

Evaluative Report of the Department - A

1. Name of the Department: School of Biochemistry
2. Year of establishment: 1984
3. Is the Department part of a School/Faculty of the university?: Yes
4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)
 - a) PG (M.Sc. Biochemistry)
 - b) Ph.D. (Biochemistry)
5. Interdisciplinary programmes and departments involved: Nil
6. Courses in collaboration with other universities, industries, foreign institutions, etc.: Nil
7. Details of programmes discontinued, if any, with reasons: Nil
8. Examination System: Annual/Semester/Trimester/Choice Based Credit System: Semester
9. Participation of the department in the courses offered by other departments: Nil
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

Post	Sanctioned	Filled	Actual (including CAS & MPS)
Professor	01	00	02
Associate Professor	03	02	00
Asst. Professor	02	02	02
Non-teaching staff	04	04	04
Technical staff	02	01	01

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

Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D. students guided for the last 4 years
Dr. D. Bhatnagar	Ph.D.	Prof.	Clin Biochem.	35	05
Dr. Rekha Gadre	Ph.D.	Prof.	Plant Biochem.	33	01
Dr. S.M. Gokhale	Ph.D.	Sr. Lect.	Membrane Biol.	20	01
Dr. Meeta Jain	Ph.D.	Sr. Lect.	Plant Biochem.	12	01
Dr. A. S. Yadav	Ph.D.	Cont. Teach.	Biochemistry	06	Nil

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors: Nil
13. Percentage of classes taken by temporary faculty – programme-wise information:
Nil
14. Programme-wise Student Teacher Ratio: M.Sc. – 15:1
15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual:

Post	Sanctioned	Filled
Asst. Grade 1	01	01
Lab. Tech.	02	01
Lab. Attendant	02	02
Peon	01	01
Total	06	05

16. Research thrust areas as recognized by major funding agencies:
Free radicals in biology and medicine, Toxicology, Effect of stress on chlorophyll metabolism and nitrogen assimilation in plants.
17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

Projects from National Funding agencies:				
Year	Principal Investigator	Title	Funding agency	Amount (Rs.)
2009-2012	Dr. D. Bhatnagar	Antioxidant and radioprotective effects of dietary constituents against gamma irradiation induced oxidative stress	UGC, New Delhi	8,71,800/-
2012-2014	Dr. D. Bhatnagar	A study on antioxidative, antidiabetic and anti-inflammatory activity of herbal and natural products	MPCST, Bhopal	4,93,000/-
2009	Dr. M. Jain	Climate Change for National Environment Awareness Campaign 2008-2009	EPCO, Bhopal	8000/-
2010	Dr. M. Jain	Climate Change for National Environment Awareness Campaign 2009-2010	EPCO, Bhopal	7000/-
2010-2012	Dr. M. Jain	Osmotic stress-induced changes on chlorophyll metabolism and antioxidative system in maize leaves	MPCST, Bhopal	3,90,000/-
2011	Dr. M. Jain	Biodiversity Conservation for National Environment Awareness Campaign 2010-2011	EPCO, Bhopal	8000/-
2012	Dr. M. Jain	Forests for Sustainable Livelihood for National Environment Awareness Campaign 2011-2012	EPCO, Bhopal	10,000/-

2010-2013	Dr. S. M. Gokhale	Characterization of structural features and interactions of erythrocyte membrane proteins of some non-human mammals.	UGC, New Delhi	6,20,000/-
Projects from International Funding agencies: Nil				

18. Inter-institutional collaborative projects and associated grants received:

a) All India collaboration: Collaborative research work with the following scientists is under progress. The research work has resulted in joint publications:

- 1) Dr. Anita Rani, Principal Scientist, DSR, Indore.
- 2) Dr. Vineet Kumar, Senior Scientist, DSR, Indore.
- 3) Dr. Damodar Gupta, Scientist-D, INMAS, DRDO, New Delhi.
- 4) Dr. Poonam Rana, Scientist-D, INMAS, DRDO, New Delhi.
- 5) Dr. Sudha M. Cowsik, Professor, School of Life Sciences, JNU, New Delhi.
- 6) Dr. P.K. Singh, Sr. Scientist, NBRI, CSIR, Lucknow, U.P.
- 7) Dr. S. V. Sai Prasad, Principal Scientist, IARI Regional Station, Indore.
- 8) Dr. Vidhu. A. Sane, Principal Scientist, NBRI, CSIR, Lucknow, U.P.
- 9) Dr. Sribash Roy, Sr. Scientist, NBRI, CSIR, Lucknow, U.P.

No grant was received for collaborative work.

b) International: Nil

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

UGC XI plan grant was as follows:

Infrastructure grant	10 lakhs.
Equipment grant	20 lakhs.
Faculty position grant	8 lakhs.
Books grant	2 lakhs.

