

4. APPOINTMENTS HELD

- (i) Scientist S-1 (Biochemistry) in Indian Council of Agricultural Research (ICAR) for 4 years from 23.12.1978 to 24.01.1983.
- (ii) Lecturer in Department of Biochemistry, Faculty of Science, Banaras Hindu University, Varanasi-221005 for 8 years, from 25.01.1983 to 06.01.1991.
- (iii) Reader in Department of Biochemistry at Banaras Hindu University for 8 years, from 07.01.1991 to 6.01.1999.
- (iv) Professor in Department of Biochemistry at Banaras Hindu University for over 16 years (from 7.1.1999 onwards).
- (v) **HEAD OF THE DEPARTMENT OF BIOCHEMISTRY** for nearly 9½ years, for four terms from 30.01.1992 to 31.01.1995, from 30.01.1998 to 23.05.1998, from 01.01.2002 to 31.12.2004 and from 1.1.2011 to 31.12.2013.
- (vi) **Vice-Chancellor of Guru Ghasidas University, Bilaspur** from 22.12.2008 to 1.3.2009.
- (vii) Presently serving as **Vice-Chancellor of Tilka Manjhi Bhagalpur University, Bhagalpur (Bihar)** from February 7, 2014 onwards.

5. RESEARCH/TEACHING EXPERIENCE

Nearly 39 years experience of research (2½ years in capacity of CSIR research fellow, 12 years in capacity of Lecturer and equivalent positions, 8 years as Reader, over 16 years as Professor) and 32 yrs experience of teaching. Research conducted in different areas of Biochemistry with major emphasis on **STRESS METABOLISM IN CROP PLANTS, ENTEROTOXINS, ENZYME TECHNOLOGY, etc.**

6. ADMINISTRATIVE EXPERIENCE

- i. **Vice-Chancellor, TM Bhagalpur University, Bihar, from Feb 7, 2014 onwards.**
- ii. **Vice-Chancellor, Guru Ghasidas University, Bilaspur** (a state University) from 22.12.2008 to 1.3.2009 (till it became a Central University).
- iii. **Vice-Chancellor (in additional charge), BN Mandal University, Madhepura, Bihar, from May 17, 2014 to May 28, 2014.**
- iv. **HEAD OF THE DEPARTMENT OF BIOCHEMISTRY at Banaras Hindu University** for over 9½ years.
- v. **PROFESSOR-IN-CHARGE of BANARAS HINDU UNIVERSITY CENTRAL LIBRARY**, for nearly 2 Years, from September 6, 2006 to December 20, 2008. BHU Library is **one of the largest Library Systems of our country.**
- vi. **Coordinator of Hindi Publication Board of Banaras Hindu University for 6 years** (from October 2002 to December 2008).
- vii. **Coordinator of Alumni Cell of Banaras Hindu University** for 2½ years (from May 8, 2009 to Nov. 4, 2011).
- viii. **Member of the first ACADEMIC COUNCIL of Central University of Rajasthan, from July 30, 2009 to July 29, 2012**, for a period of 3 years, being nominated by Government of India, Ministry of Human Resource Development.
- ix. **Member of the first ACADEMIC COUNCIL of Central University of Himachal Pradesh from May 13, 2010 onwards** for a period of 3 years, being nominated by Government of India, Ministry of Human Resource Development.
- x. **Member of the Court of North Eastern Hill University, Shillong**, from 30.9.2009 for a period of 3 years, being nominated by the President of India.
- xi. **Associate NCC officer** (a commissioned gazetted officer with the last rank of **Captain**) at Banaras Hindu University for nearly **26 years**, from January 1985 to December 2010.

7. DETAILS OF RESEARCH EXPERIENCE

Research Stage	Title of Work	Institution
(i) Ph.D. (Biochem.) 2 ½ years	Studies on enterotoxin of <i>Aeromonas hydrophila</i>	Banaras Hindu University (from 01.06.1976 to 22.12.1978).
(ii) Scientist S-1 (Biochemistry) (4 years)	Salinity stress induced metabolic alterations in rice, Isolation and Characterization of Bacterial toxins	Indian Council of Agricultural Research (from 23.12.1978 to 24.01.1983) and posted at Indian Grassland and Fodder Research Institute, Jhansi (23.12.1978 to 02.10.1979) and Central Rice Research Institute, Cuttack (03.10.1979 to 24.01.1983).
(iii) Lecturer (8 years)	Stress Metabolism in Plants, Bacterial Enterotoxins, Enzyme Technology, etc.	Department of Biochemistry, Faculty of Science Banaras Hindu University (from 25.01.1983 to 06.01.1991)
(iv) Reader (8 years)	-do-	Department of Biochemistry Banaras Hindu University (from 07.01.1991 to 06.01.1999).
(v) Professor over 16 years	-do-	Department of Biochemistry Banaras Hindu University (from 07.01.1999 onwards).

8. RESEARCH SUPERVISION EXPERIENCE : 32 years

Twenty eight students have received Ph.D. degrees under either Supervision (25) or Co-supervision (3), as under:

Name of Research Scholar	Topic	Month & Year of Registration	Year of Award	Supervisor/ Co-Supervisor
1. Kailash Nath Sharma	Metabolism of Phosphorus at Different Growth Stages of Rice Under Normal and Stress Conditions	March 1984	1987	Co-Supervisor
2. Manju Rani	Influence of Salinity on Metabolic Status of Proteins and Amino Acids During Germination and Early Seedling Growth of Rice	September 1985	1988	Supervisor
3. Renu Mittal	Influence of NaCl Salinity on Behaviour of Certain Nucleases, Oxidases and Phosphatases During Germination and Early Seedling Stages of Rice	September 1986	1990	Supervisor
4. Sadhana Katiyar	Studies on Polyamines, Nitrogen Assimilation and Certain Dehydrogenases in Relation to Salt Tolerance in Rice	September 1986	1990	Supervisor
5. Durg Vijay Singh	Studies on Certain Virulence Properties of <i>Aeromonas hydrophila</i>	September 1985	1990	Co-Supervisor
6. Ajai Kumar Singh	Influence of NaCl Salinity on Nitrogen Assimilation and Photosynthetic Efficiency in Seedlings of Rice Genotypes Differing in Salt Tolerance	March 1990	1993	Supervisor

7. Anjali Tikoo	Purification and Characterization of New Cholera Toxin	September 1989	1993	Co-Supervisor
8. Naser Khallouf	Biochemical Studies on Malarial Parasites and Infected Host Erythrocytes	September 1992	1995	Supervisor (Internal)
9. Kavita Shah	Influence of Cadmium on Proteolytic, Nucleolytic and Phosphorolytic Events in Growing Rice Seedlings	September 1992	1995	Supervisor
10. Leena Gajjar	Biological Actions in the Presence of Surfactant Assemblies	September 1992	1996	Supervisor
11. Anil Richharia	Nitrogen Assimilation in Rice Plants Under Stressful Conditions	September 1991	1996	Supervisor
12. Manisha Mishra	Biochemical effects of Heavy Metal Toxicity and Nutritional Disorders in Plants and Biomolecules	March 1993	1997	Supervisor
13. Ritambhara G. Kumar	Stress Induced Metabolic Alterations in Growing Rice Plants	September 1992	1997	Supervisor
14. Anjana Singh	Biological Actions Within Normal and Reverse Micelles	September 1994	1998	Supervisor
15. Shalini Verma	Effect of Lead and Cadmium toxicity on metabolism of phosphate, sugars and role of antioxidants in growing rice plants	September 1996	2000	Supervisor
16. Ambuj Bhushan Jha	Effect of Arsenic Toxicity on Nitrogen Assimilation, Sugar Metabolism and Antioxidant System in Rice Plants	July 1999	2003	Supervisor
17. Shruti Mishra	Influence of Lead and Arsenic Toxicity on Metabolic Alterations in Growing Rice Plants	September 2000	2004	Supervisor
18. Pallavi Sharma	Antioxidant mechanism and role of osmolytes in rice plants under stressful conditions	September 2001	2005	Supervisor
19. Ruchi Maheshwari	Metabolic alterations and antioxidant defense mechanisms in rice plants under nickel toxicity	September 2001	2006	Supervisor
20. Pallavi Mishra	Nitrogen assimilation, metabolism of sugars and antioxidative defense system in growing rice plants under stressful conditions	September 2002	2008	Supervisor
21. Asutosh Rai	Biochemical and molecular mechanisms of heat tolerance in tomato	January 2006	2011	Supervisor
22. Namrata Jaiswal	Molecular and Biochemical Studies on Begomoviruses Associated with Yellow Vein Mosaic Disease of Pumpkin (<i>Cucurbita moschata</i>)	January 2008	2011	Supervisor
23. Sarita Srivastava	Metabolic alterations and antioxidative defense system in rice seedlings growing under manganese toxicity.	September 2005	2011	Supervisor

