

CURRICULUM VITAE

Dr. Suman, M.Sc, Ph.D. (Biochemistry)
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Professional Summary

- Expertise in development of prototypes for on the spot device for biomedical and environmental application
- Construction of biosensors /sensor both amperometric as well as strip type using Screen printing and Inkjet printing.
- Well versed with opto electrical device fabrication
- Worked on Enzyme extraction, purification, kinetic studies and immobilization on various organic and inorganic supports and Development of various methods based on enzymic assay important in clinical/ pathological condition.
- Nanomaterial synthesis and its application bio nanotechnology
- Few developed Prototypes:

Pocket friendly Water Purifier

On spot chromium detection meter for water quality testing

Waste to energy :Fly ash Battery

Waste water cleaning and electricity generation

Areas of Research Interest

Bio-nanotechnology, Environmental quality monitoring sensor/ biosensors ,Biochemistry, Biosensor, Analytical sensor, on spot sensor, early diagnosis sensor, Nanomaterials Synthesis, , Nano-composite, Bio-nanotechnology etc

PERSONAL PROFILE

Date of Birth : January 24, 1977

Sex : Female

Nationality : Indian

Marital Status : Married

Language Proficiency

Hindi, Punjabi and English (Read, Write and Speak)

Membership of Professional Bodies

Society of Biological Chemists ,India : Life Member

Biotechnological Society of India : Life Member

ACADEMIC QUALIFICATION

Ph.D. (Biochemistry) 2005

Department of Bio-Sciences M.D. University., Rohtak (Haryana), India

Thesis Title: “Preparation of an amperometric biosensor for lactate determination and its comparison with enzymic colorimetric methods employing immobilized lactate oxidase”
Supervisor: Prof. C. S. Pundir, Head Deptt of Biochemistry and Genetics, M.D. University, Rohtak (Haryana).

M.Sc. Bio-Science (Biochemistry) 2000

Department of Bio- Sciences, M.D. University, Rohtak, India
(First Division and Second Rank in the University)

M.Sc. Dissertation “Determination of total cholesterol in serum using co-immobilized cholesterol esterase, cholesterol oxidase and peroxidase onto alkylamine glass beads”

AREA OF SPECIALIZATION

Enzyme biosensors, Molecular biology, Microbiology, DNA biosensors, Diagnostics, bio-nanotechnology

COUNTRY VISITED

1. Singapore: Biopolis, Singapore to attend International conference on Asia NANO-2008 from 3-7 November, 2008.
2. Ireland (Europe): National Centre for Sensor Research (NCSR), Dublin City University, Ireland for *Post Doctoral Research* (April 8, 2009-April 7, 2010).
3. Madrid (Spain) International conference on Environmental, Industrial and Applied microbiology-BioMicro World 2013(29th September to 7th October 2013

TRAININGS

1. IGIB, Delhi

Worked on project “Studies on enzyme membranes for Cholesterol and Biochemical Techniques” at Institute of Genomic and Integrated Biology (IGIB) from June, 2000 to September, 2000 under supervision of Dr. Ashok Kumar.

2. Food Technology Division (FTD) BRNS, Bhabha Atomic Research center, Mumbai, March, 2006

Worked for one week at FTD and gained hands of experience in various microbiological techniques, identification of pathogens, detection of Radio-sensitivity /Radio-protection (D Value) of microbes and Electron Spin Resonance Spectrophotometer (ESR) study of herbal formulation.

3. Molecular Biology Lab, The Energy and Resources Institute (TERI), New Delhi (4 - 23, December, 2006)

Participated in three weeks DBT sponsored Workshop at TERI and gained hands of experience on Plant Tissue Culture, Genetic Transformation and Genome Analysis with Molecular Markers and PCR Walking.

