

---

## Evaluative Report of the Department- A

1. Name of the Department : School of Life Sciences
2. Year of establishment : 1971
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.)
  - (1) M.Sc.Life Sciences 2 Yrs PG. Course
  - (2) M.Sc.Industrial Microbiology : 2 Yrs P.G. Course.
  - (3) M.Phil in Life Sciences 1 Yr P.G.
  - (4) Ph.D.Course work 6 Months duration.
  - (5) Refresher course conducted by Life Sciences at Academic Staff College.
5. Interdisciplinary programmes and departments involved.  
School of Computer sciences, Biotechnology, Biostatistics.
6. Courses in collaboration with other universities, industries, foreign institutions, etc. Nil
7. Details of programmes discontinued, if any, with reasons. No
8. Examination System: Annual/Semester/Trimester/Choice Based Credit System.  
Semester System in M.Sc. both courses.
9. Participation of the department in the courses offered by other departments  
Yes.
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate

	Sanctioned	Filled	Actual (including CAS & MPS)
Professor	2	1	4
Reader	4	2	3
Lecturer	4	4+3	3
Others: Contractual Teacher	--	1	1

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

S. N.	Name	Designation	Specialization	No. of Years of Experience	No. of Ph.D./ M.Phil. students guided for the last 4 years
01	Dr.Suresh Chand Ph.D.	Professor	Botany: Plant Biotechnology/ Tissue & Cell culture/Genetics	32	05 Ph.D.+ 01 M.Phil
02	Dr.K.N.Guru prasad Ph.D.	Professor	Plant Physiology, Photobiology	37	06 Ph.D.+ 01 M.Phil.
03	Dr.Shridhar Patil Ph.D.	Professor	Microbial Technology	34	03 Ph.D.+ 01 M.Phil
04	Dr.Anand Kar Ph.D.	Professor	Animal Physiology, (Endocrinology)	27	03 Ph.D.
05	Dr.G.P.Pandey Ph.D.	Reader	Environmental Science, Eco-Physiology	32	05 Ph.D.+ 02 M.Phil
06	Dr.K.Hajela Ph.D.	Reader	Imunology, Biochemistry	24	03 Ph.D.+ 01 M.Phil
07	Dr.Anjaja Jajoo Ph.D.	Reader	Plant Physiology, Biochemistry	14	05 Ph.D.+ 01

					M.Phil
08	Dr.T.Banerjee Ph.D.	Lecturer	Industrial Microbiology, Biotechnology	8.5	Ph.D.= NIL M.Phil =01
09	Dr.Rameshwar Jatwa Ph.D.	Lecturer	Endocrinology,Phar macology	5	Ph.D.= NIL 02 M.Phil
10	Sri Vinod Thakur M.Sc.	Lecturer	Environmental Biology	5	00

12. List of senior Visiting Fellows, Adjunct faculty, Emeritus Professors that visited the department (2012-2013)

- (1) Prof. A. K. Tyagi, Director, National Institute of Plant Genomic Research, New Delhi. (25-26 February 2012; 17-20 March 2013)
- (2) Prof. N. K. Singh, National Professor, ICAR & Dr. B. P. Pal Chair, IARI, New Delhi. (25-26 february 2012)
- (3) Prof. Y. S. Ahlawat, Emeritus Professor, IARI, New Delhi. (25-26 February 2012)
- (4) Prof. B. C Das, Director, Ambedkar Research Institute, New Delhi. (25-26 February 2012)
- (5) Prof. Govindjee, US-Full Bright Fellow, Emeritus Professor, Albana University, USA.
- (6) Prof. H.S. Gupta, Director, IARI, New Delhi.( January 2013)
- (7) Prof. S.S. Sharma, Shimla University, H.P. (January 2013)
- (8) Prof. R. K. Kohli, Vice Chancellor, DAU, Jalandhar. (17-20 March 2013)
- (9) Prof. Paramjeet Khurana, University of Delhi South Campus, New Delhi. (17-20 March 2013)
- (10)Prof. L. C. Rai, Banaras Hindu University, Varanasi. (17-20 March 2013)
- (11)Prof. T.R. Sharma, IARI, New Delhi. (17-20 March 2013)
- (12)Prof. Usha Vijay Raghwan, IISc, Bangalore. (17-20 March 2013)
- (13)Prof. Pulok Mukherjee, Director, Natural Products Institutes, Kolkata. (17-20 March 2013)
- (14)Prof. B. C. Tripathi, Vice Chancellor, Ravenshaw University, Cuttack. (April 2013)
- (15)Dr. Pankaj Srivastava, I.F.S. Chief Commissioner of Forest, Indore. (22 May 2013)
- (16)Dr. Afroz Ahmad, Ministry of Water Resource, Govt. of India, New Delhi. (22 May 2013)

13. Percentage of classes taken by temporary faculty – programme-wise information  
0.5 % (Computer Application & Bio-informatics).

14. Programme-wise Student:Teacher Ratio: **12:1** (M. Sc. I and III Sem+ M. Phil + Ph. D.)  
 Total number of faculty = 10  
 Details of Students enrollment:  
 M.Sc I & III sem Life Sciences = 19+18 = 37  
 M.Sc I & III sem Industrial Microbiology = 15+15 = 30  
 M.Phil (2012-13) = 18  
 Ph.D Course work Students (2012-13) = 36
15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual  
 Lab Technician 03 : Sr.Technician 02 : LDC 01;  
 Class IV 01[peon] ; Lab attendend 03; Gardner 06
16. Research thrust areas as recognized by major funding agencies:  
 Plant biotechnology, Tissue culture, Plant and Animal Physiology, Immunology, Industrial Microbiology, Environmental Biology.
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.
1. **Dr. Suresh Chand :**  
*In Vitro* propogation techniques for the propogation of pongarnia pinnata: A potential source for biofuel. (Sanctioned by UGC). (Rs. 12.50 lakhs)
  2. **Dr. K.N. Guruprasad:**
    1. Title of project, " Physiological and biochemical effect of Strobilurin Fungicide F-500 on Soybean" Sponsored by BASF India Pvt. Ltd.
    2. Regulation of carbon metabolism by ambient UV-B and UV-A radiations in C<sub>3</sub> and C<sub>4</sub> plants."
  3. **Dr. K.Hajela:**  
 UGC- Evaluation of predictive prognostic value of mannose binding serum levels and exon and promoter polymorphism in association with known biological markers of ischemic stroke.(Rs. 7.45 lakhs; 2012-2015)
  4. **Dr. Anjana Jajoo:**  
 Investigation molecular mechanisms underlying damaging effects of environment pollutants-polyeyclic aromatic hydrocarbons (PAH) on photosynthesis sponsored by Joint-Indo-Russian Joint project sponsored by DST, India and RFBR (Russia) Aug-2011. (Project completed on 22 August 2013).
  5. **Dr. Rameshwar Jatwa:**
    1. Isolation and purification as well as efficacy evaluation of some novel dipeptidyl peptidase inhibitors\_IV (DPP-IV) as therapaeutic molecules for type 2 diabetes mellitus from plants sponsored by Madhya Pradesh Biotechnology Council, Bhopal (No.MPBTC/37 dated 18/01/2011 for 3 yrs. Amount Sanctioned Rs. 13.08 lakhs).
    2. Development of glucagon-like peptide-1 (GLP-1) as a therapeutic molecule for metabolic syndrome sponsored by Science and Engineering Research Board

(SERB), DST, Govt. of India, New Delhi. Amount Sanctioned Rs.16.16 lakhs for 3 Yrs.No.F-30-11/2011(SA-A) dated 16 Jan-2012.

