

DR. NEELAM VERMA

E-Mail:Neelam_verma2@rediffmail.comverma.neelam2@gmail.com

Tel (O) 0175-3046263, Tel (R) 0175-2285708

CAREER SNAPSHOT

- 1. Professor** (Former Head –March 12, 2005 to March 11, 2008), Dept. of Biotechnology, Punjabi University, Patiala, Punjab, India.
- 2. Area of specialization** - Biosensor Technology, Environmental Biotechnology/Biochemistry, Medical Biotechnology, Biophysics, Molecular modeling & Protein Engineering.
- 3. Research Experience** – 34 years and **Teaching Experience** – 29 years.
- 4. Two Patents** granted on Copper Biosensor and Microbial Arginine Biosensor,**Two patents** filed on Insulin Biosensor and Urea Biosensor.**Three patents** published on heavy metal biosensor.
- 5. Research publications** –108, **Review articles** – 14, **Books/Book Chapter-** 00/08, **Articles** – 7, **Abstracts/Conferences/Symposium** - 74, **Orientation/Refresher** – 1/3.
- 6. 37 Ph. D Students** (**29** Guided + **8** Under Guidance), **01 M. D.student**, **01M. Phil. student** and **86M. Sc. Students**.
- 7. Overseas visits** to USA, Canada and France for Research papers presentation and as visiting scientist for advance research training.
- 8. University - Industry interaction** with National Research and Development Corporation (**NRDC**) for commercialization of copper biosensor. International Technology evaluation assignment.
- 9. Invited as a Resource person** in more than 20 places for workshops, counseling, conferences, lectures and so on.
- 10. Projects handled/being handled : 17/ 2**
- 11. Young Scientist award and Best poster award to Ph. D students**
- 12. Poster presentation awardee (2rd position)** by Jyoti Saini and **Neelam Verma** in ICDLU international conference Sirsa, 2012 under “Biosensor and Nanotechnology”.
- 13. Poster presentation awardee (3rd position)** by Hardeep Kaur and **Neelam Verma** in ICDLU international conference Sirsa, 2012 under “Biosensor and Nanotechnology”.
- 14. Young Scientist Award RACES-2016, held at Modi College Patiala.**

EDUCATION

- **M.Sc.** (1978,Kurukshetra University),
- **M.Phil.** (1979,Kurukshetra University),
- **Ph.D.** (1986,Punjabi University,Patiala)
- **Title of Ph.D Thesis:** Spectrophotometric and polarographic estimation of some pesticides and metallic poisons.

ACHIEVEMENTS

1. **Two Patents** granted one on **Copper Biosensor** and second on **Microbial Arginine Biosensor**.
2. **Life Time Achievement award** for Biosensor technology Research by Venus International Faculty Awards-VIFA 2016.
3. Selected for the **BHARAT JYOTI AWARD (2006) & Shiksha Rattan Puraskar** by India International Friendship Society.
4. Awarded certificate of recognition for research findings by EMTRC 1999.
5. Research Papers accepted in various International conferences every year from 1998 onwards in **USA, Spain, Canada and China** etc.
6. Awarded **Young Scientist award** to Ph.D. Scholar by **PSA**. (Minni Singh and **Neelam Verma**).
7. Served as **NAAC peer team member** in 2002.
8. Acted as a **Member of Selection Committee** for the appointment of **Reader & Lecturer in University and colleges**.
9. Acted as a **Member of Inspection Committee** for starting various courses in colleges affiliated to the University.
10. **External Expert, Evaluations and Reviewer & Resource person** – External expert, RDC, HP UNIV. Shimla, Board of studies, KU, Kurukshetra. Evaluated and reviewed **9 Ph.D Thesis, 6 M.sc/M. Tech Thesis, 2 DST Projects, Reviewer for 15 international Research journals and 2 national journals**. As a resource person in national and international conferences.
11. As a **Judge for Young Scientist Award** in RACES-2015, 7th National Conference on Recent advances in Chemical, Biological and Environmental Sciences Jan 30-31, 2015.
12. **As a Judge in Punjab Science Congress Debates Program on 13/01/2015:**
 - Human activities lead to climatic changes.
 - GM crops better than the normal crops.
13. As a **Resource person** in Refresher Course Life Sciences organized by UGC-Academic Staff College, Punjabi University, Patiala from 17.11.2014-06.12.2014. Biosensors for heavy metal ions and pesticides residue analysis in environment.
14. As a **Resource person** in summer school on Food quality and safety: Recent advances in evaluation techniques from 5-25 Aug 2014. 1. Asparagine Biosensor for food quality and safety. 2. Biosensors for heavy metal ions and pesticide residues in food.
15. **Total Funds generated from outside Agencies :** 150 Lakh, 35 Lakh (Department Level)
16. **Research projects completed/ongoing: 17/2**
17. **AICTE - 1/0, UGC- 5/0, NAIP-1/0, DST-1/0, NRDC-1/0 CSIR (SRF)- 4/0, UGC-(SRF) 1/2, DST-INSPIRE (SRF)-1/0 DBT (SRF) 1/0, DST-FIST (Dept. level) 1/0,**