24.Samantha Pyngrope	Water stress induced antioxidative defense mechanism and metabolic alterations in growing rice plants	January 2007	2012	Supervisor
25.Kumari Bhoomika	Oxidative stress, antioxidative defense and tolerance mechanisms in relation to aluminum toxicity in rice plants	January 2007	2013	Supervisor
26.Smita Kumar	Functional genomics of members of sulphate transporter and glutathione S-transferase gene families involved in arsenic stress in rice	September 2010	2013	Supervisor
27.Rajneesh Kumar Srivastava	Cadmium and lead toxicity effects on antioxidative defense, mitochondrial functioning and proteomic alterations in rice seedlings	September 2009	2014	Supervisor
28.Poonam Pandey	Water deficit and aluminum toxicity associated metabolic, proteomic alterations and tolerance mechanisms in rice seedlings	July 2008	2014	Supervisor

Ph.D. students presently working under supervision : Four

9. RESEARCH PROJECTS COMPLETED : Completed 7 Major Research Projects

Funding Agency	Topic of Research	Month/Year of sanction	Month/Year of completion
1. Indian Council of Agricultural Research (ICAR), New Delhi	Studies on influence of salinity on protein metabolism of rice during germination and early seedling growth	24.11.1984	23.11.1987 The panel accepted the report with ' A WORD OF APPRECIATION FOR GOOD WORK '
2. University Grants Commission (UGC), New Delhi	Mechanism of Nitrogen assimilation in rice seedlings under salinity stress	2.4.1990	1.4.1994
3. Indian Council of Agricultural Research, New Delhi	Influence of salinity and heavy metal toxicity on nitrogen assimilation in rice plants	8.10.1994	7.10.1997
4. Ministry of Environment and Forests, Govt. of India	Biochemical effects of cadmium toxicity during germination and early seedling growth of rice	8.10.1994	7.10.1998
5. University Grants Commission, New Delhi	Effect of cadmium toxicity and water stress on nitrogen assimilation, antioxidant mechanism and role of osmolytes in growing rice plants	30.6.2001	29.6.2004
6. Department of Science and Technology, New Delhi	Oxidative stress and inducible tolerance mechanisms in rice plants under Aluminum toxicity	1.10.2007	30.9.2010
7. University Grants Commission, New Delhi	Manganese and nickel toxicity induced metabolic proteomic and computational studies in rice plants	1.04. 2013	31.3.2015

10. SALIENT ACADEMIC CONTRIBUTIONS

- (a) Conducted extensive studies on soil salinity, water stress and metal toxicity induced key metabolic alterations in rice plants. It has been shown that these stresses impair proteolysis, nitrogen assimilation, the process of photosynthesis and photosynthate partitioning by selectively influencing the activity behaviours of many enzymes. It has been shown that salinity and drought cause oxidative damage to rice plants by overproducing reactive oxygen species. The roles of individual components of antioxidative defense mechanism in combating drought and metals induced oxidative damage have been well established. Characterized the constitutive and inducible tolerance mechanisms like molecular isoforms of enzymes ribonucleases, peroxidases and superoxide dismutases associated with stressful conditions of soils salinity, water stress and metal toxicity. It has been shown that specific inducible peroxidase isoforms can be used as markers for screening salt tolerant cultivars of rice (Rice Biotechnology Quarterly, USA 1991, **8**, 8-9) and that expression of a 18kDa protein is induced under Cd toxicity and this protein sequesters Cd by binding with its four -SH groups. Further, ascorbate peroxidase can be used as useful target to engineer Al tolerance in rice. A direct role of osmolytes as enzyme protectants and role of the metals Cd, Pb, Al, Ni in inducing oxidative damage in plants (Plant Science 2001,**161**:1135-1144, Plant Cell Reports 2007, **26**:2027-2038, Plant Growth Regulation 2009 59:37-49) have been established.
- (b) Purified and characterized **enterotoxins** from the bacteria *Aeromonas hydrophila* and from different bio-type strains of *Vibrio cholerae*. A novel method was developed for the assay of cholera toxin using GM₁-ELISA. This method has been very popular and widely cited including in **Methods In Enzymology (Vol. 235, Part A, p. 521)**.
- (c) Established a novel system involving reverse micelles for entrapment and stabilization of many enzymes and the whole yeast and bacterial cells. For the first time it was shown that chloroplast organelles together with the bacteria *Halobacterium halobium* when entrapped within aqueous pockets of reverse micelles, could serve as novel tool to produce molecular hydrogen which could be used as clean fuel (International Journal of Hydrogen Energy, Vienna, 1999, **24**, 693-698). Reverse micelles are formed as spheroidal aggregates when amphiphilic molecules (surfactants) are added in organic solvents. The interior of reverse micelles due to its polar nature provides suitable space to host whole microbial cells and plant organelles in aqueous medium.

11. PUBLICATIONS :

Published 147 full research articles in National and International scientific journals, including **25** Chapters contributed in books. The prominent journals include Environment International, Elsevier [Impact Factor 5.66], Bioresource Technology, Elsevier, [Impact Factor 4.49], Journal of Hazardous Materials, Elsevier, [Impact Factor 4.52], Plant Science, Elsevier, [Impact Factor 3.60], International Journal of Hydrogen Energy, Elsevier, [Impact Factor 3.31], Australian Journal of Plant Physiology, CSIRO, [Impact Factor 3.14], Plant Cell Reports, Springer, [Impact Factor 3.07], Microbiology, SJM, [Impact Factor 2.853], Plant Physiology and Biochemistry, Elsevier, [Impact Factor 2.775], Protoplasma, Springer, [Impact Factor 2.65], Biometals, Springer, [Impact Factor 2.50], Ecotoxicology, Springer, [Impact Factor 2.773], Journal of Plant Physiology, Elsevier, [Impact Factor 2.55], Plant Molecular Biology Reporter, Springer, [Impact Factor 2.37], Journal of Agronomy and Crop Science, Wiley, [Impact Factor 2.44], Applied Biochemistry and Biotechnology, Wiley, [Impact Factor 1.893], Biologia Plantarum, Springer, [Impact Factor 1.692], Plant Growth regulation, Springer, [Impact Factor 1.670], etc.

12. CITATION OF WORK

Research work cited by more than 5,300 authors in various Scientific Articles, Reviews, Annotated Bibliographies, etc., as evidenced from **Science Citation Index** and **Google Scholar**, with **h-Index 33** and **i-10 Index 70**. Recognized as one of the **TOP-TEN MOST CITED AUTHORS** during the years **2003-2008** by **ELSEVIER PUBLICATIONS**, Amsterdam. Some highly cited papers include (i) Shah K, Kumar RG, Verma S, Dubey RS 2001 Plant Science 161 (6), 1135-1144 [**522 Citations**], (ii) Sharma P, Dubey RS 2005. Brazilian Journal of Plant Physiology 17 (1), 35-52 [**536 Citations**] (iii) Verma S, Dubey RS 2003 Plant Science 164, 645-655 [**463 Citations**], (iv) Dubey RS. 1997. *In* Handbook of Photosynthesis (M Pessaraki, Ed.), pp.717-737 Marcel Dekker/ CRC Press, New York [**273 Citations**] (v) Sharma P, RS Dubey RS 2007. Plant Cell Reports 26, 2027-2038 [**153 Citations**], (vi) Sharma P, Dubey RS 2005. Plant Growth Regulation 46 (3), 209-221 [**148 Citations**].Source : *Google Scholar*

