Usha Jain	M.Sc., Ph.D.	Associate Professor	Taxonomy & Ecology	31	04
Dr. (Mrs.) Manju Sharma	M.Sc., Ph.D.	Associate Professor	Morphology, Anatomy	31	05
Dr. R. D. Agarwal	M.Sc., Ph.D.	Associate Professor	Plant Pathology, Biotech.	34	06

Dr. (Mrs.) Soumana Datta	M.Sc. , Ph.D.	Associate Professor	Nematology, stress Biology, Biosystematics	27	8
Dr. (Mrs.) Rekha Vijavergia	M.Sc. , Ph.D.	Associate Professor	Biochemistry & Sec. Metabolism	18	05
Dr. R.A. Sharma	M.Sc. , Ph.D.	Associate Professor	Plant Physiology & Biochemistry	20	08
Dr. (Ms.) Shikha Roy	M.Sc. , Ph.D.	Associate Professor	Biotechnology, Mol. Bio.	28	07
Dr. (Mrs.) Payal Lodha	M.Sc. , Ph.D.	Associate Professor	Cecidology&Nematology	18	05
Dr. (Mrs.) Vidya Patni	M.Sc. , Ph.D.	Associate Professor	Cecidology& Plant Molecular	18	08
Dr. D.V. Rao	M.Sc. , Ph.D.	Associate Professor	Plant Pathology, Biotechnology	18	07
Dr. Gajendra Pal Singh	M.Sc. , Ph.D.	Associate Professor	Algal Biotech.	18	06
Dr. (Mrs.) Sumita Kachhawaha	M.Sc. , Ph.D.	Associate Professor	Plant Biotech, Nanobiotech.	19	06
Ms. Shikha Gupta	M.Sc.	Assistant Professor	Plant Biotech. + Nanotech.	10	Nil
Dr. Preeti Mishra	M.Sc. , Ph.D.	Assistant Professor	Plant Pathology , Microbiology	04	Nil
Dr. Amit Kotia	M.Sc. , Ph.D.	Assistant Professor	Plant Taxonomy	09	Nil
Mrs. Prakash	M.Sc.	Assistant Professor	Ecology	06	Nil
Mrs. Lalita	M.Sc.	Assistant Professor	Plant Physiology, Plant biotech & Life Science	01	Nil
Dr. Anil Kumar	M.Sc. , Ph.D.	Assistant Professor	Plant Physiology &Environmental Biotechnology	6	Nil
Mr. Indu Singh Sankhla	M.Sc.	Assistant Professor	Molecular Biology, Plant Physiology, Microbiology	03	Nil
Mr. Jai Singh	M.Sc.	Assistant Professor	Environment Biology	03	Nil

Ms. Priya	M.Sc.	Assistant Professor	Ecology	01	Nil
Dr. N.S. Chaudhary	M.Sc. , Ph.D.	Assistant Professor	Biotechnology & Protein Biochemistry	06	Nil
Dr. Chandra Pal Singh	M.Sc. , Ph.D.	Assistant Professor	Biotechnology, Mol. Bio & Biochemistry	01	Nil
Dr. Manmohan Arya	M.Sc.	Assistant Professor	Env. & Arid Ecology, Plant Pathology	01	Nil
Dr.Praveen Soni	M.Sc. ,Ph.D.	Assistant Professor	Plant Biotechnology, Stress Physiology & Mol. Biology	01	Nil
Dr. Poonam Meena	M.Sc. , Ph.D.	Assistant Professor	Methedology	06	Nil
Ms. Deepika Gunpal	M.Sc.	Assistant Professor	Plant Pathology	01	Nil
Dr. Rishikesh Meena	M.Sc. , Ph.D.	Assistant Professor	Pathology Biotech, Ethnobotany	07	Nil
Dr. Praveen Mohil	M.Sc. , Ph.D.	Assistant Professor	Adv. Taxonomy & Herbarium &EcophysiologyBotany	14	Nil
Mr. Vinay Kumar Meena	M.Sc.	Assistant Professor	Plant Biotech.	07	Nil
Dr. Archana Meena	M.Sc. , Ph.D.	Assistant Professor	Ecology	01	Nil
Dr. Gunjan Dubey	M.Sc. , Ph.D.	Assistant Professor	Plant Physiology & Biochemistry	01	Nil
Dr. Bindu Sharma	M.Sc. , Ph.D.	Assistant Professor	Plant Physiology & Biochemistry, Microbiology	01	Nil
Dr. Aparna Pareek	M.Sc. , Ph.D.	Assistant Professor	Experimental Morphogenesis, Plant Tissue Culture & Biotechnology	13	Nil