18. ICAR (NAIP)-Multi-Institutional Consortium Project. Project cost-*3162.398Lakh, Punjabi University Component**129.00624 lakh.**(*1877 lakh are approve for Milk referral lab NDRI, karnal

19. DST- project cost-24.00 lakh.

PERSONAL DATA

- Date of Birth – October 17, 1957
- Father’s Name - Sh. Ved Parkash Mangi
- Passport no –G6262982, Issue Date: December 3,2007, Expiry Date: December 2, 2017

PROFESSIONAL EXPERIENCE

PATENTS: 2(GRANTED)/ 3 (PUBLISHED)/ 2 (FILED)

1. **Verma, N. and Singh, M.** “A novel Bacillus sphaericus strain, a device comprising the said strain and a method for detecting copper in industrial effluents using said device”. Indian Patent No. **197519** granted on **August 11, 2006**.
2. **Verma, N.,** Kaur, G. and Singh, D.P. “Microbial arginine biosensor”. Indian Patent No. **275416** granted on **9th September, 2016**, Date of Filing **31/08/2010** (Application No.**2062/DEL/2010**).
3. **Verma, N.,** Kaur, H. and Kumar S. “DNAzyme based Lead Biosensor”. Indian Patent Application No. **842/DEL/2013**, Date of publication: **26/04/2013**
4. **Verma, N.,** Kumar, S. and Kaur, H. “Microarray based heavy metal optical biosensor”. Indian Patent Application No.**843/ DEL/2013**, Date of publication: **26/04/2013**
5. **Verma, N.** and Kumar, S. “Recombinant whole cell Cadmium Biosensor”. Indian Patent Application No.**844/DEL/2013**, Date of Publication: **15/11/2013**.
6. **Verma, N.** and Kaur, A. “Insulin Biosensor”. Indian Patent Application No. **1792/DEL/2006**.
7. Singh, M. and **Verma, N.** “A disposable microbial based biosensor for urea determination in synthetic milk”. Indian Patent Application No. **1871/DEL/2008**.

INTERNATIONAL RECOGNITION

1. Presented paper on “BOD Biosensor” at Pittsburgh Conference-1998, **USA**(March, 1998).
2. Attended two short courses (1) Electrochemical Sensors and Detectors (2) Water and waste water analysis, organized by **American Chemical Society (ACS)**,**USA**(March, 1998).
3. Presented paper on “Nutritional requirement for production of DAAO from *Trigonopsis variabilis*” by the research scholar at Pittcon -1999,**USA**(March, 1999).
4. Research Paper on "Studies on the development of Biosensor for monitoring silver and mercury ions from industrial effluent” accepted for ON SITE ANALYSIS -2000, LAB COMES TO THE FIELD, **Las Vegas, NV, USA**(January, 2000).
5. Research paper on “Biosensor for sucrose monitoring in various food stuffs” accepted for ON SITE ANALYSIS-2000, **NV, USA** (January, 2000).
6. Research paper “Studies on screening of amino acids for increased production of single cell protein from chemically pretreated substrates using *Pleurotus ostreatus*” accepted for oral presentation at Pittcon conference- 2000,**USA** (March 12- 17, 2000).
7. Research paper “Studies on the production and downstream processing of alpha amylase from *Bacillus licheniformis* and its applications in food industry” accepted for oral presentation at Pittcon-2000, **USA** (March 12- 17, 2000).
8. Visiting Scientist for advanced Research Work & Training on “Screen Printing Fabrication for Mass Scale Production of Biosensors and its Applications in DNA Recognition, Lab on Chip, Remote Environmental Sensors, CZE Microchips, Biocatalytic Sensors, Miniaturization and Microfabrication” at **NMSU, Las Cruces, USA**(Feb 9 - March 3, 2002).
9. Charu Khosla, Neelam Verma and A.L.J.Rao, “Studies on the Development of a natural resin for the decolorization of industrial effluents” in the Pittsburgh Conference-Pittcon -2003, held in **Orlando, Florida**(9th-14thMarch,2003).
10. Neelam Verma and Minni Singh “A *Bacillus sphaericus* based biosensor for monitoring nickel ions in industrial effluents and food”. Pittcon-2005,**Orlando, USA**.