3. Exploration of GLP-1 as therapeutic molecule for steroid-induced type-2 diabetes mellitus. (University Grants Commission, UGC, New Delhi.No.F-30-11/2011 (SA-II) Dated 16 Jan-2012. Rs.6.22 lakhs. first yr's grant. Duration for 2 yrs.

18. Inter-institutional collaborative projects and associated grants received

a) National collaboration

1. Directorate of Soybean research Indore.
2. Wheat Research Station, [IARI] Indore.
3. BASF India PVT. Ltd

b) International collaboration: Indo-Russian joint project sponsored by DST.

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.  
Approx : 70 Lacs.

20. Research facility / centre with  
National recognition :

- a)Photobiology b). Photosynthesis c). Endocrinology d). Applied Microbiology
- e).Tissue culture f). Immunology g).Environmental Biology h). Toxicology.

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

22. Publications: Research papers /chapter in books published by faculty of School of Life Sciences(2009-2013).

Publications in 2009

1. Dwivedi M., Gupta K., Gulla K.C., Laddha N.C., Hajela K. & Begum R. (2009). Lack of genetic association of promoter and structural variants of mannan binding lectin (MBL) gene with susceptibility to generalized vitiligo ,B.J.Dermatol. 161(1):63-9. IF= 3.66
2. Dixit Y & Kar A (2009). Antioxidative activity of some vegetable peels determined in vitro by inducing liver lipid peroxidation. *Food Research International* 42:1351-54. CN=9, IF=2.967
3. Gulla K.C., Gupta K., & Hajela K. (2009). Functional estimation of MBL-MASPs mediated complement activation in human serum. *Ind. J.Med Res.*130,428-432. IF=1.837
4. Jatwa R. (2009). Influence of chronic medication with some anti-diabetic drugs on endogenous antioxidants and thyroid metabolism. In: Manoharan S (Ed); *Diabetes and Cancer-09*, New India Publishing House, New Delhi, India. CN=20, IF=2.068
5. Jatwa R. & Kar A. (2009). Amelioration of Metformin-induced hypothyroidism by *Withania somnifera* and *Bauhinia purpurea* extracts in Type 2 Diabetic Mice" *Phytotherapy Research*, 23(8):1140-1145. CN=02, IF=2.16
6. Jatwa R. & Kar A. (2009). Anti-inflammatory and anti-peroxidative roles of diacerein re possibly mediated through an alteration in thyroid functions in animal model of inflammation" the Journal "*Fundamental & Clinical Pharmacology*"23,465-471.(BOOK)
7. Kar A., Panda S. & Parmar H.S. (2009) Some plant extracts may prove to be thyrotoxic and peroxidative in nature, In " Molecular and Physiological aspects of Toxicology". Ed.

K.Shah, Published by Mahila Mahavidyalaya, B.H.U., Varanasi, ISBN# 81-85403-09-2. (BOOK)

8. Khatoon M., Inagawa K., Pospíšil P., Yamashita A., Yoshioka M., Lundin B., Horie J., Morita N., Jajoo A., Yamamoto Y. & Yamamoto Y. (2009). Quality control of photosystem II: thylakoid unstacking is necessary to avoid further damage to the D1 protein and to facilitate D1 degradation under light stress in spinach thylakoids. *Journal of Biological Chemistry*, 284: 25343-25352. IF=5.6
9. Lakshmi N. & Guruprasad K.N. (2009a). Cryptic red light signal regulates ascorbic acid in soybean. *J.Plant.Physiol* 166, 329 -332. IF=2.699
10. Lakshmi N. & Guruprasad K.N. (2009b). Amplification of phytochrome induced morphogenesis in plants by the cryptic red signal (CRS). *Plant Signalling and Behaviour*, 4,-5,1-2 . IF=2.0
11. Mehta P., Jajoo A., Mathur S., Allakhverdiev S.I. & Bharti S. (2009). High salt stress in coupled and uncoupled thylakoid membranes: A comparative study. **Biochemistry (Moscow)**, 74(6): 620-624.
12. Jajoo A, K.N. Guruprasad, S. Bharti and P. Mohanty (2009) A report on International Conference "Photosynthesis in the Global Perspective" held in honor of Govindjee, November 27-29, 2008, Indore, India. *Photosynthesis Research* 100: 49-55. IF=3.1
13. Mishra P., Kar A. and Kale R. (2009). Prevention of chemically induced mammary tumorigenesis by diaidzein in prepubertal rats: the role of peroxidative damage and antioxidants. *Mol Cell Biochem.* 325,149-157. CN=17, IF=2.329
14. Mishra P., Kar A. & Kale P. (2009). Modulatory influence of pre-pubertal Biochanin exposure on mammary gland differentiation and expression of Estrogen receptor –  $\alpha$  and apoptotic proteins. *Phytotherapy Research*, 23(7):972-9. CN=03, IF=2.08
15. Panda S., Kar A. & Patil S. (2009). Soy sterols in the regulation of thyroid functions, glucose homeostasis and hepatic lipid peroxidation in mice. *Food Res. Inter.* 42: 1087-1092. CN=11, IF=3.59
16. Panda S., Jafri M., Kar A. & Meheta B.K. (2009). Thyroid inhibitory, anti-peroxidative and hypoglycemic effects of Stigmasterol, isolated from *Butea monosperma* , *Fitoterapia* 80(2)123-126.CN=38, IF=2.0
17. Panda S. & Kar A. (2009). Periplogenin-3-O- -D-glucopyranosyl (1 $\rightarrow$ 6)- -D-glucopyranosyl -(1 $\rightarrow$ 4) -D- Cymaropyranoside, Isolated from *Aegle marmelos* protects Doxorubicin Induced Cardiovascular Problems and hepatotoxicity in Rats. *Cardiovascular therapeutics*, 27,108-116. CN=05, IF=2.852
18. Parmar H.S. & Kar A. (2009b).Comparative analysis of free radical scavenging potential of several fruit peel extracts by invitro methods. *Drug Discovery therapeutics*,3 (2)49-55. CN=14, IF=2
19. Parmar H.S., Kar A. (2009a). Protective role of *Mangifera indica*, *Cucumis melo* and *Citrullus vulgaris* peel extracts in chemically induced hypothyroidism. *Chemico-Biological Interactions* ,177 (3):254-258.
20. Sivasamy M., Vinod Tiwari S., Tomar R.S., Singh B., Sharma J.B., Tomar, S.M.S., & Chand, S. (2009). Introgression of useful linked genes for resistance to stem rust, leaf rust and powdery mildew and their molecular validation in wheat (*Triticum aestivum* L.). *Indian J. Genet.*, 69 (1), 17-27. IF=0.184
21. Sonah H., Deshmukh R.K., Parida S.K., Chand S. & Kotasthane A. (2009). Morphological and genetic variation among different isolates of *Magnaporthe grisea* collected from Chhattisgarh. *Indian Phytopath.* 62 (4), 469-477.
22. Sharma A. & Guruprasad K. N. (2009). Similarities in the biochemical changes between solar UV exclusion and GA application in *Amaranthus caudatus*. *Physiol. Mol. Biol. Plants* 15, 367–370.