4. Central Electrochemical Research Institute (CECRI) CSIR, Karaikudi TamilNadu (15 - 19, September, 2008)
Participated in one week DST sponsored Workshop on “Modern Trends in Electrochemistry” at CECRI and gained hands of experience on recent electrochemical techniques, batteries, biofuel cells, nano-material synthesis, biosensor preparation and their electrochemistry.

FELLOWSHIP AWARDED

(I) Post Doctorate Fellowship (NCSR, Dublin City University, Ireland)

Awarded PDF to work on project entitled “Preparation of inkjet printing based enzyme biosensor for biomedical application” at National Centre for Sensor Research, Dublin City University, Ireland (April 8, 2009-April 7, 2010)

(II) Senior Research Fellow (CSIR- SRF)

Worked on project entitled “Preparation of an amperometric biosensor for determination of lactate” at Department of Bio-Sciences, M.D. University (July, 2004-February, 2005)

(III) Project Fellow (UGC Project)

Worked in UGC sponsored project entitled “Discrete analysis of serum cholesterol with co-immobilized cholesterol esterase, cholesterol oxidase and peroxidase” (June, 2001-February, 2002)

(IV) International Travel

Travel Award” from “Council of Scientific and Industrial Research, India” and “ Council for CCSTD, Chennai, India” for attending International Conference AsiaNano-2008” held in Biopolis, Singapore, in November, 2008.

(V) Power of Idea Award -2012

Award from “POI-2012- a program organized by Economics time, DST and IIM-A” for top most business ideas and startup

(VI) International Travel

Travel Award” from “Department of Science and Technology, India” for attending International Conference BioMicroWorld-2013” held in Madrid, Spain, in Oct, 2013.

(VII) Leaders in Innovation Fellowships (LiF): 2015

Leaders in Innovation Fellowships (LiF) run by the Royal Academy of Engineering (RAEng) UK and DST

(VIII) Festival of Innovation (2016): Selected in top 50 Indian innovation to display our product at Rastrapati Bhavan

WORK EXPERIENCE (More than 14 years)

1. Presently working as Associate Professor

Department of Environmental Sciences, Indira Gandhi University Meerpur, Riwari

Research Work ongoing

- Self sustained system to clean Waste water and generate electricity
- On spot water quality analysis devices
- On spot biosensor for diagnosis of tuberculosis in collaboration with AIIMS, New Delhi
- Preparation ,purification and activation of CNTs / Graphene and other nanoparticles, and their utilization for biosensor and other Industrial application
- Influence of nano particle environment on microbial growth enhancement
- Water purification based on Bio-nano technology
- Preparation of nano curcumin and nanomaterials bandages for biomedical
- Bio batteries and their application
- Sensor for detecting oxygen leakage in Food packaging

Projects:

Completed: 6

As PI

- Development of Low cost nano-composite based material for removal of dyes (9.55 lakhs CFEES, DRDO)
- Synthesis of nano curcumin and its medical application (10 lakhs, DIPAS, DRDO)
- To construct a rechargeable battery using ash and activated carbon (10 lakh, DST, New Delhi)
- Prototypes development and commercialization of reusable pocket friendly water purifier (38 lakhs, DST, New Delhi)
- Nanocellulose based composites for chromium decontamination and speciation in aqueous system (33.5 lakhs, DST, New Delhi)

As Co-PI

- Agrivoltaic : Dual use of land for farmer for agriculture and solar power generation (26 lakhs DST, New Delhi)

Ongoing : 4

- On-spot diagnosis of tuberculosis using biosensor (AIIMS, New Delhi)
- Self-Sustained System to Clean Industrial Waste Water and Generate Electricity Simultaneously Without any External Source (DST, 66.66 Lakhs)
- DRL, DRDO. “ To Develop Nanomaterial based methods for on the spot detection of Cesium, Strontium, Barium and iodine in water, **9.40 lakhs, June 2020**
- DST: **On the spot detection of microbes and Heavy metal in waste water samples, 77 lakhs (September 2020)**

2. Post Doctorate Fellow (PDF)

National Centre for Sensor Research, Dublin City University Ireland (April, 2009- April, 2010)

Worked on

- Preparation of Screen printing and Inkjet printing based electrodes (Silver/ carbon)
- Immobilization of enzyme (Urease, Glucose oxidase and creatinine) on the inkjet printed electrodes for biomedical applications.