11. Neelam Verma and Simmi “Packed Bed Reactor for continuous monitoring & bioscavenging of Nickel by modified *Prunusdulcis* endocarp from electroplating industrial effluent”. Pittcon-2005, **Orlando, USA**.
12. Neelam Verma and Simmi (2005) “Integrated approach for Bioremediation of Cr (VI) ion from electroplating industrial effluent by modified natural resins & *Aspergillus niger* by designing Packed bed reactor” in *In situ and On site Bioremediation Symposium* held at **Baltimore, Maryland, USA** (6th- 9th June, 2005).
13. Neelam Verma, Kuldeep Kumar and Gurnoor “*E.Coli* K -12 Asparaginas Based Asparagine Biosensor for Leukemia Cells” at Pittcon-2006, **Orlando, USA**.
14. Minni Singh, Neelam Verma and Neha “Urea Biosensor for monitoring synthetic milk” at Pittcon-2006, **Orlando, USA**.
15. Neelam Verma, Gurnoor Kaur and Wheatley “Arginine Biosensor for detection flavor providing Arginine in green tea” at Pittcon-2008, **New Orleans, USA** (2nd -7th March, 2008).
16. Neelam Verma, Kuldeep Kumar and Sneha Anand (2008) “Whole cell based Asparagine Biosensor for Leukemia and solid tumors” at 10th World Congress on Biosensors, **Shanghai, China** (14th -16th May, 2008).
17. Neelam Verma, Ashwani Kumar and M.I.S. Sahoo, “ISSR-PCR based genetic relationships between populations of six chemotypes of north Indian Gokharu: *Tribulus terrestris* Linn and Sequence-characterized amplified region (SCAR) analyses for candidate genes related to flavonoid (Quercetin) biosynthesis” at 5th International Weed Science Congress, **Vancouver, Canada** (23rd-27th June, 2008).
18. International visit for Collaborative research on “electrochemical biosensor, membrane technology and fiber optic biosensor” at **UPMC, Paris, France** (27th Feb. - 21st March 2010).
19. Invited for Oral presentation on High Throughput Optical Biosensor for monitoring Pb (II) ions in milk through Fluorescence based Microarray approach in **Dubai Bio Expo-2015, Nov 2-4, 2015 International conference**.