Dr. Neelam Poonar	M.Sc. , Ph.D.	Assistant Professor	Plant Physiology, Biochemistry, Ecology	05	Nil
Retired Faculty					
Prof. S.L. Kothari	M.Sc., Ph.D.	Professor	Plant biotechnology	37	11
Prof. N. Bhardwaj	M.Sc. , Ph.D.	Professor	Ecology	----	10
Prof. S.C. Jain	M.Sc. , Ph.D.	Professor	Plant Physiology	----	03
Prof. P.L. Swarnkar	M.Sc. , Ph.D.	Professor	Plant Physiology	----	03
Prof. Renu Sarin	M.Sc. , Ph.D.	Professor	Plant Physiology	----	10
Prof. T. Singh	M.Sc. , Ph.D.	Professor	Seed Pathology	----	09
Prof. P. C. Trivedi	M.Sc. , Ph.D.	Professor	Nematology	----	12
Prof. K. C. Sharma	M.Sc. , Ph.D.	Professor	Plant Morphology &Plant Anatomy	----	06
Prof. K. P. Sharma,	M.Sc., Ph.D.	Professor	Ecology & Environmental Biotechnology	37	09
Prof. (Mrs.) Padma Kumar	M.Sc., Ph.D.	Professor	Tissue Culture & Sec. Metabolism from medicinal plant	30	07

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors-

No senior Visiting Fellows, Adjunct Faculty, Emeritus Professors visited this department during 2009 – 14. However following eminent persons are involved in various programmes for the past five years:

- Prof. Amla Batra- Emeritus Fellow
- Prof. Tribhuwan Singh, BSR Fellow
- Prof. K.C. Sharma, , BSR Fellow

13. Percentage of classes taken by temporary faculty – programme-wise information

At UG level nearly 20% classes were engaged by guest faculty members. All the PG classes in Botany are being engaged by regular faculty members while nearly 25% of M.Sc. course content in Biotechnology was shared by guest faculties.

14. Programme-wise Student Teacher Ratio

Following are the approximate Programme-wise Student Teacher Ratios in different courses run by department:

Year	No. of Students		No. of faculty members including guest faculty	Student: Teacher Ratio	
	UG	PG		UG	PG
2009-10	1575	67	39	40:1	2:1
2010-11	1552	50	34	45:1	2:1
2011-12	1360	50	35	39:1	2:1
2012-13	1423	56	30	47:1	2:1
2013-14	1546	53	46	29:1	2:1
2014-15	1520	57	48	34:1	2:1

15. Number of academic support staff (technical) and administrative staff Sanctioned, filled and actual

Following is the position of ministerial, technical staff and lab bearers:

Name of Post	Sanctioned No.	Filled	Actual
Technical	07	01	06
Administrative	16	08	07
Others (on contract basis)	10	10	10
1- Curator (sanctioned)			

16. Research thrust areas as recognized by major funding agencies

Following the thrust areas recognized by major funding agencies:

1. **Ethnobotany, morphology, taxonomy, anatomy and cytology**
   - General survey of medicinally important threatened plant species of Rajasthan.
   - Plant Morphology, Taxonomy and Characterization of Spermoderm patterns and histochemistry
   - Preparation of seed atlas.
   - Micro and macro morphological characters of selected plants. Histological studies and developmental anatomy.
   - Electron microscopic studies.
   - Propagation of threatened plants
   - Monographic studies of selected plants
   - Cytological studies of selected plants.

2. **Pathology and Management of Diseases**
    - Screening of the selected plant species for pathogenic fungi, bacteria, viruses and nematodes causing diseases and their disease cycle.
    - Pathogenesis and eco-friendly management of plant pathogens.
    - Screening of available germplasm for disease resistance using the recombinant DNA technology.
    - Study of seed borne pathogens and their phytopathological effects and control.
    - Histochemical and biochemical study on host pathogen interactions.
    - To develop races of microorganisms for antagonistic property against virulent pathogens by mutation or recombination.
    - Screening of soil for the mycorrhizae and their use in productivity of the selected plant species.
    - Studies on insect galls and isolation of gallic acid and hydrolysabale tannins. Isolation of dye and other active ingredients. Biochemical analysis of galls and their normal counterparts. Estimation of various metabolites and enzymes. bio-management strategies
3. **Microbiology, Nitrogen fixation and Algal Biotechnology**
    - Model biological tools will be developed and utilized in the study for the isolation ofnaturalRhizobial isolates from the legumes, VAM fungi and phosphate solubilizing bacteria.
    - Molecular characterization of each of the above isolates.Development and utilization of modern bio-technology in relation to VAM fungi and associative and free living N2 fixing bacteria for increased production.
    - Characterisation and identification of microorganisms associated with herbal plants.
    - Survey of keratinophilic and dermatophytic fungal flora of Rajasthan mainly from Jaipur District. Studies on taxonomical, biocontrol and therapeutical aspects (by using herbal plants extracts and essential oils) of keratinophilic and dermatophytic fungi, their relative position on taxonomy and identification to the species as well as to the strains level.
    - Study of soil borne nitrogen fixing algae in the natural habitats of the selected species.
    - To identify compounds responsible for reduction in cholesterol and sugar in blood serum from selected plants
4. **Plant Ecology and Environment**
    - To enumerate biotic and abiotic stresses in natural habitats of threatened plant species
    - Seed bank study of threatened plant species
    - Studies related to stress tolerances.
5. **Study related to biochemical, bioefficacy and biomanagement**
    - Isolation, identification and chemical characterization of compounds from selected plants