20. Research facility/centre with

- state recognition Nil
- national recognition Nil
- international recognition Nil

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): Total 35 since 2009.
- Monographs Nil
- Chapters in Books Nil
- Edited Books Nil
- Books with ISBN with details of publishers Nil
- Number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)
- Citation Index – range / average: Total citations: 903 since 2008. Range: 0-247 for Dr. D. Bhatnagar.
- Impact Factor – range / average: 3.0 for Dr. D. Bhatnagar.
- h-index: 15 since 2008 for Dr. D. Bhatnagar.
- i10 index: 20 for Dr. D. Bhatnagar.
- Impact Factor – range/average: 3.0 for Dr. A. S. Yadav

Year wise list of Faculty members (2009-2013):

1. Kumar K, Pujari N.S, Golegaonkar S.B, Ponrathnam S, Nene S.N, and Bhatnagar D (2009) Vinyl-2-pyrrodone derivatised guar gum based aqueous two-phase system. Separation and Purification Technology, 65, 9-13. ISSN 1383-5866, (Impact factor 3.525).
2. Kumar V, Rani A, Dixit AK, Bhatnagar D and Chauhan GS (2009). Relative changes in tocopherols, isoflavones, total phenolic content and antioxidative activity in soybean seeds at different reproductive stages. Journal of Agricultural and Food Chemistry 57, 2705-2710. ISSN 0021-8561, (Impact factor 2.906).
3. Kumar V, Rani A, Dixit AK, Pratap D and Bhatnagar D (2010). A comparative assessment of total phenolic content, ferric reducing-anti-oxidative power, free radical-scavenging activity, vitamin C and isoflavones content in soybean with varying seed coat colour. Food Research International, 43, 323–328. ISSN 0963-9969. (Impact factor 2.899).
4. Dixit AK, Bhatnagar D, Kumar V, Rani A, Manjaya JG, and Bhatnagar D (2010). Gamma Irradiation induced enhancement in isoflavones, total phenol, anthocyanin and antioxidant properties of varying seed coat colored soybean. Journal of Agricultural and Food Chemistry, 58, 4298–4302. ISSN 0021-8561, (Impact factor 2.906).
5. Yadav A S and Bhatnagar D (2010). Inhibition of iron induced lipid peroxidation and antioxidant activity of Indian spices and Acacia in vitro. Plant Food for Human Nutrition, 65, 18–24. ISSN 1573-9104. (Impact factor 2.463).
6. Azeez A, Aniruddha P. Sane, Tripathi SK, Bhatnagar D and Nath P (2010). The gladiolus *GgEXPA1* is a GA-responsive alpha-expansin gene expressed ubiquitously during expansion of all floral tissues and leaves but repressed during

- organ senescence. *Postharvest Biology and Technology*. 58, 48-56. ISSN 0925-5214. (Impact factor 2.310).
7. Kumar A, Kumar J, Khan ZA, Yadav N, Sinha V, Bhatnagar D and Khan JA (2010). Study of betasatellite from leaf curl disease of sunn hemp (*Crotalaria juncea*) in India. *Virus Genes* 41, 432-440. ISSN 0920-8569. (Impact factor 1.769).
 8. Dixit AK, Kumar V, Rani A, Manjaya JG and Bhatnagar D. (2011). Effect of gamma irradiation on lipoxygenases, trypsin inhibitor, raffinose family oligosaccharides and nutritional factors of different seed coat colored soybean (*Glycine max L.*). *Radiation Physics & Chemistry*, 80, 597-603. ISSN 0969-806X. (Impact Factor 1.153).
 9. Ritu Tyagi, Poonam Rana, Ahmed Raza Khan, D Bhatnagar, M. Memita Devi, Shubhra Chaturvedi, Rajendra P Tripathi and Subash Khushu (2011). Study of acute biochemical effects of thallium toxicity in mouse urine by NMR spectroscopy. *J. App. Toxicol.* 31, 663-670. ISSN 1099-1263. (Impact factor 2.597).
 10. Tyagi R, Rana P, Gupta N, Khan AR, Bhatnagar D , Bhalla PJS, Chaturvedi S, Tripathi RP and Khushu S (2013). Differential biochemical response of rat kidney towards low and high doses of nickel chloride as revealed by NMR spectroscopy. *J. Applied Toxicology* 33,134-41. ISSN 1099-1263. (Impact factor 2.597).
 11. Amit Kumar Dixit, Deepti Bhatnagar, Vineet Kumar, D. Chawla, K. Fakhruddin, D Bhatnagar (2012). Antioxidant potential and radioprotective effect of soy isoflavone against gamma irradiation induced oxidative stress. *J. Functional Foods* 4, 197-206. ISSN 1756-4646. (Impact factor 2.742).
 12. Dixit AK, Bhatnagar D, Kumar V, Rani A, Manjaya JG, and Bhatnagar D (2012). Influence of gamma irradiation on in vitro lipid peroxidation and antioxidant properties of soybean with different seed coat color. *International Journal of Food Properties* 15: 1171-1181. ISSN 1094-2912. (Impact factor 0.877).
 13. Deepti Dixit, Amit Kumar Dixit, Harsha Lad, PJS Bhalla, Deepak Bhatnagar (2012). Protective effects of *Terminalia chebula* in modulating oxidative damages against gamma irradiation induced lethality in rats. *International Journal of Biological and Pharmaceutical Research*, 3, 734-742. ISSN 0976-3651. (Impact factor 1.34).
 14. Deepti Dixit, Amit Kumar Dixit, Harsha Lad, Damodar Gupta, Deepak Bhatnagar. Radioprotective effect of *Terminalia chebula* Retzius extract against γ -irradiation induced oxidative stress. *Biomedicine and Ageing Pathology* 3(2): 83-88 (2013). ISSN: 2210-5220.
 15. Tyagi R, Rana P, Gupta M, Khan AR, M. Memita Devi, Bhatnagar D, Roy R, Tripathi RP and Khushu S (2012). Urinary metabolomic phenotyping of nickel induced acute toxicity in rat: an NMR spectroscopy approach. *Metabolomics* 8: 940-950. ISSN 1573-3882. (Impact factor 4.433).