PROJECTS HANDLED /BEING HANDLED

1. Biosorption of some toxic heavy metal ions from industrial waste water. (UGC) (Project) completed. 1991-1994

2. Clean technology-Use of biofertilizer rich in zinc and iron to improve the paddy crop production. **(UGC-Project)** Completed 01.01.1996-1998
3. Studies on immune modulatory property of chemical pesticides and its comparison with biopesticides. **(UGC-Project)** Co-Investigator. Completed 1996-1999
4. Studies on the development of biosensor for monitoring heavy metal ions in industrial effluent & wastewater. **(AICTE)**. 1998-2000
5. Screening of transducers for the development of biosensor for monitoring organophosphorus and chlorinated pesticides in the environment. **(CSIR-SRF)**. 05.04.2000
6. New adsorbents for the Preconcentration and Removal of toxic elements from industrial effluents. **(UGC-Project)**. Co-Investigator 2001-2004.
7. Development of a recombinant microbial biosensor based on an amperometric transducer for the detection of mercuric ions toxicity in industrial samples. **(CSIR-SRF)** 24.09.2002.
8. A New Technology Solid Phase Extraction (SPME-HPLC) application to the analysis of toxic metals. **(UGC-Project)** 01.04.2004-31.03.2007.
9. Molecular Modeling and Site Directed Mutagenesis of glucose oxidase for enhanced oxidation of Glucose Oxidase **(CSIR-SRF)** 01.07. 2003.
10. Integrated Approach- Bioremediation of heavy metal laden and textile dye effluents **(CSIR-SRF)**. 05.04.2003.
11. **DST-FIST** Departmental Level 16.12.2002
12. Development of Biosensors and micro-techniques for analysis of pesticide residues, aflatoxin, heavy metals and bacterial contamination in milk. **ICAR (NAIP) component-4 (File No.-NAIP/C4/C10125)**. Multi-Institutional Consortium Project (2007- June 2014) **Total Project Cost: 3162.398 lakh. Punjabi University Component, 129.00624 lakh.**
13. Development of electrochemical biosensor for monitoring pesticides in water, soil and food sample. **DST, (File No.-DST/TSG/PT/2007/31). Project cost: 24 lakh.** (Sep. 2009-Sep. 2012).
14. Techno-Commercial scheme of corporation for development of prototype of Copper Biosensor NRDC 2009-2010, **0.5 lakh.**
15. "Computational approach for pharmacophore and drug designing of lung and breast cancer using tsar and biomed cache and its validation". **(UGC-SRF). Completed (2016)**
16. Molecular beacons based biosensor for SNP analysis of hypertensive and diabetic patients". **(DBT-IPLS-JRF) Completed-February, 2017**
17. "Fiber-optic and Microarray based biosensors for the detection of copper and zinc in water and food samples". **(DST-SRF) (Completed-March, 2017)**
18. "Biosurfactant production and bio-desulphurization for potential application in microbial enhanced oil recovery (MEOR)". **(UGC-SRF) Ongoing.**

19. "Bioremediation of chlorpyrifos and biosensor development for its detection".(UGC-SRF) Ongoing

PH.D/M.Phil/MD STUDENTS GUIDED/UNDER GUIDENCE

1. **Amrit Kaur**, Studies on the scavenging of some toxic heavy metal ions from waste water by bottom ash. (1989) (M.Phil Degree Awarded).
2. **Rajbir Rehal**, Bioscavenging of some toxic heavy metal ions from industrial waste water. (Ph.D Degree Awarded 20.12.1995). GATE
3. **Charu Khosla**, Studies on the development of natural resins for the treatment of some industrial effluents (30.6.1997). (Degree awarded)
4. **Jasdeep Kaur**, Characterization of immunodulatory potential of selected Bio- and chemical pesticides. (Ph.D Degree Awarded 21.09.1999) GATE
5. **Puneet Singh**, Studies on the production of D-amino acid oxidase by *Trigonopsis variabilis* MTCC 1354 for the oxidation of cephalosporin C. (Ph.D Degree Awarded 26.12.2001) GATE
6. **Parveen Sharma**, Monitoring the genotoxic potentialities of plant grown on copper and lead contaminated soil. (Ph.D Degree Awarded 16.07.2002).
7. **Rakesh Kumar**, Characterization and treatment of tannery effluent for Biogas production. (Ph.D Degree Awarded) NET
8. **Minni Singh**, Studies on the development of microbial and enzyme based Biosensor for monitoring heavy metal ions in industrial effluents and food stuffs. (Ph.D Degree awarded 06.10.2003) CSIR-SRF
9. **Jagdish Singh**, Studies on the microbial production, enhancement, purification, kinetic characterization and immobilization of Glucose oxidase and its application as Biosensor. (Ph.D Degree Awarded 02.05.2005) NET- SRF
10. **Monika**, Studies on molecular modeling and protein engineering of D-amino acid oxidase for enhanced production of Cephalosporin C. (Ph.D Degree Awarded: 11.05.2004)
11. **Satvinder Singh Dhillon**, Studies on the screening of transducer for the development of Biosensors monitoring Malathion and 2, 4-Dichloroethoxyacetic acid in food stuffs, soil and water samples. (Ph.D Degree Awarded 30.09.2005.) NET SRF