- Regulation (scaling up) of bioactive secondary metabolites production in plant cell and tissue culture through various techniques.
- To screen secondary metabolites for antimicrobial activity in general.
- To explore for active principles for controlling dermatophytic fungi and other superficial fungal infections of skin.
- Non-allergic control of fungal diseases through the use of other microbes (biomanagement) and plant ingredients

6. Transgenics, Proteomics, Plant Tissue Culture and Micropropagation

- Establishment of efficient reproducible protocols for micropropagation of selected plants. Alteration in the biochemical status during the regeneration.
- Physiological and biochemical studies in the plants grown *in vitro* during their acclimatization to field conditions.
- Analysis of protein contents (proteome) of drought resistant and drought susceptible genotypes, their protein finger printing, with an emphasis to understand the molecular mechanism underlying the drought resistance in selected plants.
- Analysis of genomic, glycomic and lipidomic of the selected plants and their nutraceutical value related to IPR.

17. Number of faculty with ongoing projects from

a) National agencies

09

b) International funding agencies

NIL

c) Total grants received.

Rs. 185.19 Lacs

Give the names of the funding agencies, project title and grants received project-wise.

Name of faculty member	Title of Project	Year of sanction	Year of completion	Funding Agency	Amount
Prof. Kailash Agrawal	Detection, characterization and pathogenesis of seed borne bacteria of fennel and coriander seeds grown in Rajasthan and their management"	1.4.2007	31.3.2010	UGC, New Delhi	7,03,600
	"Molecular characterization of seed borne bacterial pathogens of cluster bean and their management"	23.6.2008	22.6.2011	DST, New Delhi	19,88,000
Dr. Rekha	Petreavoluvilis L.: A	2013	2016	UGC, New	11,77,800

Vijayvergia	potential source hyperglycemic lipid lowering and antioxidant agent			Delhi	
Dr. R.A. Sharma	Biochemical and Antimicrobial studies of selected cassia pumila Lam	2010	2012	UGC, New Delhi	1,20,000
Dr. Shikha Roy	Production and Demonstration of high quality plant material of Jatrophacurcas	2005	2010	DBT, New Delhi	22 lacs
	Multilocational trial of Jatrophacurcas in different agroclimatic zones and study of agroclimatic practices	2009	2014	DBT, New Delhi	34,27,000
Dr. Vidya Patni	Biotechnology for enhancement of active compounds and conservation of threatened medicinal herbs of Rajasthan used in Bone healing Cissusquadrangularis and Pluchealanceolata	2009	2011	DST, Govt. of Rajasthan	5 lacs
	Rapid clonal propagation and elicitation of bioactive compounds in cell culture of two medicinally potent plant species cocculushirsutis (1) diels and pluchealanceolataoliver and hiern	Feb, 2012	Jan.2017	UGC-POST Doctoral Fellowship	30,000 per month +50,000/- annum, contingency +30,000/- per annum for Department Assistance
	In vitro propagation, bioactive screening and scale up of secondary metabolites with anti-diabetic activity from	2014-	2019	UGC	approx. 30 lakh

	threatened species of semi arid zone of Rajasthan.				
Dr. G.P. Singh	To develop nutritionally superior strain of algae after induction of heavy metals	2012	2015	UGC, New Delhi	10,55,800/-
Dr. Navneet Singh Chaudhary	Identification, Isolation and Characterization of Anti-Alzheimer's Disease Compounds (Acetyl-Cholinesterase Inhibitors) from Natural Sources	2014	Ongoing	Science and Engineering Research Board (SERB), DST, New Delhi	23lacs
Dr. Anil Kumar	Studies on the Influence of Tungsten on Nitrogen Metabolism	2015	2017	UGC, New Delhi	6 lacs
Dr. C.P. Singh	Comparative Expression Analysis of RNAi Pathway Genes under Abiotic Stress Conditions in *Arabidopsis thaliana*	2015	2017	UGC, New Delhi	6 lacs
Dr. Aparna Pareek	Studies on invitro conservation, genetic studies, biochemical estimation of some endangeral plants of Rajasthan	2015	2017	UGC, New Delhi	6 lacs
Dr. Bindu Sharma	Therapentic efficacy of Phytochemicals from selected plants against dermatophytes& pathogenic Bacteria	2015	2017	UGC, New Delhi	6 lacs
Dr. Praveen Soni	Root-specific expression profiling of 'Saltol' QTL localized cell-wall biosynthesis genes in seedlings of contrasting rice genotypes in response to salinity stress	2015	2017	UGC, New Delhi	6 lacs