3. Research Associate

Shriram Institute for Industrial Research, University Campus, Delhi-7

(March 2005 – Jan, 2008)

Microbiology Division

- Microbiological testing/Analysis of foods, drugs and various materials as per national and international standards.
- Effect of gamma irradiation on various products (Herbal, Vegetarian etc).
- Mycotoxin analysis using ELISA and HPLC.
- Pesticides analysis in soft drinks using LC-MS/MS and GC-MS/MS
- Experience of writing *Project proposals / Concept papers* related to various scientific fields.

- Study of clean rooms (Schedule M)
- Maintain Documents (Standard Operating Procedures (SOP's), Data Record Sheets etc.

Project completed at SRI

- Comparison of ordinary washing machine with colloidal silver based *Samsung* washing machine with respect to antimicrobial activity using different test fabrics”.
- Quality and shelf-life enhancement of Amree Plus: γ -irradiation, shelf-life, aflatoxin and heavy metal studies, both before and after irradiation.

Supervision of M.Sc. Training Students at SRI and Amity University

Ph.D Student : 6 Ongoing Completed : 3 (Degree Awarded, 2015 and 2019,2020)

1. Meeta Gera: Topic Preparation, characterization of nanomaterials for their Biomedical application
2. Sonal Chauhan: Anti-inflammatory and immune-modulatory activity of prebiotics and Probiotics in vitro and in vivo
3. Nitesh Kumar: **Nanocellulose based Composites for Chromium Decontamination in Aqueous System”**

ANNEXURE-I

LIST OF PATENTS

Patent Granted: 5

1. Ajit verma, V.K.Jain, **Suman** and Ram Prasad. A NANOMATERIAL BASED CULTURE MEDIA FOR MICROBIAL GROWTH ENHANCEMENT, **Application 14/DEL/2009, filed 2009-01-06. Patent no. 267958 ,date of Grant 10/08/2015**
2. **Suman**, Nidhi Jain, Rupesh Kumar basniwal, A.K. Srivastava and Vinod Kumar Jain PLANT BIOMASS-NANOMATERIAL COMPOSITE BASED ELECTRODE FOR THE REMOVAL OF INDUSTRIAL DYES FROM WASTE WATER, **Application 429 /DEL/2009, filed 2009-03-05. Patent no. 292434, Date of Grant 31/01/2018**
3. **Suman**, Ramesh Kumar Mansi Punjabi and Vinod Kumar Jain CEMENT NANO COMPOSITE COATED PEBBLES BASED WATER PURIFICATION SYSTEM FOR MICROBIAL DECONTAMINATION, **Application 2733 /DEL/2010, filed 2010-16-11. Patent no 299463 ,Date of Grant 30/7/2018**
4. V.K.Jain, **Suman** Vikesh and Pramod Kumar. A SENSOR FOR DETECTING AIR LEAKAGE IN PACKED ITEMS AND STORAGE PLANTS, **Application 1339/DEL/2008 published 2008-07-25, filed 2008-06-04 ,Date of Grant16/10/2018**
5. **Suman**, and Vinod Kumar Jain. IN SITU GENESIS OF SILVER NANO IN POROUS CONCRETE PEBBLES USING GREEN TECHNOLOGY AND ITS APPLICATION FOR MICROBIAL DECONTAMINATION OF WATER, **Application 438 /DEL/2012, filed 2012-02-16 date of Grant 26/11/2019**

Patents filed: 16

6. **Suman**, Nidhi Jain, Rupesh Kumar basniwal, A.K. Srivastava and Vinod Kumar Jain PLANT BIOMASS-NANOMATERIAL COMPOSITE BASED ELECTRODE FOR THE REMOVAL OF INDUSTRIAL DYES FROM WASTE WATER, **Application 429 /DEL/2009, filed 2009-03-05**