12. **Dr. Rennis Davis K**, A comparative study of blood and urine levels of Serotonin and 5-Hydroxyindole acetic acid in healthy subjects on Isoniazid Chemoprophylaxis, Tuberculous Patients on treatment and those developing shoulder hand syndrome during antituberculous treatment. (Feb, 2001.) (M.D. Student, Degree Awarded)
13. **Simmi**, Biotechnological Approaches for treatment of Textile Dye and Heavy Metal Ions laden Industrial Effluents. (Ph.D Degree Awarded 08.05.2007) SRF
14. **Aman**, CPE & SPE electrodes for development of Diagnostic Kit for monitoring Insulin. (Ph.D Degree Awarded: 29.02.2008) CSIO Project Fellow
15. **Kuldeep Kumar**, Production of L-Asparaginase by recombinant E. coli and Development of Biosensor for monitoring Asparagine in Leukemia Cells and solid tumors. (Ph.D Degree Awarded: 16.04.2009) NET
16. **Ashwani Kumar**, Studies on genetic-biochemical characterization and analysis of Quercetin marker in *Tribulus terrestris* (Ph.D Degree Awarded: 16.04.2009)
17. **Meenakshi**, Studies on Structural and Computational Biology of Pharmacophore, Insulin and Receptors for Drug Design and its validation in Type-II Diabetes. (Ph.D Degree Awarded: 02.12.2009)
18. **Shipra Kalra**, Studies on tumor targeted delivery of polyethylene glycol conjugate D-amino acid oxidase from *Trigonopsis variabilis* as Reactive Oxygen Species generating enzyme in cancer therapy. (Ph.D Degree Awarded: 01.04.2010)
19. **Varinder Kaur**, SPME-HPLC FOR analysis of toxic heavy metal ions. (2005). (UGC Project Fellow). (Ph.D Degree Awarded)*
20. **Gurnoor Kaur**, Purification and characterization of Arginase from *Neurospora sp.* For the development of Arginine Biosensor. (Ph.D Degree Awarded, 08.06.2011)
21. **Hardeep Kaur**, Development of Sol-gel based Optical and Electrochemical Biosensors for monitoring lead in milk. (Ph.D Degree Awarded, 15.12.2012)
22. **Sachin Kumar**, Fiber Optic and Electrochemical approach to develop Biosensors for monitoring cadmium in milk. (Ph.D Degree Awarded, 01.04.2013)
23. **Mandeep Kataria**, Screening of *Withania Somnifera* (L) Dunal plants for L-Asparaginase and development of Asparagine Biosensor. (Ph.D Degree Awarded, 01.04.2013)
24. **Namita Ashish Singh**, Development of "On Farm" chromogenic enzyme assay for aflatoxin M1 in milk. (Ph.D Degree Awarded, 14.03.2014)

25. **JyotiSaini**, Development of electrochemical biosensor for monitoring pesticides in water, soil and food sample. **(Ph.D Degree Awarded, 28.05.2015)**
26. **Neetu Ahuja**, Advanced solid phase extraction using molecularly imprinted polymers for isolation of herbal flavonoids. **(Ph.D Degree Awarded, 21.09.2015)**
27. **Monika Bansal**, Microbial Production of L-asparaginase for development of Bio-optrode and electrochemical biosensor to monitor asparagine in clinical and food samples. **(Ph.D Degree Awarded, 21.09.2015)**
28. **Kulwinder Singh***, Autoimmune and Inflammatory Human Diseases Biomarker Database. **(viva completed) (2016)**
29. **Gurpreet Kaur**, registered for Ph.Don “Computational approach for pharmacophore and drug designing of lung and breast cancer using tsar and biomed cache and its validation”. **(UGC-RGNF). Viva completed (2017)**
30. **Sukhpreet Kaur**, registered for Ph.D on “Design of a bioaugmentative process integrated with use of aerobic granules for treatment of dairy industry effluents”. **(Date of registration 05/11/2012)**
31. **Gagandeep Kaur** registered for Ph.D on “Fiber-optic and Microarray based biosensors for the detection of copper and zinc in water and food samples”. **(DST-INSPIRE Fellowship) (Date of registration 06/11/2013)**
32. **Navpreet Kaur**, registered for Ph.D on “Molecular beacons based biosensor for SNP analysis of hypertensive and diabetic patients”. **(DBT-IPLS-JRF) (Date of registration 08/11/2013)**
33. **Ashish Kumar Singh** registered for Ph.D on “Electrochemical biosensors for the detection of urea and L-arginine in milk, juices and clinical samples”. **RAICAR-NAIP PROJECT (05-10 -2013-30-06-2014). (Date of registration 08/11/2013)**
34. **Rajni Sharma**, registerd for Ph.D on “Biosurfactant production and bio-desulphurization for potential application in microbial enhanced oil recovery”. **(UGC-SRF). (Date of registration 09/09/2014)**
35. **Atul**, registerd for PhD on ““Lab Scale and on field Bioremediation studies of Clorpyrifos and Biosensor approach for its detection”(UGC-RGNF-SRF). **(Date of registration 29/10/2014)**

