Centre/School/Special Centre: Physical Sciences

Department: CHEMISTRY

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Dr Manorama, Assistant Professor

Qualifications:

M. Sc. (Analytical Chemistry), 2005, Department of Chemistry, Banaras Hindu University, Varanasi-221005, U. P., India.

Ph. D. (Chemistry), 2011, Department of Chemistry, Banaras Hindu University, Varanasi-221005, U. P., India.

Area of Interest/Specialization:

Electroanalytical Chemistry, Nanocomposites, Electrochemical sensors/biosensors, Electrocatalysis, Modified electrodes, Carbon-based nanocomposites, Metal nanoparticles, Photocatalysis.

Experience:

Assistant Professor since 2011, Department of Chemistry, GGV, Bilaspur

Awards and Honors:

1. CSIR-UGC NET-LS (2005)
2. CSIR-Project–JRF (2006-2009), Banaras Hindu University, Varanasi, U.P.
3. Awarded direct SRF from CSIR (No. 9/13(286)/2010-EMR-I), New Delhi
4. Received Best Oral Presentation Award, RAASI-2011, Hyderabad.
5. Received the Best Paper Award, 2019, IQAC-Guru Ghasidas Vishwavidyalaya, Bilaspur.
6. Received the Best Paper Award, 2021, IQAC-Guru Ghasidas Vishwavidyalaya, Bilaspur.
7. Received the Best Paper Award, ICBPS-2022, GLA University, Mathura.

Research Projects:

S. No.	Title of the Project	Amount Sanctioned	Funding Agency	Duration	Status
1	A Novel Amperometric Pesticide Biosensor for Organophosphates/ Carbamates Based on Acetyl Cholinesterase Immobilized on Graphene-Gold Nanoparticles (AuNPs) Composite.	Rs. 12,40,800/	**UGC**	3 Years (2013-2016)	Completed
2	A Novel Electrocatalytic Sensing Scaffold for …….based on Graphene Nanomaterial	Rs. 14,56,000/	**CSIR**	3 Years (2022-2025)	Ongoing

Best Peer Reviewed Publication (up-to 10):

1. **Manorama Singh,** S. R Bhardiya, A. Asati, H. Sheshma, V. K. Rai, A. Rai, *Sensitive electrocatalytic determination of p-phenylenediamine using bimetallic nanocomposite of Cu-Ag nanoalloy and ionic liquid-graphene oxide*
   ***J. Electroanal Chem*, 2021,** *894*, 115360-115368. **[IF: 4.464]**

2. S. R Bhardiya, A. Asati, H. Sheshma, A. Rai, V. K. Rai, **Manorama Singh,** *A Novel Bioconjugated Reduced Graphene Oxide-Based Nanocomposite for Sensitive Electrochemical Detection of Cadmium in Water*
   ***Sensors & Actuators: B. Chemical*, 2021,** *328*, 129019-129028**. [IF: 7.460]**

3. **Manorama Singh,** S. R. Bhardiya, H. Sheshma, A. Asati, A. Rai, V. K. Rai, *Design of a sensitive electrochemical sensor based on ferrocene-reduced graphene oxide/Mn spinel for hydrazine detection*
   ***Electroanalysis,* 2021,** *33*, 464-472 **[IF: 3.223]**

4. **Manorama Singh,** A. Sahu, P. K. Singh, F. Verma, V. K. Rai, A. Rai, *A novel ternary graphene-based nanocomposite modified electrode for acetaminophen detection*
   ***Electroanalysis,* 2020,** *32, 1516-1522* [**IF: 3.223]**

5. **Manorama Singh**, H. Kashyap, P. K. Singh, S. Mahata, V. K. Rai, A. Rai, *AuNPs/Neutral red-biofunctionalized graphene nanocomposite for nonenzymatic electrochemical detection of organophosphate via NO_2 reduction*
   ***Sensors & Actuators: B. Chemical*, 2019**, *290*, 195-202. **[IF: 7.460]**

6. **Manorama Singh**, A. Sahu, S. Mahata, P. Shukla, A. Rai, V. K. Rai, *Efficient electrocatalytic oxidation of p-phenylenediamine using a novel PANI/ZnO anchored bio-reduced graphene oxide nanocomposite*
   ***New J. Chem.* 2019**, 43, 6500-6505. **[IF: 3.591]**

7. Anjumala Sahu, P. Shukla, S. Mahata, V. K. Rai, A. Rai, **Manorama Singh,** *First bio-covalent functionalization of graphene with threonine towards drug sensing via electrocatalytic transfer hydrogenation*
Sensors & Actuators*: *B. Chemical, **2019**, *281*, 1045-1053, **[IF: 7.460]**