16. Sinha V, Kumar A, Bhatnagar D and Khan JA (2013). Association of Cotton leaf curl Multan virus and its satellite molecules with leaf curl disease of papaya in India. *New Disease Reports* 27, 9. ISSN 2044-0588.
17. Jain M, Kaushal A, Gupta P and Gadre R (2009) Osmotic stress induced reduction in chlorophyll formation in bean leaf discs. *J. Plant Sci. Res.* 25, 55-59. ISSN [0970-2539](#).
18. Jain M, Tiwary S and Gadre R (2010) Sorbitol-induced changes in various growth and biochemical parameters in maize. *Plant Soil Environ.* 56, 263-267. ISSN 1214-1178. (Impact Factor 1.076).
19. Juliana S, Jain M and Gadre R (2011) Inhibition of δ -aminolevulinic acid dehydratase activity by cadmium in excised etiolated maize leaf segments during greening. *Plant Soil Environ.* 57, 332-337. ISSN 1214-1178. (Impact Factor 1.076).
20. Gupta P, Jain M, Juliana S, Gadre R (2013) Inhibition of 5-aminolevulinic acid dehydratase by mercury in excised greening maize leaf segments. *Plant Physiol. Biochem.* 62, 63-69. ISSN 0981-9428. (Impact Factor 2.976).
21. Kumar J, Gunapati S, Singh SP, Kumar A, Lalit A, Sharma NC, Puranik R and Tuli R (2013) A new betasetallite associated with cotton leaf curl Burewala virus infecting tomato in India : influence on symptoms and viral accumulation. *Arch. Virol.*, ---- (DOI10. 1007/s00705-013-1613-y). ISSN 0304-8608. (Impact Factor 2.030).
22. Sharma S and Gokhale SM (2011) Solubility behavior of integral proteins and glycoporphins of mammalian erythrocyte membrane. *Asian J. Exp. Biol. Sci.* 2, 449-454 ISSN 0975-5845.
23. Sharma S and Gokhale SM (2011) Sialoglycoproteins of mammalian erythrocyte membranes: A comparative study. *Asian-Australian J. Anim. Sci.* 24, 1666-1673. ISSN 1011-2367. (Impact factor 0.58).
24. Sharma S and Gokhale SM (2012) Differential actions of proteinases and neuraminidase on mammalian erythrocyte surface and its impact on erythrocyte agglutination by concanavalin A. *Gen. Physiol. Biophys.* 31, 457-468. ISSN 0231-5882. (Impact factor 1.192).
25. Sharma S, Zingde SM and Gokhale SM (2013) Identification of human erythrocyte cytosolic proteins associated with plasma membrane during thermal stress. *J. Membrane Biology* 246. ISSN 0022-263. (Impact factor 2.478).
26. Jain S, Jain M and Sharma CS (2010) Effect of yoga and relaxation techniques on cardiovascular system. *Indian J. Physiol. Pharmacol.* 54,183-185. ISSN 0019-5499