36. Apoorva Deshwal*, registered for PhD on “Extraction of L-asparaginase from plant and development of nanoparticle based biosensor for detection of asparagine in fruit juices. (Date of registration 23/01/2017)

37. Damnita, enrolled for Ph.D 31st Jan, 2017. (Date of enrollment:05/11/2012)

38. Diksha Garg enrolled for PhD (Date of enrollment: 15/09/2017)

39. Himshweta enrolled for PhD (Date of enrollment: 15/09/2017)

BOOKS/BOOK CHAPTERS

- 1. Neelam verma**, Manish Wasuja and Usha Gupta (1999): Bioresins and Microbial Polishers for the Treatment of Nickel and Chromium Laden Electroplating Industrial Effluents: An Integrated Approach, In: Advances in Industrial Waste Water Treatment, Edited by: P.K. Goel. Publisher: Technoscience publications, Karad, M.H. (India). pp: 107-134. ISBN: 81-900553-72
- 2. Neelam Verma** and E.T. Malaku (2001). Studies on the development of disposable biosensor for monitoring malathion pesticide residues, In: Biochemistry, environment and agriculture. Edited by: A.P.S. Mann, S.K.Munshi, A.K.Gupta. Kalyani Publishers, New Delhi, pp 265-269. ISBN: 81-272-0029-8.
- 3. Neelam Verma** and Monika (2006): A practical manual of biotechnology. P.K. Publications, New Delhi.
- 4. Kuldeep Kumar**, Gurnoor Kaur, Ashwani Kumar and **Neelam Verma** (2009).The reliance choice of future, In: Biotechnology Emerging Trends. Nanobiotechnology, Edited by Riyazali Z. Sayyed, Ashok S Patil. Scientific Publishers. Page 511-529. ISBN:978-8-17233-587-8
- 5. Neelam Verma** and Kuldeep Kumar (2012): Asparaginase based asparagine biosensors and their application to leukemia, In: **Biosensors and Cancer, Edited by: Victor R. Preedy, Vinood Patel**. Publisher: **CRC Press, Taylor and Francis Group, Science Publications, FL**, pp: 211-228. ISBN: 978-1-57808-734-1.
- 6. Neelam Verma** (2012): Bioremediation of xenobiotic and heavy metals. In: popular biotechnology lecture series, Focus: Bioremediation. Edited by: D.K. Bakshi and J.K. Arora. Publisher: Punjab State Council for Science and technology (PSCST) with DBT. pp: 16-26. ISBN: 978-81-88362-32-5.
- 7. Neelam Verma**, JyotiSaini and ShrutiPahwa (2013):Development of Electrochemical Biosensor for the Detection of Chlorpyrifos Using Silver Nanoparticle,In: Emerging Paradigms in Nanotechnology, Edited by:R.C. Solti, Anupama Kaushik, Bhupinder Singh, S.K. Tripathi. Publisher: Dorling Kindersley Publishing Pvt Ltd (Pearson), Noida (India).pp: 479-483. ISBN: 978-81-317-8991-9.
- 8. Neelam Verma** and Gagandeep Kaur (2016): Trends on biosensing systems for heavy metal detection, In: Biosensors for Sustainable Food - New Opportunities and Technical

Challenges, **Edited by:** Viviana Scognamiglio, Giuseppina Rea, Fabiana Arduini, Giuseppe Palleschi. **Publisher:** Elsevier, pp:33-71. ISBN: 978-04-446-3579-2.