7. Nidhi Jain, **Suman**, Rupesh Kumar Basniwal, A.K. Srivastava and Vinod Kumar Jain PREPARATION OF CURCUMIN NANOPARTICLES AND EVALUATION OF THEIR BIO-EFFICACY, **Application 670 /DEL/2009, filed 2009-03-31**
8. **Suman**, Prashant Kumar, Meeta gera and V. K. Jain A method for preparation of paper battery using graphene and silver nano composite **Application 3268 /DEL/2012, filed 2012-10-23**
9. Sandeep Nagar, **Suman**, Meeta gera, Somik Chakarvarty, Prashant Kumar, Abhishek Verma and V. K. Jain Power generation based on optically excited plasmons suspended in water using rechargeable paper battery, **Application No. 492 /DEL/2013, filed 2013-2-21**
10. Abhishek Kardam, **Suman**, Meeta gera and V. K. Jain Nanocellulose and silver nano embedded pebble based composite for complete removal of dyes, heavy metal and microbial contamination from water **Application 1556 /DEL/2013, filed 2013-5-24**
11. **Suman**, Rupesh Kumar and V.K. Jain A method for preparation of Rechargeable Battery without electricity using wood ash. **Application No. 2773 /DEL/2013, filed 2013-9-20.**
12. Suman, Varun Kumar and V.K.Jain "Preparation and characterization of nanocurcumin encapsulated virosome for cancer treatment" filed on 12/01/2017 with **Application No. 201711001264.**
13. **Suman**, Akansha Mehra and V.K.Jain , Smart hand held nano device for on spot bacteria detection. **Application on 201711039757 filed on 8-11-2017**
14. Akansha Mehra, **Suman** and VK.Jain, Preparation and characterization of nano-statins from mushroom. **Application no 201811016524 filed on 29-05-2018**
15. V.K. Jain, **Suman**, Rupesh Kumar and Pramod Kumar, Self-sustained system to generate electricity and clean industrial waste water simultaneously. **Application no 201811037983 filed on 8-10-2018**
16. **Suman**, Nitesh Kumar, V.K Jain, Polyaniline coated activated carbon composite system for dye and heavy metal removal from waste. **Application no 201811040952 filed 2019**

Technology Transferred: 2

- **Fly ash based battery to Welspun India Limited, 2016**
- **Nanomaterial based material for industrial dye removal to SS Engineering corporation 2018**

ANNEXURE-II

LIST OF PUBLICATIONS

1. N.B. Tulsani, H. Vikram,, Hemant. Kumar, **Suman**, Reeti Chaudhary, Kirti Rani, and A. Kumar (2001) Dry - reagent test strip for rapid detection of hardness of water, *Ind. J. Chem. Tech(CSIR)*, 8, 252-254. ISSN 0975-0991 (Online); 0971-457X (Print)
2. Geeta Singh, **Suman**, Durgesh Nandini and C.S. Pundir (2002) Immobilization of Oxalate oxidase on to PVA membrane through entrapment, *Ind. J. Biochem. Biophys (CSIR)*, 39, 397-400 ISSN : 0975-0959 (Online); 0301-1208 (Print)
3. **Suman** and C.S. Pundir (2003) Co-immobilization of cholesterol esterase, cholesterol oxidase and peroxidase onto alkylamine glass beads for determination of total cholesterol in serum. *Curr. Appl. Phys. (Elsevier Science)*, 3, 129-133.
4. Sushma, Rekha, Vijay Kumar, **Suman** and C S Pundir (2004) Determination of serum and urinary urate with reusable uricase strip, *Ind. J. Chem. Technol.(CSIR)*, 11,764-768. 0975-0991 (Online); 0971-457X (Print)
5. **Suman**, Rahul Singhal, Amit L. Sharma, B.D. Malhotra and C.S.Pundir (2005) Development of a lactate biosensor based on conducting copolymer bound lactate oxidase, *Sensor and Actuators : B Chemical (Elsevier Science)*, 107, 768-772.
6. **Suman** and C.S.Pundir (2005) Determination of serum lactate with alkylamine glass bound lactate oxidase, *Ind. J. Biochem. Biophys. (CSIR)*, 42, 186-189. ISSN 0301-1208