27. Jain S, Jain M and Sharma CS (2011) Changes in respiratory function and lipid profile due to yoga and relaxation techniques. *Int. J. Pharmacol. Biol. Sci.* 5, 79-84. ISSN 0973-6808.
 28. Malviya P, Sai Prasad SV, Jain M and Gautam A (2012). Assessing grain yield and its components in durum wheat using canopy temperature as selection parameter under early heat stress conditions. *Progressive Research* 7, 122-126.
 29. Jain M, Mittal M and Gadre R (2013) Effect of PEG-6000 imposed water deficit on chlorophyll metabolism in maize leaves. *J.Stress Physiol. Biochem.* (In press). ISSN 1997-0838.
 30. Z. Wang, A. S. Yadav, W. Leskova and N. R. Harris (2010) Attenuation of streptozotocin-induced microvascular changes in the mouse retina with the endothelin receptor A antagonist atrasentan. *Experimental Eye Research*, 1, 670-675. ISSN 0014-4835. (Impact factor: 3.259).
 31. A. S. Yadav and N. R. Harris (2011) Effect of tempol on diabetes induced decreases in retinal blood flow in the mouse. *Current Eye Research*, 36, 456-461. ISSN 0271-3683 (Impact factor 1.513).
 32. W. S. Wright, R. M. McElhatten, C. Busu, S. Y. Amit, Leskova, T. Y. Aw and N. R. Harris (2011) Influence of Glutathione on the electroretinogram in diabetic and non-diabetic rats. *Current Eye Research*, 36, 831-837. ISSN 0271-3683 (Impact factor 1.513).
 33. Z. Wang, A. S. Yadav, W. Leskova and N. R. Harris (2011) Inhibition of 20-HETE attenuates diabetes induced decreases in retinal hemodynamics. *Experimental Eye Research*, 3, 108-113. ISSN 0014-4835 (Impact factor 3.259).
 34. N. R. Harris, P. Carter, A. S. Yadav, M. N. Watts, S. Zhang, M. K. Davidson and M. B. Grisham (2011) Relationship between inflammation and tissue hypoxia in a mouse model of chronic colitis. *Inflammatory Bowel Disease*, 17, 742-746. ISSN 1536-4844 (Impact factor 4.855).
 35. W. S. Wright, A. S. Yadav, R. M. McElhatten and N. R. Harris. (2012) Retinal blood flow changes following six months of hyperglycemia in the Ins2-Akita mouse. *Experimental Eye Research*, 98, 9-15. ISSN 0014-4835. (Impact factor 3.259).
23. Details of patents and income generated: Nil
 24. Areas of consultancy and income generated: Nil
 25. Faculty selected nationally / internationally to visit other laboratories/institutions/ industries in India and abroad: Nil

26. Faculty serving in
 a) National committees b) International committees c) Editorial Boards d) any other (please specify):
- 1) Dr. D. Bhatnagar is Coordinator of M.P. Council of Science and Technology, Bhopal since 2008.
 - 2) Dr. D. Bhatnagar is reviewer of following international journals:

BioFactors	ISSN No. 1872-8081
Cancer letters	ISSN No. 0304-3835
Food Research International	ISSN No. 0963-9969
Journal of Agricultural and Food Chemistry	ISSN No. 0021-8561
Chemico-Biological Interactions	ISSN No. 0009-2797
Food and Chemical Toxicology	ISSN No. 0278-6915
Plant Foods for Human Nutrition	ISSN No. 0921-9668
 - 3) Dr. R. Gadre is the reviewer of “Indian Journal of Experimental Biology, ISSN No. 0975-1009”.
27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs):
 Two of the Faculty members have attended orientation and refresher courses.
28. Student projects
- percentage of students who have done in-house projects including inter-departmental projects: 4%
 - percentage of students doing projects in collaboration with other universities/industry/institute: 96%
29. Awards/recognitions received at the national and international level by
- Faculty:
 - Dr. D. Bhatnagar (i) Coordinator MPCST, Bhopal.
 - (ii) Reviewer of many International Journals of repute.
 - (iii) Member and Chairman of many selection committees for colleges and member for other Universities.
 - Dr. R. Gadre: (i) Reviewer of National journals of repute.
 - (ii) Member and Chairperson of many selection committees for colleges.
- Doctoral/post doctoral fellows: Best Science Research Award to Dr. Amit Kumar Dixit from MPCST, Bhopal in 2009-2010.

- Students: Quiz and Essay competitions are held every year by the support of MPCST, Bhopal. The following students of the Department received the prizes.

MPCST Essay Competition (2009-2010) Topic: “ Vision 2020 for Science” (Hindi Category)		
1 st Prize	Deepti Bhatnagar	School of Biochemistry
MPCST Science Quiz Competition (2009-2010)		
1 st Prize	Anjana Kumari and Neelofar Khan	School of Biochemistry
MPCST Essay Competition (2010-2011) Topic: “ Chemistry in Our Lives” (Hindi Category)		
1 st Prize	Deepti Bhatnagar	School of Biochemistry
3 rd Prize	Vidushi Asati	School of Biochemistry
MPCST Science Quiz Competition (2010-2011)		
1 st Prize	Radhika Chinchalkar	School of Biochemistry
MPCST Essay Competition (2011-2012) Topic: “ The answer to world energy crisis” (Hindi Category)		
2 nd Prize	Dharmendra Singh Damor	School of Biochemistry
MPCST Science Quiz Competition (2011-2012)		
2 nd Prize	Kaushal Singh and Surjeet Dey	School of Biochemistry

30. Seminars/Conferences/Workshops organized and the source of funding (national/international) with details of outstanding participants, if any.

2007-08 - Lectures on Biochemistry related topics were held by following Shanti Swarup Bhatnagar Awardee Scientists.