13. VISITS / TRAINING ABROAD

- (i) Awarded **SWEDISH INSTITUTE FELLOWSHIP** by Swedish Institute, Stockholm for a period of 11 months (Feb. 1989 to Dec. 1989) and worked with **Prof. Jan Holmgren** at the Department of Medical Microbiology and Immunology, **University of Gothenburg, SWEDEN**.
- (ii) Completed one week graduate course on 'Bacterial Toxins' during April 10-14, 1989 at the Department of Bacteriology, **Karolinska Institute, Stockholm**.
- (iii) Participated in 3rd International Symposium on Plant Peroxidase : Biochemistry and Physiology, held at **Elsinore, Denmark** during July 10-14, 1993.
- (iv) Nominated by Indian National Science Academy (INSA, New Delhi) under **INSA – DFG (German Academy of Science) Exchange programme** and worked with **Prof. Uwe Sonnewald** at Institute of Plant Genetics and Crop Plant Research, **Gatersleben, GERMANY** for 3 months (from 5.8.1997 to 30.10.1997).
- (v) Awarded **FELLOWSHIP** by **JSPS (Japan Society for Promotion of Science)** for a period of 10 months and worked with **Prof. Shoji Hatano** at the Department of Food Science and Technology, Kyushu University, **JAPAN** during May 24, 1998 to March 21, 1999.
- (vi) Nominated by Indian National Science Academy (INSA, New Delhi) under **INSA – DFG (German Science Academy) Exchange programme** and worked with **Prof. Walter J. Horst** at Institute of Plant Nutrition, University of Hannover, **GERMANY** for 3 months from June 3, 2003 to August 28, 2003.
- (vii) Awarded Fellowship by **JSPS (Japan Society for Promotion of Science)** for a period of 2 months and worked as Visiting Professor with Dr. Y. Yamamoto at The Research Institute for Bioresources, Okayama University, Japan during May 16, 2005 to July 14, 2005.
- (viii) Nominated by Indian National Science Academy (INSA, New Delhi) under **INSA – DFG (German Science Academy) Exchange programme** and worked with **Prof. Walter J. Horst** at Institute of Plant Nutrition, University of Hannover, **GERMANY** for 3 months from June 1 2007 to August 28, 2007.
- (ix) Nominated by Govt. of Bihar and sponsored by World bank, participated in **Academic Leadership Academy programme at Pennsylvania State University, USA** during June 22-26, 2014

14. SEMINARS / CONFERENCES ATTENDED

Attended more than 60 seminars / conferences organized by Indian Science Congress Association, Society of Biological Chemists (India), Society for Plant Physiology and Biochemistry, Indian Society for Plant Physiology, Indian Society of Agricultural Biochemists, Society for Plant Biochemistry and Biotechnology, Indian Chemical Society, Biotech research Society of India, etc. and presented research papers, gave invited lectures and chaired scientific sessions.

15. REFEREE / REVIEWER / EDITOR OF JOURNALS

Serving as Member on the Editorial Board of the journals (i) **Indian Journal of Agricultural Biochemistry** and (ii) **The Journal of Agronomy and Crop Science**, Wiley Blackwell Verlag Germany (Impact Factor 2.51). Acting as one of the Members in the Board of Referees / Reviewers for the Journals : Indian Journal of Plant Physiology (New Delhi), Plant Cells Reports, Plant Physiology and Biochemistry (Paris), Plant Growth regulation, International Journal of Hydrogen Energy, Indian Journal of Agricultural Biochemistry, Indian Journal of Clinical Biochemistry, Journal of Plant Physiology (Germany), Environmental and Experimental Botany, Environmental Toxicology (UK), Ecotoxicology and Environmental Safety, Environmental Monitoring and Assessment, Chemosphere, Protoplasma, Journal of Agronomy and Crop Science, Acta Physiologia Plantarum, Environmental Pollution, Journal of Environmental Biology, Journal of Integrative Biology, Biological Trace Element Research, Trends in Biotechnology, etc.

16. REVIEWER OF PROJECT PROPOSALS

Serving as one of the REVIEWERS for scientific project proposals submitted to the National Funding Agencies : Department of Science and Technology, New Delhi; Ministry of Environment and Forests, Govt. of India, New Delhi; Indian Council of Agricultural Research, New Delhi, University Grants Commission, New Delhi, etc.

17. EXAMINER/ MEMBER ON BOARD OF STUDIES IN UNIVERSITIES

Serving as examiner for undergraduate and postgraduate Theory as well as Practical Papers and Ph.D. theses for the Universities of Allahabad, Jaunpur, Lucknow, Faizabad, Kanpur, Agra, Delhi, Aligarh, Rewa, Gwalior, Raipur, Bhagalpur, Manipur, Shillong, Bhubaneshwar, Pune, etc. for more than 25 years. Presently serving/served as member on Board of Studies in Biochemistry for Universities of Faizabad, Jaunpur, Jhansi, Kanpur, Gwalior, IGNOU New Delhi, Mizoram and NEHU Shillong.

18. MEMBER IN SELECTION COMMITTEES IN UNIVERSITIES

Served as Member in the Board of Selection Committees for appointment of faculty positions in the Universities of Pune, Jhansi, Jaunpur, Tejpur, Bhubaneshwar, Srinagar, Central Universities of Garhwal, Allahabad, Rajasthan., etc.

19. ORGANIZED THE FOLLOWING SEMINAR/SYMPOSIUM IN CAPACITY OF ORGANIZING/ CO-ORGANIZING SECRETARY at Banaras Hindu University

(i) *International Seminar on Structure and Function of Enzymes*, October 22-25, 1986.

(ii) *Fourth Convention of The Indian Society of Agricultural Biochemists and the Symposium on Recent Developments in Biochemistry*, March 20-21, 1995.

(iii) *Seminar on Role of Scientists in the Promotion of Higher Education* on 12th October 2007.

(iv) *International Seminar on Higher Education: Global Perspective and Indian Vision* along with 4th International BHU Alumni Meet of Banaras Hindu University during **December 25-27, 2009**.

(v) *International Conference on Role of Biomolecules in Food Security and Health Improvement* and XI Silver Jubilee Convention of the Indian Society of Agricultural Biochemists, during February 17-20, 2010.

(vi) *Seminar on Higher Education and Sustainable Development: Emerging Challenges and Mahamana's Vision* along with Alumni Meet of Banaras Hindu University, during **December 24-25, 2010**.

20. MEMBERSHIP OF PROFESSIONAL BODIES, SOCIETIES, ETC.

Regular/Life member of the scientific bodies : Indian Science Congress Association, Calcutta (from 1987, Life Member), Society of Biological Chemists (India), Bangalore (from 1978, Life Member), Society of Plant Physiology and Biochemistry (from 1997), Association of Rice Research Workers of India (from 1979), Indian Society of Plant Physiology (from 1983), Society for Plant Biochemistry and Biotechnology (From 1992, Life Member), Indian Chemical Society (from 1994, Life Member), Indian Society of Agricultural Biochemists, Kanpur (from 1988, Life member), Biotech Research Society of India (Life Member).

21. PRIZES, AWARDS, MEDALS, HONOURS, RECOGNITIONS RECEIVED

- (i) National Merit Scholarship awarded throughout the University Career.
- (ii) BHU cash prize with certificate for securing **highest marks** at B.Sc. Part II (Chem. Hons.) **and B.Sc. Part III (Chem. Hons.)** examinations of BHU held in years 1973 and 1974 respectively.
- (iii) **CERTIFICATE OF MERIT** along with a cash prize of Rs 75/- from Faculty of Science, BHU for securing **FIRST RANK in M.Sc. (Biochemistry Previous)** examination of Banaras Hindu University held in 1975.
- (iv) **BHU MEDAL** awarded for securing **1st rank in M.Sc. (Biochemistry)** examination of Banaras Hindu University held in 1976.
- (v) Indian Science Congress Association (ISCA) **YOUNG SCIENTIST AWARD** in the year 1982.
- (vi) **SWEDISH INSTITUTE FELLOWSHIP** by Swedish Institute, Stockholm for a period of 11 months (Feb. 1989 to Dec. 1989).
- (vii) Nominated by Indian National Science Academy (INSA, New Delhi) under **INSA – DFG (German Academy of Science) Exchange programme** for 3 months (from 5.8.1997 to 30.10.1997).
- (viii) **JSPS (Japan Society for Promotion of Science) FELLOWSHIP** awarded for a period of 10 months (from May 24, 1998 to March 21, 1999).
- (ix) Nominated by Indian National Science Academy (INSA, New Delhi) under **INSA – DFG (German Academy of Science) Exchange Programme** for 3 months during June to August, 2003.
- (x) Awarded Invitation Fellowship by **JSPS (Japan Society for Promotion of Science)** for 2 months during May-July 2005.
- (xi) Nominated by Indian National Science Academy (INSA, New Delhi) under **INSA – DFG (German Academy of Science) Exchange programme** for 3 months during June to August, 2007.
- (xii) Served as **Member Expert Committee of UGC** for Innovation Programmes and Major Research Projects in the discipline of Biochemistry during 2011.
- (xiii) Served as a **Member of Executive Committee of The Indian Society for Agricultural Biochemists** during 1995-97 and from the year 2002 onwards.