PUBLICATIONS

National publications

1. Rao, A.L.J., and **Verma, N.** (1983). Spectrophotometric determination of lead by solid liquid extraction technique from biological materials. *Indian Academy of Forensic Sciences*, 23(2) 14-19.
2. Rao, A.L.J. and **Verma, N.** (1985). Determination of Ferbam (Ferric dimethyl dithiocarbamate) residues in apples by a spectrophotometric method. *Indian Academy of Forensic Sciences*, 24(1) 1-5.
3. Rao, A.L.J. and **Verma, N.** (1988). Spectrophotometric method for the estimation of ziram (Zincdimethyl dithiocarbamate) fungicide residues. *J. Inst. Chemist.*, 60(5-6): 332.
4. **Verma, N.** and Rao, A.L.J. (1988). Polarographic determination of ziram and thiram pesticides and their residual analysis from tomatoes and apples. *Indian Academy of Forensic Sciences*, 27: 26-30.
5. Rao, A.L.J. and **Verma, N.** (1988). Residual toxic pesticide analysis of dimethoate (o,o-dimethylphosphorodithioate) from tomatoes by a spectrophotometric method. *Indian Journal of Forensic Sciences*, 2: 179-181.
6. Rao, A.L.J. and **Verma, N.** (1988). Spectrophotometric determination of disodium ethylenebisdithiocarbamate by extraction of its molybdenum complex into isobutylmethylketone. *Ind. Chem. Soc.* 65: 746-747.
7. Rao, A.L.J. and **Verma, N.** (1989). Residual pesticide analysis of malathion (diethyl mercaptosuccinate, s-ester with o, o-dimethyl phosphorodithioate) from wheat grains by a spectrophotometric method. *Indian Journal of Forensic Sciences*, 4: 185-187
8. Rao, A.L.J. and **Verma, N.** (1990). Spectrophotometric determination of copper in various parts of albino rats by solid liquid extraction techniques. *Indian Journal forensic Sciences*, 4: 41-45.
9. Rao, A. L. J. and **Verma, N.** (1990). Spectrophotometric determination of thiram by extraction of its molybdenum complex into isobutylmethyl ketone. *Ind. Chem. Soc.* 67: 1006-1007.

10. Rao, A. L. J. and **Verma, N.** (1990). Bottom ash for scavenging nickel metal ions from industrial wastewater. *Indian. Journal Environ Health*, 32(3): 280-283.
11. Rao, A.L.J. and **Verma, N.**(1990). Polarographic determination of zineb and maneb pesticides. *Bulletin of electrochemistry*, 6: 439-441.
12. Kaur, A., Malik, A.K., **Verma, N.** and Rao, A.L.J. (1991). Removal of copper and lead from wastewater by adsorption of bottom ash. *Indian Journal Environ. Protection*, 11(6): 433-435.
13. Kumar, A.K., Gupta, U., **Verma, N.** and Rao, A.L.J.(1991). Spectrophotometric determination of dithiocarbamate and xanthates. *Indian Journal of Forensic Sciences*, 5:123-129.
14. **Verma, N.** and Rao, A.L.J.(1991). Residual pesticide analysis of methyl parathion (o, o-dimethyl o, p-nitrophenyl phosphorothionate) from cabbage by a spectrophotometric method. *Indian Journal of Forensic Sciences*, 5: 155-157.
15. Rao, A.L.J. and **Verma, N.** (1992). Polarographic determination of vapam (sodium monomethyldithiocarbamate). *Journal of Indian Council of Chemists*, 8: 51-52.
16. **Verma, N.**, Gurpreet, and Rehal, R.(1996). Studies on some cyanobacteria for the selection of bioindicator of nickel ions for industrial wastewater. *Pollution Research*, 15: 75-77.
17. Sagoo, M.I.S., **Verma, N.** and Sharma, P. (2004). Impact of heavy metals, copper and lead on reproductive potentials of plants. *Plant diversity in India*. 159-168.
18. **Verma, N.**, Kumar, K., Kaur, G. and Anand, S. (2007). Asparagine Biosensor for Leukemia Based on L-asparaginase obtained from *Erwinia carotovora*. *National Journal of life Sciences*, 4 (1): 1-5.
19. Varinder Kaur, Ashok Kumar Malik and **Neelam Verma** (2007). Derivative Spectrophotometry for determination of zinc(II) and cadmium (II) using diphenylcabazone in the presence of Triton X-100. *Indian Journal of Chemistry*, 46:1-5. **(IF-0.648)**
20. **Verma, N.**, Mittal, M. and Verma, R.K.(2008). QSAR Studies on structuraaly similar Oxalyl aryl benzoic acid derivatives as antidiabetic agents. *Calicut Medical Journal*, 6(4): e3.