1. Dr. Shekhar C. Mande, Staff Scientist, Centre for DNA Fingerprinting and Diagnostics, Hyderabad, delivered talk on the topic “Unusual chaperonins of M. Tuberculosis in search of biological function” on 08.03.2007.
2. Dr. Javed N. Agrewala, Scientist, Institute of Microbial Technology, Chandigarh, delivered talk on the topic “Bi-directional signaling by CD80 and CD86 molecules” on 08.03.2007.
3. Dr. Gopal C. Kundu, Scientist, National Centre for Cell Sciences, Pune, delivered talk on the topic “Prognostic and Diagnostic significance of osteopontin, a member of SIBLING family of proteins in human cancers” on 08.03.2007.
4. Dr. S.K. Poddar, Professor, Indian Institute of Science, Bangalore, delivered talk on the topic “Chemical recognition in biology and mechanistic study on ribosome inactivating protein from plants for the development of immunotoxin as cancer therapy” on 08.03.2007.
5. Dr. Vinod Bhakuni, Scientist, Central Drug Research Institute, Lucknow, delivered talk on the topic “Domain structure in protein and modulation of functional activity” on 09.03.2007.
6. Dr. Valipe Ramagopal Rao, Professor, IIT-Bombay, delivered talk on the topic “Development of Bio-Nano system for cardiac diagnostics” on 09.03.2007.
7. Dr. K.B. Sainis, Scientist, BARC, Mumbai, delivered talk on the topic “Antiapoptotic and immunomodulatory properties of antioxidant chlorophyllin” on

09.03.2007.

2008-09 - Lectures were held on scientific topics by Senior Scientists.

1. Dr. Rajesh Singh, Sr. Scientist, Biochemical Engineering Group, NCL, Pune, delivered a talk on the topic "Macromolecular crystallography of proteins and methods to obtain protein structure" on 20.03.2009.
2. Dr. Vineet Kumar Sr. Scientist, Directorate of Soybean Research, Indore delivered a talk on the topic "Soybean: Nutraceutical application and research challenges" on 20.03.2009.

2009-10 - Lectures were held on scientific topics by Shanti Swarup Bhatnagar Awardee Scientists.

1. Dr. L.S. Shashidhara, Staff Scientist, CCMB, Hyderabad, delivered talk on the topic "Insect flight: an evolutionary perspective" on 17.07.2009.
2. Dr. Gopal C. Kundu, Scientist, NCCS, Pune, delivered talk on the topic "Diagnostic and therapeutic significance of osteopontin and other associated genes" on 17.07.2009.
3. Dr. Kanury V.S. Rao, Scientist, ICGEB, New Delhi, delivered talk on the topic "Genome-Wide screens to define host-pathogen interactions: An alternative approach to drug target discovery processing" on 17.07.2009.
4. Dr. Narayan Swamy Srinivasan, Professor, IISc., Bangalore, delivered talk on the topic "Evolution of protein structures functions and interactions" on 17.07.2009.
5. Dr. V. Ramagopal Rao, Professor, IIT-Mumbai, delivered talk on the topic "Polymer based sensor systems for health care and security applications" on 17.07.2009.
6. Dr. G.P.S. Raghava, Scientist, Institute of Microbial Technology, Chandigarh, delivered talk on the topic "Discovery of novel vaccine candidates using immunoinformatics" on 17.07.2009.
7. Dr. Javed N. Agrewala, Scientist, Institute of Microbial Technology, Chandigarh, delivered talk on the topic "Signalling through surface molecules: an approach to inhibit the growth of pathogens in macrophages" on 19.07.2009.

2009-10 - Lectures were held on scientific topics by Senior Scientists.

1. Dr. Vineet Kumar Sr. Scientist, Directorate of Soybean Research, Indore delivered a talk on the topic "Vegetable oil: Current Issues, Nutraceutical, and Research Challenges" on 18.03.2010.
2. Dr. Anita Rani, Principal Scientist, Directorate of Soybean Research, Indore delivered a talk on the topic "GMOs in Agriculture" on 26.03.2010.

2010-11

"International Year of Chemistry 2011" was celebrated on the theme "Chemistry in our lives", and a seminar was organized on "Clean Energy options and Nuclear safety" by the support of MPCST, Bhopal. Following speakers delivered the talks:

1. International Year of Chemistry 2011 was celebrated on the theme "Chemistry in our lives"
2. Seminar was organized on the topic "Clean Energy options and Nuclear safety"

by the support of MPCST Bhopal.

The speakers and the topics were as follows:

- 1) Dr. R.K. Bhargava, Ex Chairman, (Retd.) Heavy Water Board, Indore. Topic: Clean Energy options and Nuclear safety.
- 2) Dr. S.P. Singh, Professor and Head, School of Energy and Environmental Studies, DAVV, Indore. Topic: Role of renewable energy and sustainable development.
- 3) Dr. Vijay Babu Gupta, Reader, School of Future Studies and Planning, DAVV, Indore. Topic: Kyoto protocol and Clean Development Mechanism (CDM).

2011 -12

Seminar on the topic “Recent Trends in Biochemistry” was held by the support of UGC, New Delhi. The speakers and the topic were as follows.