8. F. Verma, A. Sahu, P. K. Singh, A. Rai, **Manorama Singh**, V. K. Rai, *Visible-light driven regioselective synthesis of 1H-tetrazoles from aldehydes through isocyanide-based [3+2] cycloaddition*
***Green Chem.* 2018,** *20, 3783-3789* **[IF: 10.18]**

9. I. Tiwari, **Manorama Singh**, M. Gupta, S. K. Aggarwal, *Electroanalytical properties and application of anthraquinone derivative- functionalized multiwalled carbon nanotubes nanowires modified glassy carbon electrode in the determination of dissolved oxygen.*
Materials Research Bulletin, **2012**, *47, 1697-1703* **[IF: 4.641]**

10. I. Tiwari, **Manorama Singh,** *Preparation and characterization of methylene blue- SDS-multiwalled carbon nanotubes nanocomposite for the detection of hydrogen peroxide*
***Microchimica Acta,* 2011,** *174*, 223-*230* **[IF: 6.232]**

Recent Books/Book Chapters/Monographs *etc*.:

(A)Book Chapters

1. *Role of MOFs as Electro/-Organic Catalysts,* **Manorama Singh**, A. Rai, V. K. Rai, S. R. Bhardiya, A. Asati, "Applications of Metal-Organic Frameworks and their derived materials", **2020**, ISBN 978-1-119-65098-0, (Wiley-Scrivener Publishing, Beverly, MA)

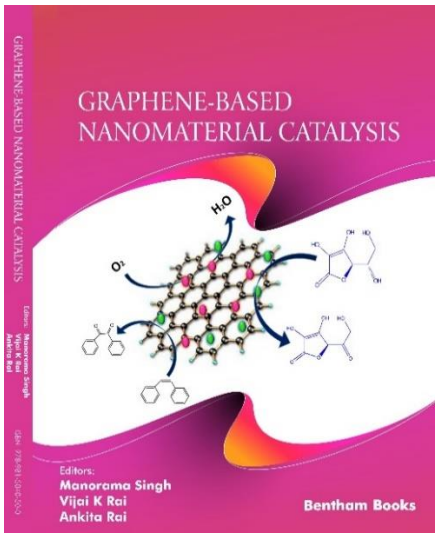
2. *Electrocatalysis: Application of nanocomposite materials,* **Manorama Singh**, A. Rai, V. K. Rai, "Methods for Electrocatalysis: Advanced Materials and Allied Applications" **2020,** ISBN 978-3-030-27161-9. (Springer Nature, Switzerland)

3. *Graphene: a unique constructional material for electroanalytical applications,* I. Tiwari, **Manorama Singh**, "*Sensors, transducers, signal conditioning and wireless sensors network"* **2016,** Advances in Sensors series: Reviews, vol. *3*, ISBN No. 978 -84-608-7705-9

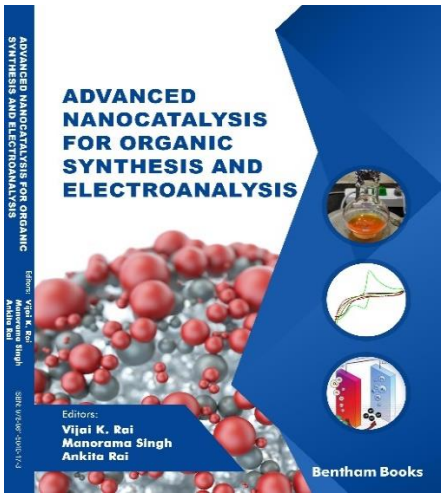
4. *Advances in Sensors' Nanotechnology,* I. Tiwari, **Manorama Singh,** *Advanced Sensor and Detection Materials*" **2014,** ISBN No: 978-1-118-77348-2. (WILEY-Scrivener Publishing, USA).

5. Polyaniline *Based Advanced Nanomaterials for the Sensor Applications,* I. Tiwari, **Manorama Singh,** "*Nanotechnology in Polymers''* **2012,** ISBN: 1-933699-90-6, 2012, 55-67 (Studium Press LLC, Houston, Texas, USA).