- (xiv) Served as an elected **Member of the Sectional Committee for the Section of Biochemistry, Biophysics and Molecular Biology** of 1997-98 session of **Indian Science Congress**.
- (xv) Gave **Invited Talks/Chaired Scientific Sessions** in many Conferences in India and abroad, some notably among these are: Brain storming session cum workshop on Current Status of Cholera Research in India, New Delhi on August 3, 1991; 31st Annual Convention of Chemists, Varanasi on 22nd Dec 1994; Institute of Plant Genetics and Crop Research, **Gatersleben, Germany** on August 19, 1997; First National Rasaushadhi Conference, Patna on November 28, 1999; Conference on Impact of Biotechnology on Society, BHU, March 15, 2005; National Seminar on Biochemistry, University of Gorakhpur, March 22, 2005; Research Institute for Bioresources at Okayama University (Japan) on June 13, 2005; Kyushu University, Fukuoka (Japan) on July 1, 2005; Department of Biology, Okayama University, Japan on July 7, 2005; 2nd International Conference on Trends in Cell and Molecular Biology, JNU, New Delhi, Jan. 5-7, 2008; Symposium on Current Advancements in Biotechnology, Allahabad on April 27, 2009; International Conference on Emerging Trends in Biotechnology (ETBT)-Banaras Hindu University, Dec 4-6, 2009; International Conference on Genomics and 7th Annual Convention of Biotech Research Society of India, Madurai Kamraj University, Nov. 12-14, 2010; 98th Session of Indian Science Congress, Chennai, January 3-7, 2011; 13th Convention of Bioved Research Society of India, Allahabad, February 19-20, 2011; National Seminar on Advances in Biological Sciences, Pt. RS University Raipur, Nov 5-7, 2011; National Seminar on Food Security and Sustainability of Agriculture, UPRT Open University, Allahabad, Feb. 9-10, 2012, University of Hyderabad Sept. 23, 2013, Key-note Speaker at Seminar on Sustainable Production of Nutritive Food, UPRT Open University, Allahabad, December 11-12, 2013; Key-note Speaker at International Seminar by Economic Association of Bihar, Begusarai July 31-August 2, 2015.
- (xvi) Served as **MEMBER** of the first **ACADEMIC COUNCIL** of **CENTRAL UNIVERSITY OF RAJASTHAN** from July 30, 2009 onwards for a period of 3 years, being nominated by Govt. of India, Ministry of Human Resource Development.
- (xvii) Served as **MEMBER** of the first **ACADEMIC COUNCIL** of **CENTRAL UNIVERSITY OF HIMACHAL PRADESH** from May 13, 2010 onwards for a period of 3 years, being nominated by Govt. of India, Ministry of Human Resource Development.
- (xviii) Served as **Member, Court, North Eastern Hill University Shillong**, being nominated by the President of India for a period of 3 years.
- (xix) Awarded **FELLOWSHIP OF THE INDIAN SOCIETY OF AGRICULTURAL BIOCHEMISTS (FISAB)** at 6th Convention of the Society held at Kanpur during February 24-26, 2000.
- (xx) Recipient of **TOP - TEN MOST CITED AUTHOR AWARD** for the period 2003-2008, by **ELSEVIER Publications, Amsterdam**.
- (xxi) Received **“Excellence Award”** by Indian Society of Agricultural Biochemists in the year 2010.
- (xxii) Awarded **FELLOWSHIP OF BIOTECH RESEARCH SOCIETY (FBRS) of India** at 7th Convention of the Society held at Madurai Kamraj University during Nov. 12-14, 2010.
- (xxiii) Awarded Hony. **FELLOWSHIP OF BIOVED RESEARCH SOCIETY of India** at its 13th Convention of the Society held at Allahabad University during February 19-20, 2011.

- (xxiv) Served as **Member of NAAC peer team** for assessment of Devi Ahilya Vishwavidyalaya, Indore during Jan 15-17, 2014.
- (xxv) Served as **Chairman of NAAC peer team** for assessment of Dhule College of Commerce, Arts and Science, Maharashtra during August 6-8, 2015.

22. EXTRA CURRICULAR ACTIVITIES (NCC)

Commissioned as 2nd Lieutenant in Army Wing of NCC on Dec. 14, 1985 and served as **ASSOCIATE NCC OFFICER** in Banaras Hindu University for 26 years (from 18.1.1986 to 22.12.2010). Elevated up to the level of **CAPTAIN** in NCC service.

23. **PRESIDENT OF MAHAMANA MALAVIYA MISSION VARANASI**
Served as **President** of **Mahamana Malaviya Mission** unit of Banaras Hindu University, Varanasi for over 2 years during 2012-2014. The mission has its Headquarters at New Delhi.

24. Popular Articles on Higher Education and Malaviya Ji

- i. **Dubey, R.S.** 2009. Philosophy of Education of Mahamana Pandit Madan Mohan Malaviya Ji (in Hindi). Proceedings of National BHU Alumni Meet 2009 and Seminar on **Mahamana's Vision for a Self Reliant India** : Current Issues and Future Prospects, Banaras Hindu University, January 29-30, 2009. pp.16-17.
- ii. **Dubey, R. S.** 2012. **Science Technology and Malaviya Ji.** Mahamana Malaviya Foundation News Letter, Varanasi. Vol 15, Sept-Dec. 2012, pp. 16-19.
- iii. **Dubey, R. S.** 2012. Towards Redressal of Challenges in Higher Education and Sustainability : **Vision of Malaviya Ji.** *Prajna*, A Journal of Banaras Hindu University, Volume 58, no.2, pp. 211-215.

PUBLICATIONS OF DR. R.S. DUBEY

(h-Index 33, i10- Index 70 and Citations 5,300+)

Articles Published in Peer Reviewed Journals /Chapters in Books

1. **Dubey R.S.** and Sanyal, S.C. 1978. Enterotoxicity of *Aeromonas hydrophila*: Skin responses and in vivo neutralization. Zbl. Bakt. Hyg.I., Abt. Orig. A. 242, 487-499.
2. **Dubey R.S.** and Sanyal, S.C. 1979. Studies on the characterization and neutralization of *Aeromonas hydrophila* enterotoxin in the rabbit ileal loop model. Journal of Medical Microbiology 12, 345-352.
3. **Dubey, R.S.**, Sanyal S.C and Malhotra, O.P 1980, Purification of *Aeromonas hydrophila* enterotoxin and its mode of action in experimental model. In Natural Toxins (Eds. T. Wadstrom and D. Eaker), Pergamon Press, Oxford, pp. 259-268.
4. Sanyal S.C., **Dubey, R.S.** and Annapurna, E. 1980. Enteropathogenicity and pathogenesis of *Aeromonas hydrophila* in experimental model. Proceedings of National Conference on Communicable Diseases. Calcutta, pp. 39-51.
5. **Dubey, R.S.** Bhattacharya, A.K. and Sanyal S.C. 1981. Elevation of cyclic adenosine monophosphate level by *Aeromonas hydrophila* enterotoxin. Indian Journal of Medical Research 74, 668-674.
6. **Dubey, R.S.** 1982. Biochemical changes in germinating rice seeds under saline stress. Biochem. Physiol. Pflanzen 177, 523-535.
7. **Dubey, R.S.** 1983. Preparation and partial characterization of *Xanthomonas oryzae*

- phytotoxin. Z. Allg. Microbiol 23, 225-233.
8. **Dubey, R.S.** 1983, Hydrolytic enzymes of rice seeds differing in salt tolerance. Plant Physiology and Biochemistry 10(S), 168-175.
 9. **Dubey, R.S.** 1984. Effect of sodium chloride salinity on enzyme activity and biochemical constituents in germinating salt tolerant rice seed. Oryza 21, 213-217.
 10. **Dubey, R.S.** 1985. Effect of salinity on nucleic acid metabolism of germinating rice seeds differing in salt tolerance. Plant Physiology and Biochemistry 12, 9-16.
 11. **Dubey, R.S.,** Sharma, K.N. and Manju Rani 1986. Role of amylolytic and phosphorolytic enzymes in governing salt tolerance in rice. In Structure and Function of Enzymes (O.P. Malhotra, Ed.) CSIR Publications, New Delhi, pp.110-112.
 12. **Dubey, R.S.** Sharma, K.N. and Singh, B. 1987. Influence of phosphorus fertilization on accumulation of phytic acid, nucleic acid and total phosphorus in developing rice grains. Oryza 24, 250-256.
 13. **Dubey, R.S.,** Sharma, K.N. and Singh B. 1987. Salinity induced Adenosine triphosphatase activity in germinating rice seeds. Indian Journal of Plant Physiology 30, 256-260.
 14. **Dubey, R.S.** and Manju Rani 1987. Proteases and proteins in germinating rice seeds in relation to salt tolerance. Plant Physiology and Biochemistry 14, 174-182.
 15. **Dubey, R.S.** and Manju Rani 1989. Influence of NaCl salinity on growth and metabolic status of proteins and amino acids in rice seedlings. Journal of Agronomy and Crop Science (Germany) 162, 97-106.
 16. **Dubey, R.S.** and Manju Rani 1989. Salinity induced accumulation of free amino acids in germinating rice seeds differing in salt tolerance. Journal of Agronomy and Crop Science (Germany) 163, 236-247.
 17. **Dubey, R.S.** and Sharma K.N. 1989 Acid and alkaline phosphatases in rice seedlings growing under salinity stress. Indian Journal of Plant Physiology 32, 217-223.
 18. **Dubey, R.S.,** Sharma, K.N. and Singh, B. 1990. Effect of phosphorus fertilization on nucleic acids of rice seedlings. Indian Journal of Agricultural Sciences 60, 192-194.
 19. Mittal, R. and **Dubey, R.S.** 1990. Effect of NaCl salinity on RNA level as well as activity and molecular forms of ribonuclease in germinating rice seeds differing in salt tolerance. Indian Journal of Plant Physiology 33, 32-39.
 20. **Dubey, R.S.** and Sharma K.N. 1990. Behaviours of phosphatases in germinating rice in relation to salt tolerance. Plant Physiology and Biochemistry (Paris) 28, 17-26.
 21. **Dubey, R.S.** and Manju Rani 1990. Influence of sodium chloride salinity on peptidase activities and the status of total amino acids in germinating rice seeds of differing salt tolerance. Tropical Science (England) 30, 133-145.
 22. **Dubey, R.S.** and Manju Rani 1990. Influence of NaCl salinity on behaviours of protease, aminopeptidase and carboxypeptidase in rice seedling in relation to salt tolerance. Australian Journal of Plant Physiology 17, 215-221.
 23. **Dubey, R.S.,** Lindblad, M . and Holmgren , J. 1990. Purification of ELT or cholera enterotoxins and comparisons with classical toxin. Journal of General Microbiology (England) 136, 1839-1847.
 24. Katiyar, S. and **Dubey, R.S.** 1990. Changes in polyamine titer in rice seedlings following NaCl salinity stress. Journal of Agronomy and Crop Science (Germany) 165, 19-27.
 25. Katiyar, S. and **Dubey, R.S.** 1990. Salinity induced accumulation of polyamines in germinating rice seeds differing in salt tolerance. Tropical Science (England) 30, 29-240.