- 1) Dr. Pradyumna Kumar Mishra, Scientist E, Division of Translational Research, Clinical Research Centre, Tata Memorial Centre, Advanced Centre for Training, Research and Education (ACTREC), Navi Mumbai 410210. Topic: Dendritic cell engineering for cancer immunotherapy: A translational perspective.
- 2) Dr. Jawaid A. Khan, Professor, Dept. of Biosciences, Jamia Millia Islamia University, Jamia Nagar, New Delhi 110025. Topic: RNAi mediated resistance to begomoviruses: Status and prospects.
- 3) Dr. B. N. Pandey, Scientific Officer F, Radiation Biology and Health Sciences Division, Bhabha Atomic Research Centre, Mumbai 400085. Topic: Radiation induced oxidative damage and apoptosis and its relevance in cellular radioprotection and cancer radiotherapy.
- 4) Dr. Om Prakash, Professor, Dept. of Biochemistry, Banaras Hindu University, Varanasi, U.P. 221005. Topic: Alpha amylase from soybean seeds: Immobilisation and application in organic media.

2012-13

A seminar was organized by School of Biochemistry, DAVV, Indore on the following topic: “Phytoremediation of Degraded Environment: Emerging Issues and Challenges” on Sept.,25, 2012. Speaker: Dr. R.P.Singh, Professor, Dept. of Environmental Sciences, Babasaheb Bhimrao Ambedkar University, Lucknow.

National Mathematics Day was celebrated on 22 December 2012, supported by M.P. Council of Science and Technology, Bhopal and organized by School of Biochemistry/Mathematics, DAVV, Indore. Dr. N. Shradha, Professor, TIFR, Mumbai delivered a talk on Analytical Number Theory.

A seminar was organised by School of Biochemistry, DAVV, Indore, on the theme “Intellectual Property Rights” on October, 13, 2012. The seminar was sponsored by

M.P. Council of Science and Technology, Bhopal. The speakers and the topic were as follows.

1) Dr. G.K. Gupta, Principal Scientist, Directorate of Soybean Research, Khandwa Road, Indore. Topic: Intellectual Property Rights relevant to Indian agriculture.

2) Dr. N.K. Choubey, Scientist and Incharge, PIC, MPCST, Nehru Nagar, Bhopal 462003. Topic: Introduction to Intellectual Property.

3) Prof. Ghayur Alam, Ministry of HRD Chair, Professor of IP Law, Chairperson, Centre of Science, Technology and Law, The National Law Institute University, Bhopal 462002. Topic: An Overview of IPR spectrum in India.

4) Ms. Raunak Dubey, Executive, Intellectual Property Facilitation Centre, Confederation of Indian Industry, Indore, 452010. Topic: Success story of India related to patents.

“First University – Industry Partnership Meet” was organized by Devi Ahilya Vishwavidyalaya, Indore on 08.02.2013.

A national seminar on “Genetically Modified Crops” supported by MPCST, Bhopal, will be held on 14.09.2013 at School of Biochemistry, DAVV, Indore. Speaker: Dr. Phundan Singh, Director (Retd), Central Institute for Cotton Research, Nagpur.

31. Code of ethics for research followed by the departments:

- 1) The department is following ethical guidelines for research.
- 2) The Institutional Animal Ethics Committee (IAEC) as per the guidelines of CPCSEA is functional. All proposals for animal experimentation are submitted to the IAEC for approval.
- 3) Respect for Intellectual property rights of individual and institutions.
- 4) Explicitly acknowledge the work of others when referring to them in any shape, form or manner.
- 5) Follow the principles of ethical and social responsibility.

32. Student profile programme-wise:

Name of the Course	Applications received	Selected		Pass percentage in UG exam			
		Male	Female	Male		Female	
				Min.	Max.	Min.	Max.
M.Sc. Sem I (2012-13)	N.A.	10	20	56.70	77.95	55.00	86.00
M.Sc. Sem I (2011-12)	337	16	12	57.26	86.07	61.72	80.50
M.Sc. Sem I (2010-11)	352	11	15	57.74	72.60	61.00	83.28
M.Sc. Sem I (2009-10)	272	08	21	55.80	75.17	55.22	79.98
M.Sc. Sem I (2008-09)	208	11	13	56.90	73.33	55.50	76.60

33. Diversity of students:

Name of the Course	% of students from the same university	% of students from other universities within the State	% of students from other universities outside the State	% of students from other countries
MSc (2012-13)	49	15	36	00
Ph.D.	48	10	42	00

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

NET (JRF)	2012- Archana Agrawal	- General
	2011- A. Kiran Kumar	- General
	2010- Chetan Jain	- General
	2009- Kanchan Jumrani	- General
	2009- Vinay Bari	- General
ICMR (JRF)	2011- Arun Yadav	- General
NET (LS)	2012- Jayesh Vaishnav	- OBC
	2012- Neha Rani Kaul	- General
	2012- A.G.S. Chandu	- General
	2010- Komal Dixit	- General
	2009- Sudha Jaweria	- SC
GATE	2013- Manoj Kumawat	- OBC
	2012- Radhika Chinchalkar	- General
	Pragyasheel Jat	- SC
	Pilendra Thakare	- OBC
	Satyendra S. Thakur	- OBC
	Ashish Mangal	- General
	2011- A.G.S. Chandu	- General
	2011- Ranjit Singh	- General
	2011- Manoj Kumar	- OBC
	2011- Chetan Jain	- General
	2011- Noopur Jain	- General
	2011- Pawan Soni	- General
	2010- Komal Dixit	- General
	2010- Deepak Singh	- General
2010- Mangesh Bawankar	- General	
2009- Arun Yadav	- General	