7. Deepak Bhatia, **Suman** and C. S. Pundir (2005) Preparation of a reusable enzyme strip for determination of serum cholesterol, *Ind. J. Biotech., (CSIR)*, 4, 471-475. ISSN 0975-0967 (Online); 0972-5849 (Print)
8. Tank N, **Suman** and C. S. Pundir (2005) Determination of serum glucose using co-immobilized glucose oxidase and peroxidase onto aryamine glass beads affixed on a plastic strip, *Ind. J. Biochem. Biophys., (CSIR)*, 42(6), 391-394. ISSN 0301-1208
9. Tank N, **Suman** and C. S. Pundir (2005) Preparation of reusable enzyme strip for determination of serum cholesterol, *Ind. J. Biotech.,* 4, 471-475. ISSN 0975-0967 (Online); 0972-5849 (Print)
10. S.K. Sharma, **Suman**, C.S.Pundir, N. Sehgal and A. Kumar (2006) Galactose sensor based on galactose oxidase immobilized in polyvinyl formal, *Sensor and Actuators B: Chemical(Elsevier Science)* , 119, 15-19.
11. S.K. Sharma, Reeti Chaudhary, **Suman**, C.S.Pundir, N. Sehgal and A. Kumar (2007) Lactose sensor based on lactase and galactose oxidase immobilized in polyvinyl formal, *Artificial Cells, Blood Substitutes and Biotechnology, USA (Marcel Dekker, Inc.)*, 35(4), 421-430. ISSN 1532-4184
12. **Suman** and C. S. Pundir (2007) Development of a lactate biosensor based on CA membrane bound lactate oxidase, *Sensor and Transducers Journal, Europe (IFSA)*, 79(5), 1192-1201.
13. Kumar, A. and **Suman** (2007) Cholesterol biosensor based on polyvinyl formal membrane bound cholesterol esterase and oxidase, *Sensors and Transducers Journal, Europe (IFSA)*, 83(9), 1555-1563.
14. **Suman** and Kumar, A. (2008) Recent advances in DNA biosensors, *Sensors and Transducers Journal, USA (IFSA)*, 92(5), 122-133.
15. **Suman** and Kumar, A. (2008) Recent advances in lactate estimation and lactate sensors for diagnosis of diseases, *Sensors and Transducers Journal, USA (IFSA)*, 96(9), 18-31.
16. Patel, M.K., **Suman** and Kumar, A. (2008) Bacterial meningitis and recent laboratory techniques for diagnosis of disease, *Biosci. Biotech. Res. Commun (.BBRC-International Journal)* 1(1), 1-10. ISSN: 0974-6455
17. **Suman**, Kumar, A. and Jain, V.K. (2008) Glucose biosensor based on electrostatically functionalized carbon nanotubes bound glucose oxidase, *Sensors and Transducers Journal, USA (IFSA)* 98 (11), 15-25.
18. Nidhi Jain, Rupesh Kumar Basniwal, **Suman**, Srivastava A.K. and Jain, V.K. (2010) Reusable nanomaterial and plant-biomass composites for removal of dyes from water, *Environmental Technology* 31 (7), 755-760
19. A. Kumar, Y. Balachandran, S.Gupta, S.Khare and **Suman** (2010) Quick PCR based diagnosis of typhoid using specific genetic markers, *Biotechnology Letters*. 32 (5), 705-712 ISSN 1573-6776
20. **Suman**, Ram Prasad, Jain, V.K. and Verma Ajit (2010) Role of nanomaterial in symbiotic fungus growth enhancement, *Current science*, 99 (9): 1189-1191 ISSN [0011-3891](#)
21. **Suman**, Vikesh Gaur, Pramod Kumar and V.K. Jain (2011) Nanomaterial based Opto-electrical oxygen sensor for detecting air leakage in package items and storage plants , *J. Experimental Nanoscience* , 1-8
22. Ashok Kumar, Sandeep K. Dash, Darshan P.Sharma and **Suman** (2010) DNA based biosensors for detection of pathogens, National symposium on Molecular approaches for management of fungal diseases of crop plants, p 44-46
23. Suman, Emmet O' Reilly, Michele Kelly, Aoife Morrin, Malcolm R. Smyth and Anthony J. Killard (2011) Chronocoulometric determination of urea in human serum using an inkjet printed biosensor, *Anal Chim.Acta* 697