26. **Dubey, R.S.** 1991. Peroxidases behaviour influences salt tolerance. Rice Biotechnology Quarterly (U.S.A) 8, 8-9.
27. Mittal, R, and **Dubey, R.S.** 1991. Behaviour of peroxidases in rice: Changes in enzyme activity and isoforms in relation to salt tolerance. Plant Physiology and Biochemistry (Paris) 29, 31-40.
28. Mittal R. and **Dubey, R.S.** 1991. Influence of salinity on ribonuclease activity and status of nucleic acids in rice seedlings differing in salt tolerance. Plant Physiology and Biochemistry (New Delhi) 18, 57-64.
29. **Dubey, R.S.**, Katiyar, S, and Mittal, R, 1991, Nitrogen assimilation and transamination in developing rice seedlings following NaCl salinity stress. In Physiological Strategies for Crop Improvement (Tyagi, D.N., Bose, B., Hemantranjan, A. and Devi, T.M., Eds.), B.H.U., Varanasi. pp. 189-194.
30. Mittal, R. and **Dubey, R.S.** 1992, Behaviour of polyphenol oxidase, IAA oxidase and catalase in germinating rice in relation to salt tolerance. Journal of Agronomy and Crop Science (Germany) 169, 270-280.
31. Katiyar, S. and **Dubey, R.S.** 1992. Influence of NaCl salinity on behaviour of nitrate reductase and nitrite reductase in rice seedlings differing in salt tolerance. Journal of Agronomy and Crop Science (Germany) 169, 289-297.
32. Mittal R. and **Dubey, R.S.** 1992. Mitochondrial acid phosphatase and adenosine triphosphatase in germinating rice seeds following NaCl salinity stress. Indian Journal of Plant Physiology 35, 174-181.
33. Singh, U.P., Prithviraj, B. and **Dubey, R.S.** 1993. *Peronospora pisi* spore load on different leaves and its effect on chlorophyll, nucleic acids, protein and phenol contents of pea leaves. Indian Phytopathology 46, 374 - 378.
34. **Dubey, R.S.** 1993. Behaviour of peroxidases in relation to salt tolerance in rice. In Plant peroxidases: Biochemistry and Physiology (K.G. Welinder, S.K. Rasmussen, C. Penel, H. Greppin eds.) Unvi. of Geveva, pp. 413-415.
35. Singh, D.V., **Dubey, R.S.** and Sanyal S.C. 1993 Adherence of haemagglutinating and non-haemagglutinating clinical and environmental isolates of *Aeromonas*. Journal of International Diarrhoeal Diseases Research 11, 157-160.
36. Katiyar S. and **Dubey, R.S.** 1994, Behaviour of malate, isocitrate and glucose 6-phosphate dehydrogenases in germinating rice in relation to salt tolerance. Tropical Science (England) 34, 231-240.
37. Gajjar, L., **Dubey, R.S.** and Srivastava, R.C. 1994. Activation and stabilization of enzymes entrapped into reversed micelles-Studies on hydrolysing enzymes protease and alpha amylase. Applied Biochemistry and Biotechnology (USA) 49, 101-112.
38. **Dubey, R.S.** 1994. Protein synthesis by plants under stressful conditions. In Handbook of Plant and Crop Stress (M. Pessarakli , ed.) Marcel Dekker, Inc., New York, pp. 277-299.
39. Singh, A.K. and **Dubey, R.S.** 1994. Salinity induced stimulation of glutamine synthetase activity in rice seedlings differing in salt tolerance. Plant Physiology and Biochemistry (New Delhi) 21, 84-90.
40. Singh, A.K. and **Dubey, R.S.** 1994. Alteration in activities of chloroplastic phosphatases in rice seedlings following NaCl salinity stress. Journal of Scientific Research 44, 27-36.
41. Kumar, R.G. and **Dubey, R.S.** 1995. Influence NaCl salinity on the behaviours of malate, isocitrate and glucose 6-phosphate dehydrogenases in growing rice seedlings in relation to salt tolerance. Indian Journal of Plant Physiology 38, 48-53.

42. Shah, K. and **Dubey, R.S.** 1995. Phytochelatin. *The Botanica* (New Delhi), 95, 26-27.
43. Shah, K. and **Dubey, R.S.** 1995. Cadmium induced changes on germination, RNA level and ribonuclease activity in rice seeds. *Plant Physiology and Biochemistry* (New Delhi) 22, 101-107.
44. Mittal, R. and **Dubey, R.S.** 1995. Influence of sodium chloride salinity on polyphenol oxidase, indole 3-acetic acid oxidase and catalase activities in rice seedlings differing in salt tolerance. *Tropical Science* 35, 141-149.
45. Singh, A.K. and **Dubey, R.S.** 1995. Changes in chlorophyll a and b contents and activity of photosystem 1 and 2 in rice seedlings induced by NaCl. *Photosynthetica* 31, 489-499.
46. Shah, K. and **Dubey, R.S.** 1995. Effect of cadmium on RNA level as well as activity and molecular forms of ribonuclease in growing rice seedlings. *Plant Physiology and Biochemistry* (Paris) 33, 577-584.
47. **Dubey, R.S.** and Pessarakli, M. 1995. Physiological mechanisms of nitrogen absorption and assimilation in plants under stressful conditions. In *Handbook of Plant and Crop Physiology* (M. Pessarakli, ed.), Marcel Dekker, Inc., New York, pp. 605-625.
48. **Dubey, R.S.** 1996. Nitrogen Metabolism in Plants Under Salt Stress. In *Strategies for Improving Salt Tolerance in Higher Plants*. (P.K. Jaiwal, R.P. Singh and A. Gulati eds.), Oxford & IBH Publishers, New Delhi, pp.129-158.
49. Gajjar, L., **Dubey, R.S.** and Srivastava, R.C.1996. Fungitoxic action of dithanes in presence of surfactant micelles. *Indian Journal of Experimental Biology* 34,370-390.
50. Said, M.K., Mishra, L., Richharia, A. and **Dubey, R.S.** 1996. Synthesis, characterization and activity of some linear 2Fe-2S clusters containing heterocyclic ligands. *Indian Journal of Chemistry* 35A, 214-217.
51. Shah, K. and **Dubey, R.S.** 1997. Effect of cadmium on proteins, amino acids and protease, aminopeptidase and carboxypeptidase in rice seedlings. *Plant Physiology and Biochemistry* (New Delhi), 24, 89-95.
52. Gajjar, L., Singh, A., **Dubey, R.S.** and Srivastava, R.C.1997. Enzymic activity of the whole cells entrapped into reversed micelles - studies on alpha amylase and invertase in the entrapped yeast cells. *Applied Biochemistry and Biotechnology* (USA) 66,159-172.
53. Richharia, A., Shah, K. and **Dubey, R.S.** 1997. Nitrate reductase from rice seedlings: Partial purification, characterization and the effects of in situ and in vitro NaCl salinity. *Journal of Plant Physiology* (Germany) 151, 316-322.
54. Shah, K. and **Dubey, R.S.** 1997. Cadmium alters phosphate level and suppresses activity of phosphorolytic enzymes in germinating rice seeds. *Journal of Agronomy and Crop Science* 179, 35-45.
55. Mishra, S.P., Tiwari, D. and **Dubey, R.S.** 1997. The uptake behaviour of rice (Jaya) husk in the removal of Zn(II) ions- A radiotracer study. *Applied Radiation and Isotopes* 48, 877-882.
56. **Dubey, R.S.** 1997. Photosynthesis in plants under stressful conditions. In *Handbook of Photosynthesis* (M. Pessarakli, ed.), Marcel Dekker, Inc., New York, pp.859-875.
57. Shah, K. and **Dubey, R.S.** 1998. A 18 kDa Cd inducible protein complex: its isolation and characterization from rice (*Oryza sativa* L.) seedlings. *Journal of Plant Physiology* (Germany) 152, 448-454.
58. Shah, K. and **Dubey, R.S.** 1998. Cadmium suppresses phosphate level and inhibits the activity of phosphatases in growing rice seedlings. *Journal of Agronomy and Crop Science* (Germany) 180, 223-231.