Dr. Rishikesh Meena	In vitro Propogation of Nigella sativa Linn.	2015	2017	UGC, New Delhi	6 lacs
Dr. AmitKotiya	Study of threatened and endemic plant abundant responses to climatic variations along different microhabitates of Indian Thar Desert, Rajasthan	2014	2017	DST, New Delhi	18 lacs

Retired Faculty:

Prof. K.P. Sharma	Restoration of Wetland Around Mansagar Lake	2005	2011	JDA, Jaipur	20 lacs
	Biomanipulation Studies for Addressing Eutrophication of Water bodies	Feb.2011	Jan.2014	UGC, New Delhi	8.5 lacs
Prof. S.L. Kothari	Documentation of genetic diversity using molecular markers and development of protocol for mass in vitro multiplication of elite germplasm of leguminous tree of Pithecellobiumdulce	2007	2010	UGC, New Delhi	12 lacs
	Collection characterization and conservation of Withaniacoagulans (stocks) Dunal and their metabolomic comparison with aniasomnifera (L.) Dunal counterparts	2007	2011	CSIR, New Delhi	26 lacs
Prof. Padma Kumar	In vitro and in VNO studies of compounds of plant origin for antidermalophytic activity	2008	2012	UGC, New Delhi	6,47,420

18. Inter-institutional collaborative projects and associated grants received

Following are the details of Inter-institutional collaborative projects and associated grants received by the department:

a) National collaboration

(i) With MoUs

NIL

(ii) Informal Collaborations

Linkages-with Medical College-NBPGR

b) International collaboration

(i) With MoUs

NIL

(ii) Informal Collaborations

Linkages-with Medical College-NBPGR, Department of Biotechnology, CSIR-CDFD, Hyderabad

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR,AICTE, etc.;

Following are the details of departmental projects funded during last five years: **Like**

- DST- FIST Phase I & II completed (2014)
- UGC-DRS Phase I completed (2014) & Phase II (sanctioned 2014)

20. Research facility / center with

- state recognition-
  - Herbarium(Acronym: RUBL)
- national recognition-
  - Herbarium (RUBL), DRS, DST-FIST

  Following are the facilities this department has arranged through DRS-I programme:
  - Tabletop –Refrigerated centrifuge
  - Microscope Trinocular Bright Field,
  - Phase contrast with Digital (Camera & Kit make-Lieca)
  - Incubator Shaker
  - Deep Freezer (-80^0 c)
  - Fully Motorised Rotary Microtome
- international recognition-
  - Herbarium (RUBL)

21. Special research laboratories sponsored by / created by industry or corporate bodies

NIL

22. Publications

* Number of papers published in peer reviewed journals (national/international)

  473
* Monographs

  02
* Chapters in Books

  03

* Edited Books-
  10
* Books with ISBN with details of publishers
  More than 30
* Number listed in International Database (For *e.g.* Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)-
  Information not available
* Citation Index – range / average
  As per SCOPUS; faculty wise range of citation index is
  1 to 1780 (Maximum)
* SNIP (Source Normalized Impact per Paper)
  NIL
* SJR (SC Imago Journal Rank)-
  NIL
* Impact Factor – range / average
  The range of impact factor is 0.1 – 9.59 with average
* h-index
  Maximum h-index as per SCOPUS is 17

23. Details of patents and income generated:
    One patent has been generated during past five years:
    - One (Prof. K.P. Sharma) A Process for treating dyed wastewater. Patent granted in India (538/DEL/2000).

24. Areas of consultancy and income generated -
    Faculty members of this department are providing consultancy to:
    1. Rajasthan State Mines & Minerals, Jaipur for EIA of Lignite Mining Project at Bikaner. The total income generated as Institutional fee is Rs. 44,000/-.
    2. Consultation for identification of plant species through Herbarium (Rubl) by the faculty Rs. 10/- per identification is charged

25. Faculty selected nationally / internationally to visit other laboratories / institutions/ industries in India and abroad-
    Prof. S.L. Kothari was invited several times by National and International Research Institutes in connection with collaborative research programs.