• **International publications**

1. Rao, A.L.J. and **Verma, N.** (1989). Spectrophotometric determination of zinc bis ethylenedithiocarbamate (zineb). *Talanta*, 36(10): 1041-1043. **(IF-3.5)**
2. **Verma, N.** and Rao, A.L.J. (1990). Determination of maneb pesticide by spectrophotometric method and its applications. *Roune De Chemie*, 35(5): 625-630
3. **Verma, N.** Rehal, R. and Rao, A. L. J. (1993). Scavenging toxic heavy metal ions from industrial wastewater A survey. *Intern. J. Environmental. Studies*, 43: 151-159. **(IF-0.25)**
4. **Verma, N.** and Rehal, R. (1994). Bioscavenging of copper ions from aqueous solutions with rice bran. *Bioresource technology*, 49: 277-278. **(IF-5.02)**
5. **Verma, N.** and Rehal, R. (1994). Biosorption of ziram fungicide from wastewater. *Intern. J. Environmental Studies*, 45: 180. **(IF-0.25)**
6. **Verma, N.**, Batta, S. and Rehal, R. (1995). Studies on some cyanobacteria for the selection of bioindicator and bioscavenger of chromium metal ions for industrial wastewater. *Intern. J. Environmental studies*, 47: 211-215. **(IF-0.25)**
7. **Verma, N.** and Monica. (1995). Binding of lead ions by Albizzia lebbek pods, *Intern. J. Environmental Studies*, 48: 178. **(IF-0.25)**
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- 102. Neelam Verma**, Navpreet Kaur and Pawan Krishan (2017) Application of molecular beacon based biosensor against rs 699 SNP in hypertensive and no-hypertensive punjabi population. *Int.J of Pharmacogonosy*, 5 (1):100-14

LIFE MEMBER OF PROFESSIONAL BODIES

- Biotech Research society of India (BRSI)
- Indian Nuclear Society (INS), BARC, Mumbai
- Biosensor Society of India
- Punjab Academy of Sciences

OVERSEAS VISITS

- **New Orleans, USA** for oral presentation of Research paper on BOD biosensor & attended two short courses (1998).
- **NMSU, USA** as a Visiting Scientist for advanced training on mass scale production of screen printed biosensors (2002).

- **Orlando, Florida** for oral presentations on Metal Biosensors & Bioremediation (2005).
- **Vancouver, Canada** for paper presentation at 5th International Weed Science Congress (2008).
- **Shanghai, China** for paper presentation at 10th World Congress on Biosensors (2008).
- **UPMC, Paris, France** for International Training under NAIP-4 (2010).

AS A REVIEWER

International Research paper reviewer:

- *Molecular Biotechnology* (Recombinant deamidated mutants of *Erwinia chrysanthemi* L-asparaginase have similar or increased activity compared to wild type enzyme). **16.4.2014**,
- *Environmental Science and Pollution Research*,
- *Environmental Technology* (Anodic oxidation of textile wastewaters on Boron doped diamond electrodes) **27.1.2015**.
- *Environmental Technology* (Removal of cyanide from liquid waste by electrochemical oxidation in a new cell design employing graphite anode) **31.1.2015**.
- Serve as Editorial member in *Austine Journal of Biosensor and Bioelectronics*.
- *Biosensor & Bioelectronics* (High speed biosensing strategy for non-invasive profiling of multiple cancer fusion genes in urine) **10.10.2016**.
- *Analytical Methods* (Electrochemical algal biosensor based on silica coated ZnO quantum dots for selective determination of Acephate) **11.10.16**