35. Student progression:

Student progression	Percentage against enrolled
UG to PG	
PG to M.Phil.	
PG to Ph.D.	33
Ph.D. to Post-Doctoral	

Student progression	Percentage against enrolled
Employed	
<ul style="list-style-type: none"> • Campus selection • Other than campus recruitment 	
Entrepreneurs	

36. Diversity of staff:

Percentage of faculty who are graduates	
of the same university	75
from other universities within the State	Nil
from universities from other States	25
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: Nil

38. Present details of departmental infrastructural facilities with regard to

- a) Library: 780
- b) Internet facilities for staff and students: 10 nodes
- c) Total number of class rooms: 03
- d) Class rooms with ICT facility: 02
- e) Students' laboratories: 03
- f) Research laboratories: 03

The number of Titles on Biochemistry at Central library is 764.

The number of e-Journals on Biochemistry at Central library is 460.

The number of Journals on Biochemistry at Central library is 10.

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

a) From the host university: 09

Name of the doctoral students presently working:

1. Ms. Harsha Lad
2. Sh. Ankit Kelotra
3. Sh. Jayesh Vaishnav
4. Ms. Ritu Tyagi
5. Ms. Seema Kelotra
6. Sh. Prakash Malviya
7. Ms. Ankita Joshi
8. Ms. Radhika Chinchalkar
9. Ms. Vinny Punjabi

b) From other universities: 10

Name of Research Scholars presently working

1. Ms. Antariksha Tyagi
2. Ms. Deepti Bhatnagar
3. Ms. Swati Tiwari
4. Ms. Reena Rawal
5. Ms. Sonal Dhamgaye

6. Ms. Vartika Sinha
7. Ms. Priyanka Mishra
8. Ms. Samatha Gunapati
9. Ms. Vaishali Mourya
10. Sh. Sharad Saurabh

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

Year	SC	ST	OBC
2008-09	15235/-	Nil	33910/-
2009-10	19455/-	17115/-	15945/-
2010-11	32015/-	26800/-	21095/-
2011-12	38265/-	11640/-	18320/-

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology: No new programme could be introduced.
42. Does the department obtain feedback from
- a. faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?
Faculty members' suggestions on curriculum obtained during meeting of Board of Studies are suitably incorporated.
 - b. students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?
Feedback forms are regularly obtained from M.Sc. students at the end of each semester and analyzed. Key suggestions are considered and suitably implemented.
 - c. alumni and employers on the programmes offered and how does the department utilize the feedback?
Suggestions from alumni are suitably incorporated.
43. List the distinguished alumni of the department (maximum 10):
1. Dr. Vijay Maheshwari, Professor, Director, School of Life Sciences, North Maharashtra University, Jalgaon, India. (Ph.D. 1992).
 2. Dr Shubhashish Sarkar, Sr. Scientist, Dept. of Cell Biology, University of Texas Medical Branch, USA. (Ph.D. 1995).
 3. Dr. Poonam Yadav, Scientist, Dept of Pharmacology, Texas Southern University, USA. (Ph.D. 1994).
 4. Dr. Jot Vyas, Principal, Birla Institute, Gwalior, India. (Ph.D. 1996).
 5. Dr. Rakesh Trivedi, Principal, P.M.B. Gujarati Science College, Indore, India. (Ph.D. 1996).
 6. Dr. Nisha Rathore, Scientist, Genentech, USA. (Ph.D. 1999).
 7. Dr. Maneesh Jain, Assistant Professor, University of Nebraska, USA. (M.Sc. 1998).
 8. Dr. Damodar Gupta, Scientist D, INMAS, DRDO, Delhi, India. (M.Sc. 1994).
 9. Dr. Y. Ashok Babu, Scientist C, DRDE, Gwalior. (M.Sc. 2001)
 10. Dr. K. Kumar Babu, Postdoctoral Fellow, Iowa, USA. (Ph.D. 2008).