59. Shah, K. and **Dubey, R.S.** 1998. Cadmium elevates level of protein, amino acids and alters the activity of proteolytic enzymes in germinating rice seeds. *Acta Physiologiae Plantarum* 20, 189-196.
60. Mishra, S.P., Tiwari, D., **Dubey, R.S.** and Mishra, M. 1998. Biosorptive behaviour of casein for Zn^{2+} , Hg^{2+} , and Cr^{3+} : Effects of physico-chemical treatments. *Bioresource Technology* 63, 1-5.
61. Shah, K. and **Dubey, R.S.** 1998. Effect of cadmium on proline accumulation and ribonuclease activity in rice seedlings: Role of proline as a possible enzyme protectant. *Biologia Plantarum* 40, 121-130.
62. Mishra, S.P., Tiwari, D., **Dubey, R.S.** and Mishra, M. 1998. Removal behaviour of rice (*Oryza sativa* L.) hulls for submicro concentrations of Hg and Cr from aqueous solutions: A radiotracer study. *Radiochimica Acta* 80, 47-52.
63. **Dubey, R.S.** 1998. Reversed micelles: a novel system for production of highly active enzymes by entrapped microbial cells. In *Trends in Microbial Exploitation* (Rai, B., Upadhyay, R.S. and Dubey, N.K., eds.) International Society for Conservation of Natural Resources, Varanasi, pp.224-233.
64. **Dubey, R.S.** and Singh, A.K. 1999. Salinity induces accumulation of soluble sugars and alters activity of sugar metabolising enzymes in rice plants. *Biologia Plantarum* 42, 233-239.
65. Kumar, R.G. and **Dubey, R.S.** 1999. Glutamine synthetase isoforms from rice seedlings: Effect of stress on enzyme activity and the protective roles of osmolytes. *Journal of Plant Physiology (Germany)* 155, 118-121.
66. Tiwari, D., Mishra, S.P., Mishra, M. and **Dubey, R.S.** 1999. Biosorptive behaviour of mango (*Mangifera indica*) and neem (*Azadirachta indica*) bark for Hg^{2+} , Cr^{3+} and Cd^{2+} toxic ions from aqueous solutions: a radiotracer study. *Applied Radiation and Isotopes* 50, 631-642.
67. Singh, A., Pandey, K.D. and **Dubey, R.S.** 1999. Reverse micelles: a novel tool for hydrogen production. *World Journal of Microbiology and Biotechnology* 15, 243-247.
68. Singh, A. Pandey, K.D. and **Dubey, R.S.** 1999. Enhanced hydrogen production by coupled system of *Halobacterium halobium* and chloroplast after entrapment within reverse micelles. *International Journal of Hydrogen Energy*, 24, 693-698.
69. **Dubey, R.S.** 1999. Protein synthesis by plants under stressful conditions. In *Handbook of Plant and Crop Stress* (M. Pessarakli, ed.), 2nd Edition, Marcel Dekker, Inc., New York, pp. 365-397.
70. Singh, A., **Dubey, R.S.** and Srivastava, R.C. 1999. Synergistic effects in enzymic reactions. *Indian Journal of Biochemistry and Biophysics* 36, 227-232.
71. Singh, A. and **Dubey, R.S.** 2000. Reverse micelles as water property control system to investigate the hydration, superactivity and kinetics of invertase. *Indian Journal of Biochemistry and Biophysics* 37, 171-177.
72. Kumar, R.G., Shah, K. and **Dubey, R.S.** 2000. Salinity induced behavioural changes in malate dehydrogenase and glutamate dehydrogenase activities in rice seedlings of differing salt tolerance. *Plant Science* 156, 23-34.
73. Verma, S. and **Dubey, R.S.** 2001. Effect of cadmium on soluble sugars and enzymes of their metabolism in rice. *Biologia Plantarum* 44(1), 117-123.
74. Shah, K., Kumar, R.G., Verma, S. and **Dubey, R.S.** 2001. Effect of cadmium on lipid peroxidation, superoxide anion generation and activities of antioxidant enzymes in

- growing rice seedlings. *Plant Science* 161, 1135-1144.
75. **Dubey, R.S.** and Pessarakli, M. 2002. Physiological mechanisms of nitrogen absorption and assimilation in plants under stressful conditions. *In* Handbook of Plant and Crop Physiology (M. Pessarakli, ed.) 2nd Edition, Marcel Dekker, Inc., New York, pp. 637-655.
 76. Verma, S. and **Dubey, R.S.** 2002. Influence of lead toxicity on photosynthetic pigments, lipid peroxidation and activities of antioxidant enzymes in rice plants. *Indian Journal of Agricultural Biochemistry* 15, 17-22.
 77. Honjoh K., Mimura, A., Kuroiwa, E, Hagsako, T, Suga, K, Shimizu, **Dubey, R.S.**, Miyamota, T., Hatano, S. and Masayoshi, Iio. 2003. Purification and characterization of two isoforms of glucose 6-phosphate dehydrogenase (G6PDH) from *Chlorella vulgaris* C-27. *Bioscience Biotechnology and Biochemistry (Japan)* 67, 1888-1896.
 78. Verma, S. and **Dubey, R.S.** 2003. Lead toxicity induces lipid peroxidation and alters the activities of antioxidant enzymes in growing rice plants. *Plant Science*, 164, 645-655.
 79. Shah, K. and **Dubey, R.S.** 2003. Environmental Stresses and their impact on Nitrogen Assimilation in Higher Plants. *In* Advances in Plant Physiology, Volume 5 (Ed. A. Hemantranjan), Scientific publishers, Jodhpur, India, pp.397-431.
 80. Jha, A.B. and **Dubey, R.S.** 2004. Carbohydrate metabolism in growing rice seedlings under arsenic toxicity. *J. Plant Physiology*, 161, 867-872.
 81. Sharma, P. and **Dubey, R.S.** 2004. Ascorbate peroxidase from rice seedlings: properties of enzyme isoforms, effects of stresses and protective roles of osmolytes. *Plant Science*, 167, 541-550.
 82. Jha, A.B. and **Dubey, R.S.** 2004. Arsenic exposure alters the activities of key nitrogen assimilatory enzymes in growing rice seedlings. *Plant Growth Regulation*. 43, 259-268.
 83. Jha, A.B. and **Dubey, R.S.** 2004. Effect of arsenic on nitrogen assimilatory enzymes in germinating rice seeds. *Indian Journal of Plant Physiology*, 9, 438-441.
 84. Singh,U.P., Singh, D.P., Maurya, S., Maheshwari, R., Singh, M., **Dubey, R.S.** and Singh, R.B. 2004. Investigations on the phenolics of some spices having pharmacotherapeutic properties. *Journal of Herbal Pharmacotherapy (USA)*, 4, 27-42.
 85. Sharma, P. and **Dubey, R.S.** 2005. Lead toxicity in plants. *Brazilian Journal of Plant Physiology*, 17, 35-52.
 86. Jha, A.B. and **Dubey, R.S.** 2005. Effect of arsenic on behaviour of enzymes of sugar metabolism in germinating rice seeds. *Acta Physiologiae Plantarum*, 27, 341—347.
 87. Sharma, P. and **Dubey, R.S.** 2005. Modulation of nitrate reductase activity in rice seedlings under aluminium toxicity and water stress: role of osmolytes as enzyme protectant. *Journal of Plant Physiology*, 162, 854-864.
 88. Sharma, P. and **Dubey, R.S.** 2005. Drought induces oxidative stress and enhances the activities of antioxidant enzymes in growing rice seedlings. *Plant Growth Regulation*, 46, 209-221.
 89. Mishra, S. and **Dubey, R.S.** 2005. Heavy metal toxicity induced alterations in photosynthetic metabolism in plants. *In* Handbook of Photosynthesis (M. Pessarakli, ed.) 2nd Edition, **CRC Press**, Taylor and Francis Group, New York, pp. 845-863.
 90. **Dubey, R.S.** 2005. Photosynthesis in plants under stressful conditions. *In* Handbook of Photosynthesis (M. Pessarakli, ed.) 2nd Edition, **CRC Press**, Taylor and Francis Group, New York, pp. 717-737