23. Tiwari S., Singh B., Vinod Tomar S.M.S., Singh N.K., Chand S. (2009). Molecular validation and screening of *Triticum dicoccoides* Korn. Accessions for stripe rust resistance gene Yr 15 with SSR marker. *Indian J. Genet.*, 69 (1), 66-68. IF=0.184
24. Verma S.K., Chand S. (2009). Somatic embryogenesis and histological study in cotyledonary callus of *Hyoscyamus muticus* L. *Journal of Medicinal and Aromatic Plant Sciences*, 31 (3), 234-237.

#### Publications in 2010

25. Bhatia V.S., Yadav S., Jumrani K. & Guruprasad K.N. (2010). Field deterioration of soybean seed: role of oxidative stresses and antioxidant defense mechanism. *Journal of Plant Biology* 37, 179-190. IF=0.92
26. Chandra V., Kalia M., Hajela K., Jameel S.J (2010). The ORF3 protein of hepatitis E virus delays degradation of activated growth factor receptors by interacting with CIN85 and blocking formation of the Cbl-CIN85 complex. *Viol. Apr*;84(8):3857-6. IF=5.40
27. Channamalkarjuna V., Sonah H., Prasad M., Rao G.J.N., Chand S., Upriti H.C., Singh N.K. & Sharma T.R. (2010). Identification and fine mapping of major quantitative trait loci, q SBR11-1, for sheath blight resistance in rice. *Molecular Breeding*, 25, 155-166.
28. Dixit Y., Kar A. (2010) Protective role of three vegetable peels in alloxan induced diabetes mellitus in male mice. *Plant Foods Hum Nutr.* 65 (3):284-9. CN=03, IF=2.505
29. Gulla V., Banerjee T. & Patil S. (2010). Bioconversion of soysterols to androstenedione by *Mycobacterium fortuitum* subsp. *fortuitum* NCIM 5239, a mutant derived from total sterol degrader strain. *J. Chem Tech. Biotechnol.* 85 : 1135-1141. IF=1.818
30. Gulla K.C., Gupta K., Krarup A., Gal P., Schwaeble W.J., Sim R.B., O'Connor C.D., Hajela K. (2010). Activation of mannan-binding lectin-associated serine proteases leads to generation of a fibrin clot. *Immunology. Apr*;129(4):482-95. IF=3.32
31. Guruprasad K.N. & Chauhan Juyal K. (2010). Cryptic Red Signal: A hidden cellular signal that responds to red light. *Journal of Plant Biology* 37, 201-207. IF=0.99
32. Jajoo A., Mathur S., Mehta P., Yoshioka M., Allakhverdiev S.I. and Yamamoto Y. (2010). Study on the effects of chloride depletion on photosystem II using different chloride-depletion methods. *Journal of Bioenergetics and Biomembranes*, 42: 47–53. IF=2.8
33. Jatwa R, Kar A(2010). Effect of metformin on renal microsomal proteins, lipid peroxidation and antioxidant status in dexamethasone-induced type-2 diabetic mice. *Indian J Biochem Biophys.* 47(1):44-8. CN-16, IF=1.14
34. Jayasekera S., Thomas A., Kar A. & Ramamurthy V.V. (2010). Host correlated morphometric variations in the populations of *Bemisia tabaci* (Gennadius). *Oriental Insects* 44: 193-204.
35. Mehta P., Jajoo A., Mathur S. & Bharti S. (2010) Chlorophyll *a* fluorescence studies revealing effects of high salt stress on Photosystem II. *Plant Physiology and Biochemistry*, 48: 16-20. IF=2.8
36. Mehta P., Allakhverdiev S.I. & **Jajoo A.** (2010) Characterization of Photosystem II heterogeneities in response to high salt stress in wheat leaves during early developmental stage. *Photosynthesis Research*, **105: 249-255. IF 2.41. IF=3.1**
37. Jain M, Sharad Tiwari, K. N. Guruprasad and G. P. Pandey (2010) Influence of media types on efficient somatic embryogenesis from different accessions of *Bacopa monnieri*, *Journal of Tropical Medicinal Plants*, Vol. 11(2) 163-168.
38. Panda S., Kar A. (2010) A Novel Phytochemical, Digoxigenin-3-O-Rutin in the Amelioration of Isoproterenol-Induced Myocardial Infarction in Rat: A Comparison with Digoxin. *Cardiovasc Ther*, 20. doi: 10.1111/j.1755-5922.2010.00242. IF=2.852
39. Parmar H.S., Dixit Y., Kar A. (2010). Fruit and vegetable peels : Paving the way towards the development of new generation therapeutics. *Drug Discoveries & Therapeutics* 4: 314-325 (Review). CN=04

40. Singh A.K., Chand S. (2010). Plant regeneration from alginate-encapsulated somatic embryos of a leguminous tree, *Dalbergiasissoo* Roxb. *Indian J. Biotechnology*, (9), 319-324. IF=0.477
41. Singh - Rawal P., Jajoo A. & Bharti S. (2010). Fluoride distributes the absorbed excitation energy more in favor of Photosystem I. *Biologia Plantarum*, 54(3): 556-560. IF=1.7
42. Singh P., Jajoo A., Mathur S., Mehta P. & Bharti S. (2010). Evidence that pH can drive state transitions in isolated thylakoid membranes from spinach. **Photochemical Photobiological Sciences**,9: 830-837. IF=2.4
43. Suhail M., Patil S. & Khan S. & Siddiqui S. (2010). Antioxidant vitamins and lipoperoxidation in non-pregnant, pregnant, and gestational diabetic women: erythrocytes osmotic fragility profiles. *J. clin. med. Res.* 2: 266-273. doi:10.4021/jocmr454w.