(1-2): 98-102

24. Ramesh Kumar, Bimal Kumar Das, V.K.Jain and Suman (2011) Nanomaterials help in early diagnosis of Meningitis. Nanowerk.com
<http://www.nanowerk.com/spotlight/spotid=23043.php>
25. Kumar A, Bhatnagar A, Gupta S, Khare S, Suman. "sof gene as a specific genetic marker for detection of Streptococcus pyogenes causing pharyngitis and rheumatic heart disease." Cell Mol Biol. 2011 Feb 12;57(1):26-30. IF 2.05
26. Suman, Ramesh Kumar and V.K.Jain (2013) Potable electro-less water sterilization device based on nano-phase modified concrete pebbles. Mat. Res. Innov 17(4):244-249
27. Meeta Gera, Ramesh Kumar, V.K.Jain and Suman (2014) Fabrication of a pocket friendly, reusable water purifier using silver nano embedded porous concrete pebbles based on green technology. J.Bionano.Sci 6:1-8
28. Suman, Abhishek Kardam, Meeta Gera and V. K Jain (2015) A novel reusable nano-composite for complete removal of dyes, heavy metals and microbial load from water based on nanocellulose and silver nano embedded pebbles, Environmental Technology 36(6):706-14.
29. Meeta Gera, Ramesh Kumar, V.K. Jain and Suman (2015) Preparation of a Novel Nanocurcumin loaded drug releasing medicated patch with enhanced bioactivity against microbes, Advanced Science Engineering and Medicine (7)6: 485-491
30. Suman, Meeta Gera, Ramesh Kumar and V.K.Jain (2018) Nano curcumin a novel herbal drug enhanced apoptosis and inhibit Ehrlich ascites tumor cells in vivo, World journal of pharmacy and pharmaceutical sciences 7 (3): 670-680
31. Nitesh Kumar, Abhishek Kardam, V.K.Jain and Suman (2019) A rapid, reusable Polyaniline impregnated nanocellulose composites based system for enhanced removal of chromium and cleaning of waste water, Separation science and Technology , Vol 54, 1-13
32. Nitesh Kumar, Abhishek Kardam, V.K.Jain and Suman (2019) Carboxymethyl nanocellulose stabilized nano zero-valent iron: An effective method for reduction of hexavalent chromium in wastewater, Material research express 6 (11):1150f3
33. **Priyanka Verma, Sudhir K. Shukla, Suman, R.M Tripathi (2019)** Functional health literacy on diabetes mellitus and anti-diabetic drugs, International Journal of Medical Toxicology and Legal Medicine , Volume 22 No 3&4
34. Akansha Mehra, Rajiv Narang, V.K.Jain and Suman (2020) Preparation and Characterization of Nano Statins: A New Strategy to Reduce Toxicity and Enhance Efficacy for CVD Treatment, European Journal of Integrative Medicine , vol 33: 101014
35. Kumar, R., Nagpal, S., Kaushik, S. *et al*. COVID-19 diagnostic approaches: different roads to the same destination. *VirusDis*. (2020). <https://doi.org/10.1007/s13337-020-00599-7>.
36. **Priyanka Verma, Atul Bajaj, Sudhir K. Shukla, R.M Tripathi and Suman, (2020)** Detection of Metformin in biological matrix employing thin layer chromatography and gas chromatography mas spectroscopy,