91. Shah, K. *and Dubey, R.S.* 2005. Plant Metabolism Under Temperature Stress. In Physiology of Abiotic Stress in Plants (P. Dwivedi and R.S. Dwivedi, Eds.), Agrobios Publications (India), pp.243-274.
92. Sharma, P., Jha, A.B., Verma, S. and Dubey, R.S. 2005. Induction of ascorbate and guaiacol specific peroxidases in metal and water deficit induced oxidative stress in rice seedlings. *Physiology and Molecular Biology of Plants*, 12, 81-90.
93. Mishra, S. and *Dubey, R.S.* 2006. Heavy metal uptake and detoxification mechanisms in plants. *International Journal of Agricultural Research (USA)*, 1(1), 122-141.
94. Mishra, S.P. Tiwari, D., Prasad, S.K., *Dubey, R.S.* and Mishra, M. 2006. Inorganic ion exchangers in radioactive waste management. Part XVI: Uptake of some metal phosphates (stannic and zirconium) for ¹³⁴Cs. *Journal of Radioanalytical and Nuclear Chemistry*, 268, 191-199.
95. Mishra, S. and *Dubey, R.S.* 2006. Inhibition of ribonuclease and protease activities in arsenic-exposed rice seedlings : role of proline as enzyme protectant. *Journal of Plant Physiology*, 163, 927-936.
96. Sharma, P. and *Dubey, R.S.* 2006. Cadmium Uptake and its Toxicity in Higher Plants. In Cadmium Toxicity and Tolerance in Plants (Eds. Khan N.A. and Samiullah), Narosa Publishing House (India), pp.63-86.
97. Maheshwari, R. and *Dubey, R.S.* 2007. Nickel toxicity inhibits ribonuclease and protease activities in rice seedlings : Protective effects of proline. *Plant Growth Regulation*, 51, 231-243.
98. Mishra, S.P., Prasad. S.K., *Dubey, R.S.*, Mishra, M., Tiwari, D., Lee, S.M. 2007. Biosorptive behaviour of rice hulls for Cs-134 from aqueous solutions: A radiotracer study. *Applied Radiation and Isotopes*, 65, 280-286.
99. Mishra, S.P., Tiwari, D., Prasad, S.K., *Dubey, R.S.*, Mishra, M. 2007. Biosorptive behaviour of mango (*Mangifera indica*) and neem (*Azadirachta indica*) barks for ¹³⁴Cs from aqueous solutions: A radiotracer study. *Journal of Radioanalytical and Nuclear Chemistry*, 272, 371-379.
100. Mishra, M., Dubey, G. P. and *Dubey R. S.* 2007. Lead toxicity effects in growing rice plants: germination, seedling vigour and biochemical changes in rice plants. *Townsend Letter for Doctors and Patients*, 291, 94-98.
101. Sharma, P., *Dubey, R.S.* 2007. Involvement of oxidative stress and role of antioxidative defense system in growing rice seedlings exposed to toxic concentrations of aluminum. *Plant Cell Reports*. 26, 2027-2038.
102. Mishra SP, Tiwari D, Prasad SK, *Dubey, R.S.* and Mishra, M. 2007. Inorganic particulates in removal of toxic heavy metal ions - Part X: Removal behavior of aluminum hydroxide for Hg(II): A radiotracer study. *Journal of Radioanalytical and Nuclear Chemistry*, 274 (2), 257-263.
103. Mishra S and *Dubey R. S.* 2007. Changes in phosphate content and phosphatases activities in rice seedlings exposed to arsenite. *Brazilian Journal of Plant Physiology*. 20, 19-28.
104. *Dubey, R.S.* 2007. Heavy metal toxicity in plants: the phytotoxic role of cadmium. In Plant Diversity and Conservation (J.S. Singh, A.K. Bhatnagar, V.P. Singh and B.K. Roy, Eds.). Vedams eBooks (P) Ltd. Delhi. ISBN 81-89304-28-3., pp. 185-201
105. Mishra , P. and *Dubey, R.S.* 2008. Effect of aluminum on metabolism of starch and sugars in growing rice seedlings. *Acta Physiologiae Plantarum* 30, 265-275.

106. Maheshwari, R. and **Dubey, R.S.** 2008. Inhibition of ribonuclease and protease activities in germinating rice seeds exposed to nickel. *Acta Physiologiae Plantarum*. 30, 863-872.
107. Sharma, P. and **Dubey, R.S.** 2008. Mechanism of aluminum toxicity and tolerance in higher plants. In *Advances in Plant Physiology*, Volume 10 (Ed. A. Hemantranjan), Scientific Publishers, Jodhpur, India, pp.145-179.
108. Pandey, A. and Dubey, R.S. 2008. Photoproduction of Hydrogen Through Biological Route Using Reverse Micelles. In: *Treatise on Photophysiology* (Haldar, C. and Basu, P., eds.), Imagination Editors and Printers, Varanasi, India, pp. 193-206. ISBN 978-81-921414-11
109. Sharma, P., Jha, A.B. and Dubey, R.S. 2009. Effect of Abiotic Stresses on Growth, Metabolic Alterations and Tolerance Mechanisms in Rice Crop". In: Danforth, A.T., editor, *Corn Crop Production: Growth, Fertilization and Yield*. pp.111-186. Nova Science Publishers, New York, Agriculture Issues and Policies ISBN: 978-1-60741-955-6.
110. Maheshwari, R. and **Dubey, R.S.** 2009. Nickel-induced oxidative stress and the role of antioxidative defense in rice seedlings. *Plant Growth Regulation*. 59, 37-49.
111. Sharma, P. and **Dubey, R.S.** 2010. Metal Toxicity in Plants : Uptake of Metals, Metabolic Alterations and Tolerance Mechanisms. In: *Advances in Plant Physiology*, Volume 11 (Ed. A. Hemantaranjan), Scientific Publishers, Jodhpur, India, pp.53-106.
112. **Dubey, R.S.** 2010. Metal toxicity, oxidative stress and antioxidative defense system in plants. In: *Reactive Oxygen Species and Antioxidants in Higher Plants*. (S. Dutta Gupta, ed.), Science Publishers, CRC Press, Taylor and Francis Group, USA pp. 177-203.
113. Sharma, P., Jha, A. B. and **Dubey, R.S.** 2010. Oxidative Stress and Antioxidative Defense System in Plants Growing under Abiotic Stresses. In *Handbook of Plant and Crop Stress*, (M. Pessarakli, ed.), 3rd edition, Taylor & Francis, Florida, USA. pp. 89-138.
114. Sharma, P. and **Dubey, R.S.** 2010. Protein synthesis by plants under stressful conditions. In *Handbook of Plant and Crop Stress*, (M. Pessarakli, ed.), 3rd Edition, Taylor & Francis, Florida, USA. pp. 465-518.
115. Jaiswal, N., Saritha, R.K., Datta, D., Singh, M., **Dubey, R.S.**, Rai, A.B. and Rai, M. 2010. Molecular characterization of tomato leaf curl Palampur virus and pepper leaf curl betasatellite naturally infecting pumpkin (*Cucurbita moschata*) in India. *Indian Journal of Virology*. 21:128–132.
116. Srivastava S. and **Dubey, R.S.** 2011. Manganese-excess induces oxidative stress, lowers the pool of antioxidants and elevates activities of key antioxidative enzymes in rice seedlings. *Plant Growth regulation*. 64:1-16.
117. Maheshwari, R. and **Dubey, R.S.** 2011. Nickel toxicity alters phosphate pool and suppresses activity of phosphorolytic enzymes in germinating seeds and growing seedlings of rice. *International Journal of Plant Physiol Biochem* **3**, 50-59.
118. Mishra, Pallavi and **Dubey, R.S.** 2011. Nickel and Al-excess inhibit nitrate reductase but upregulate activities of aminating glutamate dehydrogenase and aminotransferases in growing rice seedlings. *Plant Growth regulation* 64, 251-261.
119. Sharma, P. and **Dubey, R.S.** 2011. Abiotic Stress-Induced Metabolic Alterations in Crop Plants: Strategies for Improving Stress Tolerance. In: *Advances in Life Sciences*, Sinha, R.P., Sharma, N.K. and Rai, A.K., eds. I.K. International Publishing House Pvt. Ltd., New Delhi, India. pp. 1-54.
120. Mishra, Shruti, Jha, A.B. and **Dubey, R.S.** 2011. Arsenite treatment induces oxidative stress, upregulates antioxidant aystem and causes phytochelatin synthesis in rice seedlings. *Protoplasma* 248, 565–577.