#### Publications in 2011

44. Ali A., Vinod, S.M.S., Tomar & Chand, S. (2011). Genetics of fertility restoration and test for allelism of restorer genes in wheat (*Triticumaestivum* L.). *Indian J. Genet.*, 71 (3), 223-230. IF=0.184
45. József Dobó; Balázs Major; Katalin Kékesi; István Szabó; Márton Megyeri; Krishnan Hajela; Gábor Juhász; Péter Závodszy; Péter Gál (2011). Cleavage of Kininogen and Subsequent Bradykinin Release by the complement Component: Mannose-Binding Lectin-Associated Serine Protease (MASP)-1". *PLoS one* 6(5)e 20036. IF=4.35
46. Dehariya P., Kataria S., Pandey G.P., Guruprasad K.N. (2011) Assessment of impact of solar UV components on growth and antioxidant enzyme activity in cotton plant. *Physiol. Mol. Biol. Plants.* 17(3), 223–229.
47. Jain K., Kataria S. & Guruprasad K.N. (2011) Interaction of lycorine with UV-B and kinetin in cucumber (*Cucumis sativus* L.) cotyledons. *International Journal of Plant Physiology and Biochemistry* Vol. 3(1) 1-5. IF=2.775
48. Mishra P, Kar A & Kale P (2011) Prepubertal daidzein exposure enhances mammary gland differentiation and regulates the expression of estrogen receptor-alpha and apoptotic proteins. *ISRN Oncol.* 896826. Epub 2011 Sep 4. IF=3.17
49. Panda S, Kar A (2011). Periplogenin, isolated from *Lagenaria siceraria*, ameliorates L-T<sub>4</sub>-induced hyperthyroidism and associated cardiovascular problems. *Horm Metab Res* 43(3):188-93. IF=2.41
50. Baroniya S. S., Kataria S., Pandey G.P., Guruprasad K.N. (2011) Intraspecific variation in sensitivity to ambient ultraviolet-B radiation in growth and yield characteristics of eight soybean cultivars grown under field conditions. *Braz. J. Plant Physiol.* 23(3), 197-202. IF=0.0825
51. Shine M.B., Guruprasad K.N., Anjali A. (2011) Superoxide radical production and performance index of Photosystem II in leaves from magnetoprimered soybean seeds. *Plant Signaling & Behavior* 6-11, 1636-1638. IF=2
52. Shine M.B., Guruprasad K.N., Anjali A. (2011) Enhancement of germination, growth, and photosynthesis in soybean by pre-treatment of seeds with magnetic field. *Bioelectromagnetics* 32(6), 474-84. IF=2.759
53. Vyas, P. and Patil, S. (2011) Isolation and identification of antibiotic resistance pattern in enterobacterial pathogens from juices and water in Indore city. *National J. Life Sc.* 8 : 21-24.
54. Thomas A, Chaubey R, Naveen NC, Kar A and Ramamurthy VV. (2011). *Bemisia tabaci* (Gennadius) on *Leucaena leucocephala*: New host record from India and a comparative study with cotton populations. *International Journal of Tropical Insect Science*, 31, 4, 235–241.



55. Mathur S., Allakhverdiev S.I. and **Jajoo A.** (2011) Analysis of high temperature stress on the dynamics of antenna size and reducing side heterogeneity of Photosystem II in Wheat leaves (*Triticumaestivum*). *BiochimicaetBiophysicaActa*, **1807**: 22-29. IF=5.1
56. Mathur S., Jajoo A., Mehta P. and Bharti S. (2011) Analysis of elevated temperature induced inhibition of Photosystem II using Chlorophyll a fluorescence induction kinetics in Wheat leaves. **Plant Biology**,**13**:1-6. **IF=2.8**
57. Mathur S., Singh P., Mehta P. and Jajoo A. (2011) A comparative study to evaluate the effects of high temperature and low pH on PSII photochemistry in spinach thylakoid membranes. *Biologia Plantarum*, 55 (4): 747-751. IF=1.7
58. Tongra T., Mehta P., Mathur S., Agrawal D., Bharti S., Los D., Allakhverdiev S.I. and **Jajoo A.** (2011) Computational analysis of pH induced changes in Chlorophyll *a* fluorescence transients. *Biosystems*, **103**(2): **285-290**. IF=2.4
59. Singh P., Ziros O., Bharti S., Garab G. and **Jajoo A.** (2011) Mechanism of action of Anions on the electron transport chain in thylakoid membranes of higher plants. **Journal of Bioenergetics Biomembranes**. DOI 10.1007/s10863-011-9346-7. IF=2.8
60. P. Mehta, V. Krasnovsky, S. Bharti, S.I. Allakhverdiev and **A. Jajoo** (2011) Analysis of salt-stress induced changes in Photosystem II heterogeneity by prompt fluorescence and delayed fluorescence in wheat (*Triticumvulgare*) leaves. *Journal of Photochemistry Photobiology B:Biological*, 104: 308-313. IF=3.1
61. Khanna-Chopra R., **Jajoo A.**, Semwal V. (2011) Chloroplasts and mitochondria have multiple heat tolerant isozymes of SOD and APX in leaf and inflorescence in *Chenopodium album*, **Biochemical Biophysical Research Communications**, doi:10.1016/j.bbrc.2011. IF=2.8

#### Publications in 2012

62. Dehariya P., Kataria S., Pandey G.P., Guruprasad K.N. (2012) Photosynthesis and yield in cotton (*Gossypium hirsutum* L.) var. vikram after exclusion of ambient solar UV-B/A. *Acta Physiol. Plant.* 34, 1133-1144. IF=1.64
63. Sonah, H., Deshmukh, R.K., Chand, S., Srinivasprasad, M., Rao, G.J.N., Upreti, H.C., Singh, A.K., Singh, N.K., Sharma, T. (2012).Molecular mapping of quantitative trait locus qLL12.1 for flag leaf length in rice (*Oryza sativa*). *Journal Of Cereal Science* (Elsevier), 40:362-372. IF=2.971
64. Tomar R.S., Vinod, Tomar S.M.S., Prasad S.V. Sai, Naik K. Bhojraraja, Jha, Girish K., Singh N.K., Chand, S. (2012). Development of mapping populations and their characterizations for drought tolerance in wheat. *Indian J. Genet.*, 72 (2), 195-207. IF=0.184
65. Kataria S., Guruprasad K.N. (2012) Solar UV-B and UV-A/B exclusion effects on intraspecific variations in crop growth and yield of wheat varieties. *Field Crops Res.* 125, 8-13. IF=2.474
66. Shine M.B., Guruprasad K.N. (2012) Impact of pre-sowing magnetic field exposure of seeds to stationary magnetic field on growth, reactive oxygen species and photosynthesis of maize under field conditions *Acta Physiol Plant.* 34, 255–265. IF=1.305
67. Shine M.B., Guruprasad K.N., Anjali A. (2012) Effect of Stationary Magnetic Field Strengths of 150 and 200 mT on Reactive Oxygen Species Production in Soybean. *Bioelectromagnetics* 33, 428-437. IF=2.759
68. Kataria S., Guruprasad K.N. (2012) Intraspecific variations in growth, yield and photosynthesis of sorghum varieties to ambient UV (280–400 nm) radiation. *Plant Science* 196, 85-92. IF=2.922
69. Sonika Sharma, Guruprasad K.N (2012) Enhancement of root growth and nitrogen fixation in *Trigonella* by UV-exclusion from solar radiation. *Plant Physiology and Biochem.* 61, 97-102. IF=2.775