26. Faculty serving in
    a) National committees
       Prof. KailashAgrawal, Counselor, I.B.S. (2011-14) National Committee
       Dr. Vidya Patni, Counselor, I.B.S. (2015-18) National Committee

b) International committees
NIL

c) Editorial Boards
Prof. K.P. Sharma
Prof. Kailash Agrawal
Prof. Padma Kumar

d) Any other (please specify)-
NIL

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).
Following recharging programmes were arranged by department during past five years:
Refresher Programme of UGC –ASC (Academic Staff College): 02
- Diversification of Botany in Present Era(19th Dec. 2011 – 7th Jan. 2012)
- Present Scenario of Life Sciences (11th Nov. 2013- 30th Nov. 2013)

28. Student projects
- Percentage of students who have done in-house projects including interdepartmental projects
  Almost 100% M.Sc. Biotech students completed their in-house projects as per the requirement of the curriculum.
- percentage of students doing projects in collaboration with other universities/ industry / institute
  100 % in M.Sc. Biotechnology in collaboration with other universities/ industry / institute

29. Awards / recognitions received at the national and international level by
- Faculty
  List Enclosed
- Doctoral / post-doctoral fellows
  NIL
- Students-
  NIL

30. Seminars/Conferences/Workshops organized and the source of funding (national/ international) with details of outstanding participants, if any.
Following one conference was organized by the department during past five years.
- National Conference on Plant Bioresource Management & Biotechnology, 29-31 January 2014, Source of fund- State DST,UGC, New Delhi, UPE

31. Code of ethics for research follows by the departments

Code of conducted for research are followed as per UGC and University of Rajasthan norms.

32. Student profile programme-wise

Following is the programme wise student profile:

Name of Programme		Students year wise					
		2010	2011	2012	2013	2014	2015
M.Sc. Botany	400-600	67	50	50	50	47	53
Ph. D.	100-200	18	42	54	34	27	32

33. Diversity of students

Following is the diversity of students:

Name of the Programme	% of students from the same university	% of students from other universities within the State	% of students from universities outside the State	% of students from other countries
M.Sc. Botany	70-80	10-20	<10	0%
M.Sc. Biotech.	70-75	10-20	10-20%	0%
Ph. D.	60%	2%	1%	0%

34. How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise. –

As per available information in the department, following are the details of students have cleared different competitive examinations

- UGC NET 31
- GATE 12
- CSIR NET 17

35. Student progression

Following is the student's progression:

Student progression	Percentage against enrolled
UG to PG	30%
PG to M. Phil.	NA
PG to Ph.D.	50%
Ph.D. to Post-Doctoral	5 students

Employed • Campus selection • Other than campus recruitment	 07 NI
Entrepreneurs	1%

36. Diversity of staff

Following is the diversity of staff:

Percentage of faculty who are graduates	
of the same university	80%
from other universities within the State	19%
from universities from other States	01%
from universities outside the country	Nil

37. Number of faculty who were awarded M. Phil., Ph.D., D.Sc. and D.Litt. during the assessment period

No faculty member was awarded M. Phil., Ph.D., D.Sc. and D.Litt. degree during the assessment period

38. Present details of departmental infrastructural facilities with regard to

a) Library:

The Department has its own Departmental Library which houses 8469 books, 18 journals in hard copy and Access to online journals through Infonet Center, University of Rajasthan, Jaipur. It also has 276 Ph.D. Thesis of students who completed their work during 1999 till date.

b) Internet facilities for staff and students

Wi-Fi and LAN facilities are provided to all faculty members, research scholars and PG students through University INFONET center.

c) Total number of class rooms

Department has 09 class rooms

d) Class rooms with ICT facility

Department has 02 Class rooms with ICT facility

e) Students' laboratories

Department have 04 students' laboratories for PG students for M.Sc. Botany: Lab. 1. (I & II Sem), Lab. 2: Sem. 3&4; M.Sc. Biotechnology: Lab. 3. (I & II Sem), Lab. 4: Sem. 3&4;

f) Research laboratories

Department has 16 research laboratories which includes

- Mycology & Plant Pathology,
- Taxonomy,
- Plant Biochemistry,

- Cecidology & Plant Pathology,
- Morphogenesis & Plant Biotechnology,
- Environment Science,
- Algal Biotechnology,
- Plant Microbiology & Seed Science,
- Plant Biochemistry,
- Morphology & Developmental Botany,
- Secondary Metabolites of Meditional Plants,
- Plant Biochemistry,
- Nematology,
- Environment &Energy).