37. **Nitesh Kumar, Devinder Madhwal, V.K.Jain and suman**, A POC device for on-the-spot detection of hexavalent chromium in wastewater **Journal of Environmental Chemical Engineering, vol (8) 5: 104342 (2020)**
38. **Priyanka Verma, Atul bajaj, R.M.Tripathi ,S.K.Shukla and suman Nagpal**, Development and Validation of the Method for the Detection of Glimepiride via Derivatization employing N-Methyl-N-(trimethylsilyl)trifluoroacetamide using Gas Chromatography-Mass Spectrometry. *Egypt J Forensic Sci* **11**, 4 (2021). <https://doi.org/10.1186/s41935-021-00217-7>
39. **Priyanka Verma, Suman Nagpal, S.K.Shukla and R.M.Tripathi** Detection of sitagliptin via Derivatization employing N-Methyl-N-(trimethylsilyl)trifluoroacetamide using Gas Chromatography-Mass Spectrometry, **International journal of Toxicology and legal medicine** **23, 142, 2020.**
40. Varsha Gautam, Avshish Kumar, Ramesh Kumar, V.K. Jain and Suman, **Silicon nanowires/reduced graphene oxide nanocomposite based novel sensor platform for detection of cyclohexane and formaldehyde (2021) :123; 105571**
<https://www.sciencedirect.com/science/article/abs/pii/S1369800120315043>, 2020
41. Varun Kumar, Ramesh Kumar, V.K.Jain and Suman, **Nanocurcumin based herbal hybrid virosome with enhanced anti-cancerous activity and reduced toxicity**, Scientific Reports Nature,(2021); 11:368
42. Akansha Mehra, Sonal Chauhan, VK Jain and Suman Nanoparticles of Punicalagin from pomegranate (*Punica Granatum L.*) with enhanced antioxidant, antibacterial, *in-vitro* cytotoxicity and reduced toxicity, *J Clust Sci* (2021). <https://doi.org/10.1007/s10876-021-01979-9>
43. Ramesh Kumar, Sumi Nandwani, Suman Nagpal, Samandar Kaushik, Green synthesized Allium cepa nanoparticles with enhanced antiprotozoal activities for *E. gingivalis*, *Chem. Bio. Lett.* 7(4): 2020
44. Basniwal RK , Suman and Jain VK, Conventional and Advanced Nanotechnological Approaches for Wastewater Treatment, *Journal of Environmental Pollution and Control* (2021) : 4(1)

BOOK

Ramesh Kumar. and **Suman** (2013) **carbon nanotube based DNA biosensor published by Lambert Academic publishers, Germany**

BOOK CHAPTER

1. Kumar, A. and **Suman** (2009) DNA Biosensor: A Quick Molecular Diagnostic Technique, Recent Trends in Biotechnology Volume 1, Edited by Prof. M.P.Singh, Purvanchal University, Dr. Anju Agrawal, Kanpur University Prof.B.Sharma., Allahabad University) Published by Nova Science Publisher, New York , USA
- 2.Kumar, A., Sandip K. Dash, Darshan P. Sharma and **Suman** (2011) DNA based bio sensors for detection of pathogens, in "Molecular Approaches for Plant Fungal Disease Management" Edited by Prof Dr. P. Chowdappa, Indian Institute of Horticultural Research, Bangalore
3. Ramesh Kumar, V.K.Jain and **Suman** (2014) Nano in Medicine: New horizons in Diagnosis of Meningitis in Book title: "Industrial, medical and environmental applications of microorganisms: current status and trends" published by Wageningen Academic Publishers Editor A. Méndez-Vilas ISBN Print version: 978-90-8686-243-6 ISBN E-book: 978-90-8686-795-0
4. **Nanocellulose**: A review of Preparation, properties and Applications (2019) in nanocellulose **edited by Vikas**