70. Shine M.B., Guruprasad K.N. (2012) Oxyradicals and PSII activity in maize leaves in the absence of UV components of solar spectrum. *Journal of Biosciences* 37,703-712. IF=1.759
71. Kataria S., Dehariya P, Guruprasad K.N., Pandey G. P. (2012) Impact of exclusion of ambient solar UV-A/UV-B components on growth and antioxidant response of cotton (*Gossypium hirsutum*). *Acta Biologica Cracoviensia Series Botanica* 54 (2): 1-7. IF=0.612
72. Panda S, Anand Kar. Tushar Banerjee.Neha Sharma (2012) Combined Effects of Quercetin and Atenolol in Reducing Isoproterenol Induced Cardiotoxicity in Rats: Possible Mediation Through Scavenging Free Radicals, *Cardiovascular Toxicology*, 12(3):235-42. CN=03, IF=2.351
73. Sharma N, Panda S and Kar A ( 2012) Additional advantage with Fenugreek seed extract in the glibenclamide induced inhibition in hepatic lipid peroxidation: An *in vitro* study.*Chinese Journal of Integrative Medicine*( accepted). CN=03, IF=1.059
74. Thomas A, R Chaubey R, Naveen NC, Kar A, Ramamurthy VV (2012) *Bemisia tabaci* (Hemiptera: Aleyrodidae) on *Leucaena leucocephala* (Fabaceae): a new host record from India and a comparative study with a population from cotton *International Journal of Tropical Insect Science* .31 (4), 235.
75. Thomas A, Kar A, Ramamurthy VV (2012). An analysis of leaf trichome density and its influence on the morphology of *Bemisia tabaci* within cotton leaf. *J. Food Agric. & Environ.* 9 (in press).
76. Jajoo A and S. Bharti (2012). A comprehensive study of the effects of nitrite anion on photosynthetic electron transport chain. In: *Photosynthesis: Overviews on recent progress and future prospective*, Eds. Itoh S, Mohanty P, Guruprasad KN, I. K. Publishers, India. (BOOK)
77. Kumar. V, D.R. Thakare, D.N. Saha, A. Jajoo, P.K. Jain, S.R. Bhat and R. Srinivasan (2012) Characterization of Atrpx18 a peroxidase gene and its upstream sequence from *Arabidopsis thaliana*. *Journal Plant Biochemistry and Biotechnology*,doi: 10.2007/s13562-011-0068-z. IF=2.8
78. Jajoo A., M. Szabom, Z. Otto and G. Garab (2012) Low pH induced structural reorganizations in thylakoid membranes of higher plants. *Biochimica et Biophysica Acta*, doi:10.1016/j.bbabi.2012.01.002. IF-5.1
79. Jajoo A., (2012) Changes in Photosystem II in response to salt stress. Book Chapter published in "Ecophysiology and Responses of Plants under Salt Stress", Ed. P. Ahmad, 149. DOI 10.1007/978-1-4614-4747-4\_5, Springer publishers (USA).
80. Singh. R. T, S. Mathur, SI. Allakhverdiev, A. Jajoo (2012) Changes in PS II heterogeneity in response to osmotic and ionic stress in wheat leaves (*Triticumaestivum*). *Journal of Biomembranes and Bioenergetics*. DOI: 10.1007/s10863-012-9444-1. IF=2.8
81. Mathur. S, P. Mehta, A. Jajoo (2012) Effects of dual stress (high salt and high temperature) in wheat leaves (*Triticumaestivum*) *Physiology and Molecular Biology of Plants*, DOI 10.1007/s12298-012-0151-5. IF=0.6
82. Singh A. K., and Jatwa. R. (2012). Comparative assessment of dipeptidyl peptidase IV (DPP-IV) inhibitory and anti-peroxidative profile of *Allium sativum* and *Bauhinia pupurea* extract. In: Bhadange DG and Koche DK (Eds); *Innovative Research Trends in Biological Sciences*, Pravin Creation, Akola, India, pp. 563-566 (ISBN:978-81-923621-0-6).
83. Vyas P. & Patil, S. (2012) Sources, Distribution and Control of MDR Enterobacterial Pathogens (LAP Lambert Academic Publishing GmbH), Deutschland., Germany. ISBN 10: 3848481111.
84. Vyas P. & Patil, S. (2012) Effect of essential oils on MDR pathogens: a comparative study *J. Environtl. Res. Devp.* 6: 1-6. IF=0.52

Publications in 2013:

Evaluate SSR Report of School of Life Sciences

85. Singh S, N.K. Singh, S. Chand, T.R. Sharma. (2013). Genome wide Distribution, Organisation and Functional Characterization of Disease Resistance and Defence Response Genes in Rice. PLoS one, Accepted. IF=4.411
86. Bhati J., H. Chandrashekar, S. Chand. (2013). Comparative Analysis of EST Mining Reveal High Degree of Conservation among Eight *Leguminosea* Species. Journal of Agricultural Science and Technology, (USA). Accepted. IF=0.685
87. Bhati J., H. Chandrashekar, S. Chand. (2013). In Silico EST Mining of five *Fabaceae* species. Indian Journal of Biotechnology(In Press). IF=0.477
88. Baroniya S. S., S.Kataria, Pandey G.P., Guruprasad K.N. (2013) Intraspecific variations in antioxidant defense responses and sensitivity of soybean varieties to ambient UV radiation. Acta Physiol. Plant. 35:1521–1530. IF=1.6339
89. Ali A, Saluja SS, Hajela K, Mishra PK and Rizvi M A. Mutational and expressional analysis of PTEN gene in colorectal cancer from northern India. Mole. Carcinog.2013, in press.
90. Saxena M , Ratanesh K. Seth, Krishnan Hajela, Sukla Biswas. Immune Responses to Defined Plasmodium falciparum Antigens and Disease Susceptibility in Two Subpopulations of Northern India. Journal of Advanced Laboratory Research in Biology, 2013,vol IV, 36-44.
91. Panda S, Kar A, Sharma P & Sharma A(2013)Cardioprotective potential of N, <math>\alpha</math>-L-rhamnopyranosyl vincosamide, an indole alkaloid, isolated from the leaves of *Moringa oleifera* in isoproterenol induced cardiotoxic rats: In vivo and in vitro studies . *Bioorganic & Medicinal Chemistry Letters*.15;23(4), 959-962. IF=2.338
92. Jajoo A., (2013) Changes in photosystem II heterogeneity in response to high salt stress. Book Chapter submitted to "Modern (Current) Problems Of Photosynthesis" (In press, Moscow).
93. S. Mathur and A. Jajoo(2013) Effect of high temperature stress on growth and crop yield of Wheat (*Triticumaestivum*). Book chapter (In press) Springer publishers.
94. Singh T. R., and A. Jajoo (2013) Alterations in PS II heterogeneity under the influence of Polycyclic Aromatic Hydrocarbon (Fluoranthene)in wheat leaves (*T. aestivum*).Plant Science, doi 10.1016/j.plantsci.2013.04.007 . IF=2.9
95. Saxena M., Ratnesh K Seth, Krishnan Hajela and Sukla Biswas Monoclonal antibodies in malarial diagnosis to monitor antimalarial resistance: an overview.. Chapter in Book "Antimicrobial Resistance, a cause for global concern. Eds. Rubina Lawrence, Ebenzer Jaykumar, George Thomas, 2014, Narosa Publishing House Pvt Ltd.
96. Singh T. R., and A. Jajoo (2013). A quick investigation of the detrimental effects of environmental pollutant polycyclic aromatic hydrocarbon fluoranthene on the photosynthetic efficiency of wheat (*Triticum aestivum*). Ecotoxicology DOI 10.1007/s10646-013-1118-1.