39. List of doctoral, post-doctoral students and Research Associates:

a) from the host institution/university

S.No.	Name of Research Scholars	M.Sc. Passed in Institutions/University
1.	Neetu Jain	Botany Department, U.O.R.,Jaipur
2.	AbhavyaPandey	Jaipur National University, Jaipur
3.	Abhimanyu Sharma	Botany Department, U.O.R.,Jaipur
4.	Akhilesh	University of Rajasthan, Jaipur
5.	AmritDaiya	Botany Department, U.O.R.,Jaipur
6.	Anil Pandey	Botany Department, U.O.R.,Jaipur
7.	AnjuKumari	University of Rajasthan, Jaipur
8.	Ankit Shah	ICG, Jaipur
9.	AnkitaYadav	ICG, Jaipur
10.	Anuj Kumar	Botany Department, U.O.R.,Jaipur
11.	Anupama Dixit	University of Rajasthan, Jaipur
12.	ApexaPareek	Botany Department, U.O.R.,Jaipur
13.	Archana	CCT, U.O.R., Jaipur
14.	ArunaKumari	Botany Department, U.O.R.,Jaipur
15.	AsmitaGautam	University of Rajasthan, Jaipur
16.	Bunty Kumar	Jaipur National University, Jaipur
17.	Chanchal	ICG, Jaipur
18.	Chand KorKumari	Botany Department, U.O.R.,Jaipur
19.	Chandra Prakash	University of Rajasthan, Jaipur
20.	Chitra Jain	University of Rajasthan, Jaipur
21.	Deep Chhavi	Botany Department, U.O.R.,Jaipur
22.	Deepika	University of Rajasthan, Jaipur

23.	Deeplata	SatyaSai College, U.O.R., Jaipur
24.	Dinesh	Indian Institute of Technology, Roodkee
25.	DivyaFegeriya	Botany Department, U.O.R.,Jaipur
26.	EktaTikkiwal	ICG, Jaipur
27.	Geeta Singh	University of Rajasthan, Jaipur
28.	Gopal Sharma	DPMB, Univ. Of Delhi
29.	Hariom Nagar	Botany Department, U.O.R.,Jaipur
30.	HemlataSaini	Botany Department, U.O.R.,Jaipur
31.	Hemlata Singh	University of Rajasthan, Jaipur
32.	Jaishree	Botany Department, U.O.R.,Jaipur
33.	Jitendra Kumar Barupal	Botany Department, U.O.R.,Jaipur
34.	JyotiKumari	Botany Department, U.O.R.,Jaipur
35.	Kalpana	University of Rajasthan, Jaipur
36.	KirtiGautam	Seedling College, U.O.R, Jaipur
37.	Krishna Samaria	University of Rajasthan, Jaipur
38.	Kumkum	Botany Department, U.O.R.,Jaipur
39.	Lalit Kumar Bainiwal	Botany Department, U.O.R.,Jaipur
40.	MadhviSaini	Lords International College, Chikani, Alwar
41.	Mahendra Kumar	University of Rajasthan, Jaipur
42.	Manish Singh	University of Rajasthan, Jaipur
43.	Manoj Kumar	SMPG College, Jaipur
44.	Manoj Kumar Meena	MGIAS, Jaipur
45.	MeenaAgrawal	University of Rajasthan, Jaipur
46.	MeenakshiFartyal	Stani Memorial College, Jaipur
47.	MeenakshiTiwari	University of Rajasthan, Jaipur
48.	NamitaSikarwar	University of Rajasthan, Jaipur
49.	Neeraja	Mahatma Gandhi of Applied Sciences, Jaipur
50.	NeetuRawat	I.C.G., College
51.	NehaMeena	Botany Department, U.O.R.,Jaipur
52.	Neha Sharma	JNU, Jaipur
53.	NirmalaYadav	Botany Department, U.O.R.,Jaipur
54.	Om PrakashBisnoi	Botany Department, U.O.R.,Jaipur
55.	Parul Sharma	Kota University
56.	Pooja	University of Rajasthan, Jaipur
57.	Poonam Patel	Mohan LalSukhadia University, Udaipur
58.	PratimaVijayvergia	I.C.G., College
59.	PremPrakash	MahrishiArvind Inst. Of Eng. & Tech. U.O.R., Jaipur