121. Srivastava, S. and **Dubey, R.S.** 2012. Nitric oxide alleviates manganese toxicity by preventing oxidative stress in excised rice leaves. *Acta Physiol. Plant.* 34, 819–825.
122. Jaiswal, N., Saritha, R.K., Datta, D., Singh, M., **Dubey, R.S.**, Rai, M. and Rai, A.B. 2012. Mixed infections of begomoviruses in pumpkins with yellow vein mosaic disease in north India. *Archives of Phytopathology and Plant Protection*, 45, 938 - 941.
123. Sharma, P., Jha, A.B., **Dubey, R.S.** and Pessarakli, M. 2012. Reactive Oxygen Species, Oxidative Damage and Antioxidative Defense Mechanism in Plants under Stressful Conditions. *Journal of Botany*, 2012, Article ID 217037, 26 pages, doi:10.1155/2012/217037.
124. Srivastava R.K and **Dubey, R.S.** 2012. Metal Toxicity, Production of Reactive Oxygen Species and Their Consequences in Plants. In: *Advances in Plant Physiology*, Volume 13 (Ed. A. Hemantaranjan), Scientific Publishers, Jodhpur, India, pp.415-456.
125. Dubey R.S. 2012. Food Security and Sustainability of Agriculture in Indian Context. In: *Proceedings of the National Seminar on Food Security and Sustainability of Agriculture*, UP Rajarshi Tandon Open University, Allahabad, Feb. 9-10, 2012, pp. 20-23.
126. Jaiswal, N., Singh, M., **Dubey, R.S.**, Venkataramanappa, V. and Datta, D. 2012. Phytochemicals and antioxidative enzymes defence mechanism on occurrence of yellow vein mosaic disease of pumpkin (*Cucurbita moschata*). *3 Biotech*, DOI 10.1007/s13205-012-0100-6.
127. Kumar, S., Asif, M.H., Chakrabarty, D., Tripathi, R.D., **Dubey, R.S.** and Trivedi, P.K. 2013. Differential expression of rice lambda class GST gene family members during plant growth, development, and in response to stress conditions. *Plant Molecular Biology Reporter* 31:569–580.
128. Mishra, P., Bhoomika, K. and **Dubey, R.S.** 2013. Differential responses of antioxidative defense system to prolonged salinity stress in salt-tolerant and salt sensitive Indica rice (*Oryza sativa L.*) seedlings. *Protoplasma* 250, 3-19.
129. Pyngrope, S., Bhoomika, K. and **Dubey, R. S.** 2013. Oxidative stress, protein carbonylation, proteolysis and antioxidative defense system as a model for depicting water deficit tolerance in Indica rice seedlings. *Plant Growth Regulation* 69, 149-165.
130. Mishra, P. and **Dubey, R.S.** 2013. Excess nickel modulates activities of carbohydrate metabolizing enzymes and induces accumulation of sugars by upregulating acid invertase and sucrose synthase in rice seedlings. *Biometals* 26, 97-111.
131. Pyngrope, S., Bhoomika, K. and **Dubey, R. S.** 2013. Reactive oxygen species, ascorbate–glutathione pool, and enzymes of their metabolism in drought-sensitive and tolerant indica rice (*Oryza sativa L.*) seedlings subjected to progressing levels of water deficit. *Protoplasma* 250, 585–600.
132. Verma, A.K., Agarwal, A.K., **Dubey, R. S.**, Solomon, S. and Singh, S.B. 2013. Sugar partitioning in sprouting lateral bud and shoot development of sugarcane. *Plant Physiology and Biochemistry*, 62 , 111-115.
133. Kumar S, Asif MH, Chakrabarty D, Tripathi RD, **Dubey RS**, Trivedi PK. 2013. Expression of a rice Lambda class of glutathione S-transferase, OsGSTL2, in Arabidopsis provides tolerance to heavy metal and other abiotic stresses. *Journal of Hazardous Materials* 248, 228-237.
134. Pandey P., Srivastava R.K. and **Dubey, R.S.** 2013. Salicylic acid alleviates aluminum toxicity in rice seedlings better than magnesium and calcium by reducing aluminum uptake, suppressing oxidative damage and increasing antioxidative defense. *Ecotoxicology* 22 (4), 656-670.
135. Bhoomika. K., Pyngrope, S. and **Dubey, R.S.** 2013. Differential responses of antioxidant enzymes to aluminum toxicity in two rice (*Oryza sativa L.*) cultivars with marked presence and elevated activity of Fe SOD and enhanced activities of

Mn SOD and catalase in aluminum tolerant cultivar. *Plant Growth Regulation*. 71 (3), 235-252

136. Gupta, A.K., **Dubey, R.S.** and Malik, J.K. 2013. Application of modern electroanalytical techniques: recent trend in pharmaceutical and drug analysis. *International Journal of Pharmaceutical Sciences and Research* 4, 2450-2458.
137. Pandey, P., Srivastava, R.K. and **Dubey, R.S.** 2014. Water deficit and aluminum tolerance are associated with a high antioxidative enzyme capacity in Indica rice seedlings. *Protoplasma* 251:147-60.
138. Bhoomika. K., Pyngrupe, S. and **Dubey, R.S.** 2014. Effect of aluminum on protein oxidation, non-protein thiols and protease activity in seedlings of rice cultivars differing in aluminum tolerance. *Journal of Plant Physiology*, 171 (7), 497-508.
139. Srivastava RK, Pandey P, Rajpoot R, Rani A and **Dubey RS**. 2014. Cadmium and lead interactive effects on oxidative stress and antioxidative responses in rice seedlings. *Protoplasma* 251:1047–1065.
140. **Dubey RS**, Srivastava, R.K. and Pessaraki M. 2014. Nitrogen absorption and assimilation in plants under stressful conditions. In *Handbook of Plant and Crop Physiology* (M. Pessaraki, ed.) 3rd Edition, CRC Press, Taylor and Francis Group, New York, pp. 453-485.
141. Sharma P, Jha AB, **Dubey RS** and Pessaraki M. 2014. Reactive oxygen species generation, hazards and defense mechanisms in plants under environmental (abiotic and biotic) stress conditions. In *Handbook of Plant and Crop Physiology* (M. Pessaraki, ed.) 3rd Edition, CRC Press, Taylor and Francis Group, New York, pp. 509-547.
142. Sharma P, Jha AB and **Dubey RS**. 2014. Arsenic toxicity and tolerance mechanisms in crop plants. In *Handbook of Plant and Crop Physiology* (M. Pessaraki, ed.) 3rd Edition, CRC Press, Taylor and Francis Group, New York, pp. 733-783.
143. Srivastava RK, Pandey P, Rajpoot R, Rani A, Gautam A and **Dubey RS**. 2014. Exogenous Application of Calcium and Silica Alleviates Cadmium Toxicity by Suppressing Oxidative Damage in Rice Seedlings. *Protoplasma*. DOI: 10.1007/s00709-014-0731-z.
144. Kumar S, **Dubey RS**, Tripathi RD, Chakrabarty D and Trivedi PK 2015. Omics and biotechnology of arsenic stress and detoxification in plants: Current updates and prospective. *Environment International* 74:221–230.
145. Kumar M, Chand R, **Dubey RS** and Shah K. 2015. Effect of Tricyclazole on morphology, virulence and enzymatic alterations in pathogenic fungi *Bipolaris sorokiniana* for management of spot blotch disease in barley. *World Journal of Microbiology and Biotechnology* 31:23-35. DOI 10.1007/s11274-014-1756-3.
146. Pandey K, **Dubey RS** and Prasad BB 2015. A Critical Review on Clinical Application of Separation Techniques for Selective Recognition of Uracil and 5-Fluorouracil. *Ind J Clin Biochem* DOI 10.1007/s12291-015-0482-4.
147. Kumar S, Asif MH, Chakrabarty D, Tripathi RD, **Dubey R.S.** and Trivedi PK. 2015. Comprehensive analysis of regulatory elements of the promoters of rice sulfate transporter gene family and functional characterization of *OsSul1;1* promoter under different metal stress. *Plant Signaling and Behavior*, Vol10, Issue 4
DOI:10.4161/15592324.2014.990843.