\*Number of papers published (national / international)

Year	Book Chapter	National	International	Total
2013	02	01	08	11
2012	03	02	17	22
2011	00	01	19	20
2010	00	01	18	19
2009	03	05	16	24
<b>Total</b>	<b>07</b>	<b>10</b>	<b>78</b>	<b>96</b>

\*Monographs

Nil

- \*Chapters in Book :  
07
- \* 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  
Dr. Suresh Chand 473  
Dr. K.Hajela 396  
Dr. Anand Kar 394  
Dr.Anjana Jajoo 240  
Dr.Tushar Banerjee 56
- \*Impact Factor – range / average  
Dr. S.Chand 7.69 - 0.184  
Dr. K.N.Guruprasad 2.92 - 0.85  
Dr. S.Patil 3.59-1.81  
Dr.Anand Kar 3.59-1.14  
Dr.K.Hajela 5.4-1.83  
Dr.Anjana Jajoo 5.6-0.6  
Dr. G.P.Pandey 1.63-0.08]  
Dr.Tushar Banerjee 2.5-.3  
Dr.R. Jatwa 2.068-1.026
- \* h-index & i-index  
Dr.S.Chand- h-index= 14, i-index= 18  
Dr.K.Hajela- h-index= 11, i-index= 13  
Dr.Anand Kar- h-index= 14  
Dr.Anjana Jajoo- h-index= 9, i-index= 8  
Dr.Tushar Banerjee- h-index= 4

23. Details of patents and income generated : Nil
24. Areas of consultancy and income generated: Photobiology-BASF,India.
25. Faculty selected nationally / internationally to visit other laboratories / institutions industries in India and abroad

Dr. Suresh Chand:

- Awarded Commonwealth Academic Staff Fellowship by the Common-wealth Commision, UK.
- Awarded Visiting Fellowship under Indian National Science Academy & Hungarian Academy of Sciences Scientific Exchange Programme (BRC,Szeged,Hungary)(1991).
- Awarded Govt. of India Biotechnology Overseas Associateship Award, Ministry of Sciences and Technology, DBT (IPK,Germany) 2004.

Evaluate SSR Report of School of Life Sciences

- Awarded Visiting Fellowship under International Collaboration Scientific Exchange Programme, INSA -DFG (Tuebingen, Germany) (2005)

Dr.K.N.Guruprasad:

- Visiting Scientist, Biophysics Department, Moscow University, Russia.

Dr.Anand Kar:

- Invited Plenary lecture In “International symposium on Constitutional Medicine” at Daizon, South Korea. (2009).

Dr.K.Hajela:

- Awarded Marie Curie International Incoming Fellowship (2007-2009).
- Awarded Hungarian Scholarship Board Visiting Fellowship 2010.

Dr. Anjana Jajoo:

- Awarded Hungarian State Scholarship from Hungarian State Board (HSB)to carry out research work in Hungary, (2009).
- Awarded DST-DAAD fellowship to visit Germany under Exchange of Senior Scientist to visit Germany to discuss collaborative projects.(2010).
- Delivered invited lectures in international conferences in Australia, Korea, Azerbaizan, Eurasia

26. Faculty serving in

- a) National committees b) International committees c) Editorial Boards d) any other (please specify)

Dr. Suresh Chand

- 1 Board Member-Indian Journal of Biotechnology (CSIR); Editoria
- of Physiology and Molecular Biology of Plants (Springer Verlag), Journal
- er of several International & National Journals Review
- member-University Grants Commission ( UGC)- IX,X,XI Plan Expert
- t Member- UGC NAAC Exper
- Member -,UPSC and PSC of several states Expert
- t Member- Selection Committees / Board of Studies/ RDC: in several Exper  
Universities (Delhi, Udaipur, Jaipur, Kota, Allahabad, Lucknow, Gorakhpur, Indore, Meerut, Banasthali, IARI).

Dr. KN Guruprasad

- Member, Board of Studies in Botany, Vikram University, Ujjain.
- Member, Board of Studies in Botany, Jiwaji University, Gwalior.
- Member, Board of Studies in Botany, Goa University, Goa.

Evaluate SSR Report of School of Life Sciences

- Member, RDC in Botany, Vikram University, Ujjain.
- Member, RDC in Bioscience, Barkatulla University, Bhopal.
- Member, NAAC Assessment committee.

Dr. S Patil

- Member of Research Advisory Board, Shri Auribindo Institute of Medical Sciences, Indore.

Dr. A Kar

- Evaluator of DST project
- Invited member in editorial board of an international Journal

Dr. K Hajela

- Member, Project Approval Committee MP Biotech Council Bhopal
- Member, IMBIBE Award Committee MP Biotech Council Bhopal.

Dr. Anjana Jajoo

- Member, Board of Studies, North Saurashtra, Jalgaon.
- Member, UGC committee for credit transfer policy.

Dr. Rameshwar Jatwa

- Peer Reviewer of International Journals on Nanomedicines, Life Sciences, Vascular Health and risk Management, International Journal of Medicine and Medical Sciences
27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).

School of Life Sciences conduct refresher courses in the area of Life Sciences on various themes, almost every year. In the last two years Seminar on Recent Trends in Life Sciences (25-26<sup>th</sup> February 2012), Distinguished Scientist Lecture Series (19-20<sup>th</sup> March 2013), Seminar on Biodiversity (22<sup>nd</sup> May 2013) were held in the department

28. Student projects

- Percentage of students who have done in-house projects including inter-departmental projects : As per the course curriculum M. Sc. Life Science and M. Sc. Industrial Microbiology students require to undertake project dissertation work in IV semester. The student of IV Sem batch pursue the projects from outside the department in national Lab / Institutes of repute. M. Phil Life Science students are doing in-house project in the department. (List of students & project titles, place where project work carried out is maintained in. **(File A.9)**)
- percentage of students doing projects in collaboration with other universities industry / institute : 100 % of M.Sc. IV Life Sciences and Industrial Microbiology.

29. Awards / recognitions received at the national and international level by Faculty:

Evaluate SSR Report of School of Life Sciences

Dr. Suresh Chand

1. Member, NAAC peer team for accreditations to Universities and Colleges.(since 2011).
2. Member UGC Expert committee IX,X,IX,XII Plan.
3. Member Expert Committee Board of studies,RDC,in various Universities.
4. Member Educational Board & Review committees of various Universities.
5. Selected as Post -Doctoral Fellow The Australian National University, Canberra,(1982).
6. Awarded Commonwealth Academic Staff Fellowship by the Common-wealth Commission, U.K.
7. Awarded Visiting Fellowship under Indian National Science Academy & Hungarian Academy of Sciences Scientific Exchange Programme (BRC,Szeged,Hungary, 1991).
8. Awarded Govt. of India Biotechnology Overseas Associateship Award of Ministry of Sciences and Technology, DBT (IPK,Germany)2004.
9. Awarded Visiting Fellowship under International Collaboration Scientific Exchange Programme, INSA -DFG (Tuebingen, Germany) (2005).
10. Awarded Dr. R. B. Ekbote Prize by the Maharashtra Association for the Cultivation of Science , DST, Govt. of India. (2003).

Dr. K. N. Guruprasad

1. Member, NAAC peer team for accreditations of Universities and Colleges.
2. Visiting Scientist, Biophysics Department, Moscow University, Russia.
3. Consultant, BASF India Ltd, Mumbai.