60.	PremlataSingoriya	JNV University, Jodhpur
61.	PriyankaPareek	M.J.R.P. College, Jaipur
62.	Priyanka Dhaka	Botany Department, U.O.R.,Jaipur
63.	PriyankaJaiswal	Microbiology Department, U.O.R., Jaipur
64.	PriyankaPareek	Garden City College, Bhopal
65.	R.S. Chauhan	Guru Jambheswar Univ., Hisar (H.P.)
66.	Rajesh	U.O.R., Jaipur
67.	Rajesh Kumar Rawat	Tagore Biotech College, U.O.R., Jaipur
68.	Rajneesh Sharma	Botany Department, U.O.R.,Jaipur
69.	Rakesh Sharma	C.C. T., U.O.R., Jaipur
70.	RamakantVaishnav	Podar International College, U.O.R., Jaipur
71.	Raman Jeetkaur	U.O.R.,Jaipur
72.	Ravindra Kumar Saini	Botany Department, U.O.R.,Jaipur
73.	RekhaJangir	Botany Department, U.O.R.,Jaipur
74.	RekhaYadav	U.O.R., Jaipur
75.	Renu Singh	U.O.R., Jaipur
76.	RichaBhardwaj	Nirman University, Ahmedabad
77.	RiddhuPalawat	Botany Department, U.O.R.,Jaipur
78.	Ritika Bhatt	I.C.G., College
79.	Ridhi Joshi	Botany Department, U.O.R.,Jaipur
80.	RuchiKhedia	MLS University, Udaipur
81.	Sajjan Kumar	Botany Department, U.O.R.,Jaipur
82.	Sakshi Singh	I.C.G., College
83.	SanchitaKulshrestha	U.O.R., Jaipur
84.	Sandeep Sharma	Poodar International College, U.O.R., Jaipur
85.	Sangeeta Samaria	U.O.R., Jaipur
86.	Santosh	I.C.G., College
87.	SapnaKhandelwal	Botany Department, U.O.R.,Jaipur
88.	SarojMeena	Botany Department, U.O.R.,Jaipur
89.	ShamshadulHaq	Integral University, Lucknow
90.	Sheetal	U.O.R., Jaipur
91.	Shilpa Sharma	U.O.R., Jaipur
92.	Shilpi Rajput	Botany Department, U.O.R.,Jaipur
93.	ShipraBhargava	U.O.R., Jaipur
94.	Shiva Choudhary	C.C. T., U.O.R., Jaipur
95.	ShrutiBardar	Botany Department, U.O.R.,Jaipur

96.	Siddhi Gupta	Botany Department, U.O.R.,Jaipur
97.	SoniyaChoudhary	Botany Department, U.O.R.,Jaipur
98.	Subhash Gora	Botany Department, U.O.R.,Jaipur
99.	Sudhir	St. Wilfred College, U.O.R, Jaipur
100.	SumanKumawat	Botany Department, U.O.R.,Jaipur
101.	Sumentha	Botany Department, U.O.R.,Jaipur
102.	Sunil Kumar	Botany Department, U.O.R.,Jaipur
103.	SunitaMahariya	BanasthaliVidyapeeth
104.	SurabhiChaturvedi	U.O.R., Jaipur
105.	Surendra Kumar	U.O.R., Jaipur
106.	Swati Vyas	GNDU, Amritsar
107.	VidhyaChoudhary	St. Wilfred College, U.O.R, Jaipur
108.	VijauVerma	Botany Department, U.O.R.,Jaipur
109.	Vijay Meena	Botany Department, U.O.R.,Jaipur
110.	VivekBharti	Botany Department, U.O.R.,Jaipur
111.	Yashmin Akthar	ICG College, Jaipur

Following are details of PDF students:

- Dr. Payal Chandrawat (2013)
- Dr. Sujata Mathur (2014)
- Dr. Neetu Jain (PDF UGC women2012-2017)
- Dr. Deepika Arya (2009-2014) 1)Biotechnology for enhancement of active compounds and conservation of threatened medicinal herbs of Rajasthan used in Bone healing *Cissusquadrangularis* and *Pluchealanceolata*
- Dr. Swapnil Sissodia, 2009-2012, Suppression of Weed – A new field in Weed Management, Young Scientist (DST)
- Dr. Premlata Singariya, Extraction and screening of secondary metabolites of *Cenchrus* species and *Withaniasomnifera* for antimicrobial activities., DS Kothari PDF Fellowship
- Dr. Neelam Singh, *In vitro* propagation, bioactive screening and scale up of secondary metabolites with anti- diabetic activity from threatened species of semi arid zone of Rajasthan, UGC

40. Number of post graduate students getting financial assistance from the university.

Two students are receiving financial support from Social Welfare Department, Govt. of Rajasthan, Jaipur.

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.-

- Yes, department has undertaken need assessment exercises through BoS/CoC, Methodology. Workshops & meetings were arranged to make syllabus, revision of syllabus, pattern of assessment and exams. Ex.- Pre. Ph.D. course Work
- Whenever there is new development in terms of infrastructure, laboratory, field trip of study tour, a consultative meeting is convened to discuss the matter with students, technical staff and teachers.
- Academic programmes are taken up at the BoS/ CoC and Academic Council meetings after due consultation at the departmental level in staff council.
- Workshops & meetings

42. Does the department obtain feedback from COC,BOS, Staff

a. Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?