44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.
- 1) Quiz and Essay Competitions are held every year from 2009 by the support of M. P. Council of Science and Technology, Bhopal.
 - 2) Lectures were held on scientific topics by Senior Scientists.
 - 3) Prof. R. M. Choksey was invited to deliver a lecture on National Safety Day on March 4, 2013.
 - 4) Special lectures on “Fostering Excellence in Research” organized on January 15, 2013. List of Speakers is as follows:
 - Prof. Priyankar Upadhyay, UNESCO Chair Professor, Banaras Hindu University (BHU), Varanasi.
 - Prof. V. K. Singh, Director, Indian Institute of Science Education and Research (IISER), Bhopal.
 - Prof. H. Padh, Vice- Chancellor, Sardar Patel University, Vallabh Vidya Nagar, Gujarat.
 - 5) Workshop on Effective teaching and learning on May, 10, 2013.
 - 6) Lecture series on Mahamana Madan Mohan Malviya ji was held on 06/11/2012 and 11/12/2012 Dr. Karan Singh, Hon’ble Justice Shri Girdhar Malviya, and Mrs. Kanta Malviya were the speakers.
 - 7) Lecture on Swami Vivekanand’s Contribution and Message to youth was held on Jan.12, 2013.
 - 8) Bharat Ratna Dr. A.P.J. Abdul Kalam’s message to University and college students on June 12, 2013.
45. List the teaching methods adopted by the faculty for different programmes:
Teaching methods are through classroom lectures, by use of PPTs, and laboratory training.
46. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?
- Programme objectives are monitored by:
- 1) The external examiners assess the course curriculum, course coverage, quality of question papers, and submit a report after each semester examination.
 - 2) Discussion with external examiners/ scientists visiting the Department.
- Learning outcomes are monitored by:
- 1) Class tests and semester examination.
 - 2) Feedback forms from students.
 - 3) Number of students passed GATE/ NET.
 - 4) The number of students getting 1st division (84.6% for batch 2011-2013).
 - 5) Number of students joining research labs for Ph.D./PDF.
47. Highlight the participation of students and faculty in extension activities.
- 1) Students and faculty members participate in the sports activities held every year by the University.
 - 2) Students participate in quiz and essay competitions held every year.
 - 3) National Science Day is celebrated on 28th February every year. Seminars are

conducted on the National Science Day by the support of MPCST, Bhopal.

4) Staff and students participated in Green Calendar 2013. Plantation around the Department was done on 06.08.2013 by students and Faculty members. As per Green Calendar various talks and other programs are held throughout the year in the University.

5) School of Biochemistry shall organize talks and documentary film on World Animal Day to be held on 04.10.2013.

48. Give details of “beyond syllabus scholarly activities” of the department:
- Participation in various conferences, seminars and lectures.
 - Number of M.Sc. students joining Summer Training at various Institutions.
49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details: Nil
50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.
- Department has so far taught approximately 600 students since inception in 1984-85 to date, who are serving the Nation in research, teaching, pharmaceutical and biotechnology industries.
 - Twenty two students have been awarded Doctorate degree from the Department since 1984.
 - A number of National seminars were organized by the Department.
 - Thirty five papers in reputed journals have been published in last 5 years.
 - The main areas in which significant contribution has been made by the Department are as follows.
- Tissue injury due to free radical generation and its importance in various clinical disorders.
 - Identification and role of nutraceuticals in toxicity
 - Role of membrane biology in health and disease
 - Photosynthesis and chlorophyll metabolism.
 - Oxidative and salt stress in plants.
51. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Strengths:

- All Faculty members possess doctoral degree in the subject with long experience.
- Publications in reputed journals by the Faculty members and research students.
- Significant number of students qualify NET and GATE every year.
- Meritorious students are admitted through entrance test.
- The matters related to curriculum such as course content, course coverage, quality of question papers and performance of students etc are discussed with the external examiners.

Weaknesses:

- The post of Reader (ST) (sanctioned during 8th five year plan) and Professor

needs to be filled.

(ii) UGC XI plan Faculty positions could not be recruited for need of sanction from Department of Higher Education, Government of M.P.

(iii) Faculty strength is only four due to which the Department is not eligible to apply for FIST and several other programmes for financial aids.

Opportunities:

(i) Appointment of Faculty members and fund allocation can provide more opportunities for progress of the department and initiate research in new areas.

(ii) To generate interest in biological sciences amongst youth.

Challenges:

(i) To make teaching-learning process at par with internationally reputed institutions.

(ii) To generate funds to develop research infrastructure.

(iii) To attract best talent in research and teaching.

(iv) To enable the students to compete nationally and globally.

(v) Burden of salaries, gratuity and pension on universities can affect the very survival of universities.

52. Future plans of the department:

(i) To develop new collaborations and exchange program for students and Faculty members.

(ii) To submit new research proposals to various funding agencies.

(iii) Proposal to make new international collaborations for research.

Write up of efforts for Quality Sustenance and Assurance in the department - B

Self analysis and feedback from students is practiced for quality sustenance and assurance. Strict adherence to academic calendar, quality teaching as well as active participation in research helps to develop quality. Numbers of workshops have been organized in university to promote quality in teaching learning process and in fostering excellence in research.

Declaration by the Head of the Department- C

I certify that the data included in this Self-Study Report (SSR) are true to the best of my knowledge.

This SSR is prepared by the institution after internal discussions, and no part thereof has been outsourced.

I am aware that the Peer team will validate the information provided in this SSR during the peer team visit.

Place: Indore
Date: 23.08.2013



Signature of the Head of the Department
with seal

Professor & Head
School of Biochemistry
Devi Ahilya University
Khandwa Road, Indore (M.P.)