Dr. Anand Kar

1. Awarded best science research award for teachers in Biological sciences, DAVV,Indore by M.P Council of Science and Technology (MPCST) (2010)
2. Invited Plenary lecture In “International symposium on Constitutional Medicine” at Daizon, South Korea. (2009).

Dr. K. Hajela

1. Awarded Marie Curie International Incoming Fellowship (2007-2009).
2. Awarded Hungarian Scholarship Board Visiting Fellowship 2010.
3. Member Project Approval Committee MP Biotech Council, Bhopal (2010-2013).

Dr. Anjana Jajoo

1. Awarded Hungarian State Scholarship from Hungarian State Board (HSB)to carry out research work in Hungary, (2009).
2. Awarded DST-DAAD fellowship to visit Germany under Exchange of Senior Scientist to visit Germany to discuss possibility of future collaborative projects.(2010).
3. Awarded best science research award for teachers in Biological sciences, DAVV by M.P Council of Science and Technology (MPCST), (2012).
4. Awarded DBT-CREST(Cutting-edge Research Enhancement and Scientific Training) award(2012) to carry our research work abroad. (2012)
5. Member, Board of Studies, North Saurashtra University, Jalgaon, Maharashtra
6. Member, UGC committee for credit transfer policy, UGC, New Delhi

7. Delivered invited lectures in international conferences in Australia, Korea, Azerbaijan, Eurasia.

Dr. Rameshwar Jatwa

UGC-Career Research Award (2012)

Students: Dr. Vivek Chandra, INSA Young Scientist Medal (2012). He did Ph.D. under Dr. K. Hajela, Reader, School of Life Sciences.

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

Year	National	Funding
2009-10	Shanti Swaroop Bhatnagar Awardees' conference, July 17-19, 2009	UGC/DST
2011-12	Recent Trends in Life Science, 25-26 <sup>th</sup> Feb 2012	UGC
2012-13	(1) Refresher Course in Life Science, (Jan 2-22, 2013)	UGC
	(2) Distinguished Scientists Lecture series, March 19-20, 2013	UGC/DST
	(3) Popular Lectures on Biodiversity conservation (22 <sup>nd</sup> May'2013)	DAVV

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

1. Various committees have been formed in the department to follow the research guidelines/ethics as prescribed by the UGC (File-SLS Committees).
2. Intellectual property rights of individual and institutions are taken care of.
3. Principles of ethics and social responsibilities are followed.

4. Student profile programme-wise: [2012-13 & 2013-14]

Name of the Programme (refer to question no. 4)	Applications received	Selected		Pass percentage	
		Male	Female	Male	Female
M.Sc.-I Sem. Life Sciences 2012	Admission through CET In 2012	14	06	70	30
Industrial Micro. 2012		02	08	20	80
Life Sciences-I Sem. 2013	90	06	14	30	70
Ind. Microbiology 2013	85	03	12	20	80
M.Phil [2012]	84	06	11	35	65
M.Phil [2013]	40	04	11	26.66	73.33
Ph.D. Course work [2012]	124	08	05	61.53	34.46



5. Diversity of students

Name of the Programme (refer to question no. 4)	% 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.Life Science-2012	50%	15%	35%	Nil
M.Sc.Indust.Micro-2012	50%	30%	20%	Nil
M.Sc.Life Science-2013	66.67 %	11.11 %	22.22 %	Nil
M.Sc.Indust.Micro-2013	100 %	Nil	Nil	Nil
M.Phil -2012	84 %	Nil	16%	Nil
M.Phil-2013	62.5%	37.5%	Nil	Nil

34. How many students have cleared Civil Services and Defence Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.  
Civil Services and Defence Services- None  
NET, GATE- List of the candidate kept in file (SLS-NET/GATE selected candidates).

35. Student progression  
M.Sc. and Ph.D.Life Sciences

Student progression	Percentage against enrolled
UG to PG	--
PG to M.Phil.	2
PG to Ph.D.	4
Ph.D. to Post-Doctoral	2
Employed Campus selection Other than campus recruitment	--
Entrepreneurs	--

M.Sc. Industrial Microbiology

Student progression	Percentage against enrolled

UG to PG	--
PG to M.Phil.	2
PG to Ph.D.	2
Ph.D. to Post-Doctoral	-
Employed	
<input type="checkbox"/> Campus selection	-
<input type="checkbox"/> Other than campus recruitment	-
Entrepreneurs	-

36. Diversity of staff:

Percentage of faculty who are graduate	
of the same university	50%
from other universities within the State	
universities from other States	50%
From universities outside the country	--

37. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period : Ph.D. 01

38. Present details of departmental infrastructural facilities with regard to

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

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

- a) from the host institution/university : 22
- b) from other institutions/universities : 10

40. Number of post graduate students getting financial assistance from the university.  
23

41. Was any need assessment exercise undertaken before the development of new

programme(s)? If so, highlight the methodology.

Based on the requirement of students and as per U.G.C. guidelines.

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?

The faculty is involved in the development of curriculum and teaching-learning-evaluation. The feedback obtained from the students on the curriculum is utilized to revise the syllabus. The suggestions/feedback analyzed by a committee constituted for the purpose after discussion discussed in the departmental committee. The curriculum is changed periodically according to the suggestions and need of the students. Teacher student meetings also conducted to resolve the problems as well as grievances.

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

Department uses the feedback as indicator of the overall quality of the teaching and learning, infrastructure, behavior of the staff and faculties to students and using this indicator the required changes implemented.

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

Department improves the program by incorporating the suggestions from feedbacks.

43. List the distinguished alumni of the department (maximum 10)

1. Dr. V. S. Bhatia, Principal Scientist, Directorate of Soybean Research, Indore. (1985)
2. Dr. Pradeep Kumar G, Scientist-G, RGCB, Trivandrum (Ph. D. 1988)
3. Dr. Malini Laloraya, Scientist F, RGCB, Trivandrum (M. Sc. 1986, Ph. D. 1990)
4. Dr. Mahendra Darokar, Scientist, CIMAP, Lucknow (M. Sc. 1991)
5. Dr. Alok Dubey, Scientist, RRCAT, Indore (Ph.D.1993).
6. Dr. D.V.S.S.R. Prakash, Director, PMI Institute, Bangalore. (1998)
7. Dr. Abhay Kumar Pandey, Scientist, NIPER, Mohali (Ph. D 2000)
8. Dr. Ashok Kumar Seharawat, Senior Scientist, Edmanton, Canada. (Ph.D.2000)
9. Dr. Krishna Pal Karmodiya, Scientist, IISER, Pune (M. Sc. 2003)
10. Dr. A.K. Singh, Senior Scientist, ICAR, Pune. (2004)

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

1. Shanti Swaroop Bhatnagar Awardees lecture series, July 17-19, 2009.
2. National Seminar on Recent Trends in Life Sciences (25-26<sup>th</sup> Feb, 2012)
3. Lecture on Photosynthesis delivered by Prof. Govindjee, Full Bright Fellow, Albana University, USA (2012).
4. Distinguished Scientists Lecture Series (19-20<sup>th</sup> March 2013).
5. Popular Lectures on Biodiversity conservation (22<sup>nd</sup> May'2013)

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

- (a). Teaching of advanced topics in details by using International research paper, review articles, reviews, and online journals & literature provided to the students.
- (b). To improve communication and research skills of the students, seminar presentations are incorporated in to the course curriculum of M.Sc.,M.Phil and Ph.D.Course work students.