Yes, department takes informal feedback from its faculty members and discusses it in regular faculty meetings. The suggestions for improvement of curriculum, etc. are then recommended by the Staff Council to the Academic Council for implementation. After discussions in workshops and meetings suggestions are also included in curriculum.

b. Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

Department invites suggestions from its students for revision of syllabi, curriculum and on faculty members and all efforts are being made to satisfy students.

c. Alumni and employers on the programmes offered and how does the department utilize the feedback?

Alumni are invited as externals, delegates in conferences and as resource persons. Their constructive suggestions are tried to implement in revision of syllabi and curriculum.

43. List the distinguished alumni of the department

Following are few distinguished alumni of the department

1. Prof. Pramod Tandon, Padamshree, Ex. Vice-Chancellor
2. Dr. Chandresh Sharma, CCF, Mandi, H.P.
3. Dr. Alok Varshney, AVH Fellow, Group Leader, Reliance Life Sciences
4. Dr. K.K. Janardanan, Director, Amala Cancer Res. Instt., Kerala
5. Dr. Madhu Gaur, ADG, ICMR
6. Mr. Ashok Sharma, CCF, Maharashtra
7. Dr. Saroj Singh, Sr. Scientiest, IARI, New Delhi
8. Dr. I.D. Arya, Scientiest, AFRI, Jodhpur
9. Dr. Tarun, CAZARI, Jodhpur
10. Ms. Manisha Sharma, IAS, Simla (H.P.)

44. Give details of student enrichment programmes (special lectures / workshops /seminar) involving external experts.

    Department organized Lectures and Demonstrations by Experts on working of latest instruments from various companies such as Shimatzu, Waters, Lica, Nikon, Aegilent and Thermo.

45. List the teaching methods adopted by the faculty for different programmes.

    Faculty members normally adopt blackboard teaching method during their class room teaching. Several times they also apply power point presentation for better understanding. Allotment of home assignments to students is also a regular practice. Department also organizes tutorials, Student Seminars and Group Discussions for the benefit of students. In house Projects and Mentoring Program involving faculty of the Department are the other methods adopted by faculty members for evaluating students' performance.

46. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?

    Objectives of the Programme are monitored by continuous evaluation and internal assessment in addition to the assessment of the performance of students in End-semester exams. Seminars and Viva-Voce exams on completion of project work.

47. Highlight the participation of students and faculty in extension activities.

    Students regularly participate in the NSS and NCC activities during their UG course, organizes cultural programs, sports activities at the Department and University level, as well as competitions organized by other Institutions. Students also participates Plantation programme, Societal Awareness programmes, Consultancies to Govt. Organization such as Jaipur Development Authority, Rajasthan State Mines & Minerals and Rajasthan Chamber of Commerce & Industries, Jaipur.

48. Give details of "beyond syllabus scholarly activities" of the department.

    Every year department organizes Excursions, Industries & Laboratories Visits for its students.

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.

    NO

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

    Basic & applied knowledge is imparted by faculty at different platforms as resource persons

    1. Refresher courses
    2. Chairperson /Rapporteur/ Judge/ Key Note Speaker in the National and International Seminars within and outside India.

51. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC)of the department.

Following are major Strengths, Weaknesses, Opportunities and Challenges of the department:

Strengths

1. Running two courses simultaneously (M.Sc. Botany & M.Sc. Biotech.)
2. Maintain Herbarium of International repute(RUBL)
3. Maintain Botanical Garden
4. Green house
5. Maintenance of equipment of high sensitivity & costly in Central facility

Weaknesses

1. Building is not in good conditions.
2. Curator and Photographer posts for Herbarium are vacant
3. Post of Technical Assistant is not field
4. Labs for research are shared by 2-3 teacher more labs are required for quality research.

Opportunities

1. Funds could be generated through canceling for public & private gardens
2. Research training for Dissertation could be given to students of Biotech from different institutions.
3. Funds generated could be used for maintenance of various facilities.

Challenges

1. Quality research with the available facilities.
2. Placement of Students.
3. Additional research labs for faculty
4. To invite senior visiting Fellows for week as fortnight from other states and nations.

52. Future plans of the department.

Following are the future plans of this department:

- To develop Herbal garden containing medicinal plants
- The flora of state of Rajasthan is blessed with number of medicinally important plant species taught to M.Sc. students of Botany & Biotechnology. Many faculty members in the Department are also actively engaged in research on various aspects such as conservation, morphology and developmental studies, active ingredients and their applications. The setting of herbal garden will be useful to students, researchers and society at large.