Most Cited Publication of International Journal

The following paper is in the list of 25 top most downloaded articles (57 times Downloaded till Sept, 2009) of *Sensors and Transducer Journal* (www.sensorsportal.com/HTML/DIGEST/Top_articles.htm)

Suman and Kumar, A. (2008) Recent advances in DNA biosensors, *Sensors and Transducers Journal, USA (IFSA)*, 92(5),122-133.

PRESENTATIONS (NATIONAL AND INTERNATIONAL)

1. Suman and C.S.Pundir (2001) Co-immobilization of cholesterol esterase, cholesterol oxidase and peroxidase onto alkylamine glass beads for determination of total cholesterol in serum, *Indo-Japan Workshop* at NPL Delhi , 10-11 December.
2. Suman and C.S.Pundir (2002) Preparation of a reusable enzyme strip for determination of serum total cholesterol, *National Conference on Sensor Technology* at DRDO, Delhi, 26-27 October.
3. Suman and C.S.Pundir (2002) Immobilization of sorghum root oxalate oxidase onto polyvinyl alcohol membrane for preparation of biosensor, *National Conference on Sensor Technology* at DRDO, Delhi, 26-27 October.
4. Sushma, Rekha Suman and C.S.Pundir (2002) Determination of serum and urinary urate with reusable uricase strip, *National Conference on Sensor Technology* at DRDO, Delhi, 26-27 October.
5. Suman and C. S. Pundir (2004) Development of a lactate biosensor based on conducting copolymer bound lactate oxidase, *National Conference of Biotechnology Society of India*, at International Trade Centre (organized by IGIB), New Delhi, 13-15 October.
6. Suman and C.S.Pundir (2004) Immobilization of porcine pancreas lipase onto arylamine glass affixed inside a plastic beaker and its application, *National Conference of Biotechnology Society of India*, at International Trade Centre (organized by IGIB), New Delhi, 13-15 October.
7. Kamini, Shanta, Poonam, Suman, Aggarwal M. and Khandal, R.K. (2005) Presence of steroids in Ayurvedic products: collection of date for last five years, *International Conference of the International Society for Ayurveda and Health*, BHU Varanasi, 23-25 September.
8. R. Chaddha, Gupta P.C., Soin, P., Kumar P., Poonam, Suman, Aggarwal M. and Khandal, R.K. (2005) Medicinal plants and their actives; characterization and effects of γ - irradiation processing , *International Conference of the International Society for Ayurveda and Health*, BHU Varanasi, 23-25 September.
9. Suman and C.S. Pundir (2006) Lactate biosensor based on cellulose acetate membrane bound lactate oxidase, *National Biotechnology Conference*, IIT Roorkee-Uttranchal, Roorkee , 2-3 September.
10. Kumar P., R. Chadha, Gupta P.C., Suman, Aggarwal M., Chacko K. M. and Khandal, R.K. (2006) Effect of gamma irradiation processing on herbal formulation and their herbal ingredients at *National Symposium on Radiation Processing of Food, Food Products and Feeds*, Hyderabad, 8-9 September.
11. Chauhan A., Garg N., Suman, Diwan R.K., Malik A. and Khandal, R.K. (2006) Gamma irradiation of dehydrated vegetables: a case study on Indian carrot at *National Symposium on Radiation Processing of Food, Food Products and Feeds*, Hyderabad, 8-9 September.
12. Suman, Kumar, A. and Jain V.K. (2008) Glucose biosensor based on electro-statically functionalized carbon nanotubes bound glucose oxidase, *Asia NANO 2008* (The 2008 Asian Conference on Nanoscience and

- Nanotechnology Poster No. A-PA-27 (107) ,Biopolis, Singapore (3-7 November, 2008).
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