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

Record of Monitoring by the department ensure that programme objectives are constantly met and learning outcomes are monitored: The key objectives of our curriculum are to enhance the theoretical and practical understanding as well as skills of students in the area of basic and advance Life Sciences. School of Life Sciences is shaping the career of students in such a way that after the completion of their course they are absorbed in higher education, government and corporate sectors. School not only develops professional competencies, but also shapes the overall personality of students to become a responsible citizen of country.

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

The teachers and the students of the department participated in the tree plantation in the campus. A massive drive was carried out to remove the debris and polythenes from the premises.

School of Life Sciences celebrated “International Day for Biological Diversity” on 22<sup>nd</sup> May 2013 and Dr. Pankaj Srivastava, IFS, Chief Conservator of Forests, Indore and Dr. Afroz Ahmad, Ministry of Water Resources, Govt. of India, New Delhi delivered lectures in the department.

48. Give details of “beyond syllabus scholarly activities” of the department.
- (a). Participation in various conferences, seminars and lectures by faculty and students.
  - (b). Students counseling on the personal problems, life style, career and to teach them to become good human being.
  - (c). Remedial and tutorial classes.
  - (d). Interaction with eminent scientists.

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details. Yes (UGC-SAP and DST-FIST)

UGC-SAP research fellows in the department:

- a) Ms. Yamini Dixit (Ph. D. awarded in 2011)
- b) Ms. Neha Sharma (from 16<sup>th</sup> March,2009-Present)
- c) Ms Teena Tongra (from 09<sup>th</sup> March,2009-Present)
- d) Ms Divya Agrawal(from 09<sup>th</sup> March,2009-Present)

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

Since inception of the department, Ph.D. and PG students have been educated they are serving the nation in higher education and research. Department is making significant contribution in the the following areas : Plant tissue culture and somatic cell genetics;

Evaluate SSR Report of School of Life Sciences

Photosynthesis and Photobiology; Microbiology, Immunology; Animal Physiology etc.

Research facility in the following areas are available in the department.

1. Plant Tissue culture & somatic cell genetics- Somatic embryogenesis of medicinal, tree and cereal species. Synthetic seed technology.
2. Immunology and Biochemistry.
3. RIA facility for T3, T4, TSH estimations.
4. Fluorometer facility for stress response studies.
5. IRGA for plant physiology experiments.
6. Phytochemical analysis technology.
7. EPR for basic research.
8. Basic understanding of metabolic disorders.
9. Drug discoveries & therapeutics development.
10. Lab scale technology for Steroid bioconversion

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

Strength :

- a) International collaborations in the field of plant physiology and photobiology.
- b) Students placement (National and International)
- c) Renowned faculty who has published research papers in reputed journals.
- d) Involvement of faculty in various national funding agencies/ bodies like UGC, NAAC, CSIR, DST etc.
- e) One of our student Dr. Vivek Chandra was selected for INSA-Young scientist award.

Weakness :

- a) Collaborations with industry Pharmacy companies and ICAR/CSIR institutions.
- b) Need of supporting and administrative staff.
- c) Decreasing number of research students pursuing biological sciences due to reduced opportunities in the area of biological sciences.
- d) Recruitment policies of the government.
- e) Audit related problems in the utilization of research grants.

Opportunities:

- a) International and National collaborations will improve research standards and opportunities to students.
- b) Research skills and aptitude of faculties and students will further improve the quality of teaching and research.
- c) Sandwich research programme of various funding agencies will be beneficial to start consultancy services.
- d) Adjunct faculty positions will improve teaching.
- e) International fellowships for faculties will enhance the communication and research skills.

Challenges:

- a) To develop global level research labs.
- b) Attract students and researchers for Life Sciences courses, as at present there is lack of motivation for science among students.
- c) Lack of motivation for research and development activities.

52. Future plans of the department.

- a) Need of collaborations with other faculty within university (like medical, engineering, management etc.)
- b) New collaboration and exchange program for students and faculty.
- c) Consultancies with Pharma and biotech industries.
- d) Enhancement of ICT tools, virtual class rooms, 24x7 learning places and new student-centric teaching.
- e) Addition in permanent faculty, in recent areas like genomics, proteomics, molecular genetics, medical microbiology etc

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

School of Life Science is updating syllabi as per requirement of students and on the guidance of experts and as per UGC-CSIR NET Syllabi. The students are sent to summer training and project work in reputed national laboratories and institutions. Recently, PhD course work and M. Phil programme started in the department and faculty from School of Computer Sciences, IMS, School of Biotechnology are involved in teaching, inter-disciplinary courses.

The students feedback is obtained in each semester and the suggestions rendered by the students of M. Sc., M. Phil and research scholars are pass on to the individual teachers for improvement.

It is proposed from the 2013-14 session to introduce Bioinformatics, computer application, cancer biology paper in M.Sc. From the current academic session each and every student is attached with a faculty. The mentor will take care of the student on day to day basis. Induction programme was conducted in the department on 2<sup>nd</sup> August 2013. All the faculty, old and new students, research scholars were introduced by the Head of the Department. Guidelines were provided with regard to the requirement of attendance, syllabus, semester system, opportunities available to the students of biology in India and abroad. The scholarships provided by the state, central government to the students of SC, ST, OBC, Minorities were highlighted. From the current academic session, choice based credit system (CBCS) is being proposed.

Anti-ragging squad, Gender Sensitive Cell formed in the Department. The department is smoking free. The department conducts regular seminars involving students, research scholars and also invite distinguished scientists for the expert lectures. Multimedia and LCD facilities are used for classroom lectures/seminars. Results are declared timely. The grievances of the students, if any, are resolved by the board.

Student Enrichment Efforts (2012-13):

- (1) Special lectures on “Fostering Excellence in Research” organized on January 15, 2013. List of Speakers is as follows:
  - (a) Prof. Priyankar Upadhyay UNESCO Chair Professor, Banaras Hindu University (BHU), Varanasi.
  - (b) Prof. V. K. Singh, Director, Indian Institute of Science Education and Research (IISER), Bhopal.
  - (c) Prof. H. Padh. Vice- Chancellor, Sardar Patel University, Vallabh Vidya Nagar, Gujarat.
- (2) Workshop on Effective teaching and learning on May, 10, 2013.

(3) 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.

(4) Lecture on Swami Vivekanand's Contribution and Message to youth was held on Jan.12, 2013.

(5) Bharat Ratna Dr. A.P.J. Abdul Kalam's message to students on June 12, 2013.

The department regularly conduct departmental committee and faculty meetings to discuss the academic matters.



---

### 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.



Signature of the Head of the institution

with seal:

*Head*

**School of Life Sciences  
Devi Ahilya Vishwavidyalaya  
INDORE (M.P.)**

Place: Indore

Date: 22/8/2013