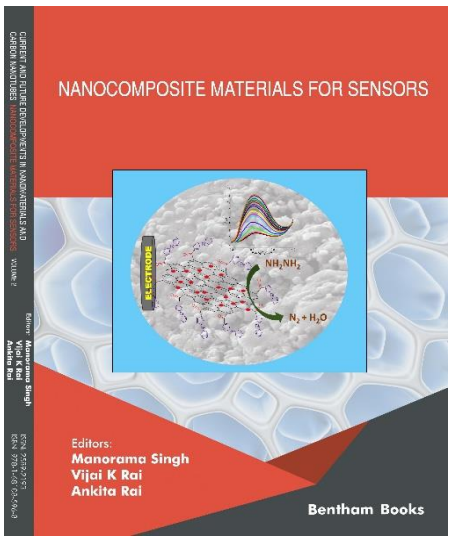
(B)Books (03)



Graphene-Based Nanomaterial Catalysis, **2022**
Bentham Science Publishers. ISBN (online): 978-981-5040-49-4



Advanced Nanocatalysis For Organic Syntheses and Electroanalyses, **2022**
Bentham Science Publishers. ISBN (online): 978-981-5040-16-6



Nanocomposite Materials for Sensors, **2022**
Bentham Science Publishers.
ISBN (online): 978-1-68108-596-8;
ISSN (online): 2589-2193

Research Supervision:

Ph. D. (Awarded)
1. Ms Anjumala Sahu, 2020
2. Mr Hemant Kashyap, 2021
3. Ms Smita Rani Bhardiya, 2023

Ph. D. (Ongoing)
1. Ms Dev Kumari Patel (Dec, 2021 -onwards)
2. Mr Rahul Kumar (CSIR project JRF) (2022 -onwards)

M.Sc. Dissertation **34**

Administrative/Other Responsibilities

- Member, Admission Committee (B. Tech first year, UG, PG and Ph.D.), GGV
- Asst. Centre Superintendent, VET and VRET, GGV
- Member, Unnat Bharat Abhiyan, GGV
- Assist Centre Superintendent, UG & PG Exams, GGV
- Member, Tablet and mobile distribution committee, GGV
- Polling Officer, Students' Council Election, GGV
- Member, Disciplinary Committee, Students' Council Election, GGV
- Member, Law and Order Committee, Students' Council Election, GGV
- Member, DRC, Department of Chemistry, GGV
- Member, School Discipline Committee, GGV
- Member, Community Development Cell, GGV
- Member, Various Departmental Committees, GGV
- Member, National Science Day celebration committee, GGV
- Member, Scrutiny Committee, Faculty Recruitments, GGV
- Member, Verification Committee, Faculty Recruitments, GGV
- Member, Organizing conferences/seminar/workshops, GGV
- Member, University Anti-ragging Committee, GGV
- Member, University-Industry Interface Cell, GGV
- Warden, Girls Hostel, GGV *etc*.

Additional Information:

(A)Professional Membership

(i). Life Member, Indian Society for Electroanalytical Chemistry (ISEAC) [LM 136].
(ii). Life Member, Indian Science Congress [L 28054].

(B) Editorial Member

(i)Current Electrocatalysis (2020-till date)
(ii)Current Analytical Chemistry (2020-2021)

(iii)SCIREA Journal of Chemistry (2019)

(C) Reviewer in:

(i) Taylor-Francis Journals
(ii) RSC Journals
(iii) Wiley Journals
(iv) Bentham Science Journals.

(D) Conference Proceedings: 03

(E) Invited Talks/Chaired sessions in Seminar/Conferences: 08

(F) Paper Presented Seminar/Conferences: 15

(G) Other publications

1. S. R. Bhardiya, A. Rai, V. K Rai, **Manorama Singh,** *Graphene-based Nanomaterials for Electrochemical Sensing of Hydrazine: A Review*
***Current Analytical Chemistry,* 2023**, 19 **[IF: 1.892]**

2. P K Singh, B. Khuntey, S R Bhardiya, **Manorama Singh,** V. K. Rai, A. Rai, Cooperative visible light and Cu/Cu2O@g-C3N4 catalysis towards Hantzsch/Biginelli synthesis of dihydro-pyridine /pyrimidine, ***J Heterocyclic Chemistry,* 2022** ***(In Press)***

3. **Manorama Singh,** S. R. Bhardiya, A. Rai, V. K Rai, *Electrochemical approach for recognition and quantification of p-phenylenediamine: a review*
***Sensors and Diagnostics,* 2022**, DOI: 10.1039/b1sd00070e

4. P. Shukla, **Manorama Singh**, V. K. Rai, A. Rai
Regioselective installation of enolizable ketones and unprotected mercaptoacetic acid into olefins using GO as phase transfer catalyst
***New J. Chem.* 2022**, *45*, (In Press) **[IF: 3.591]**

5. **Manorama Singh,** S. R Bhardiya, A. Asati, H. Sheshma, V. K. Rai, A. Rai
Sensitive electrocatalytic determination of p-phenylenediamine using bimetallic nanocomposite of Cu-Ag nanoalloy and ionic liquid-graphene oxide
***J. Electroanal Chem*, 2021,** *894*, 115360-115368. [**IF: 4.464**]

6. S. R Bhardiya, A. Asati, H. Sheshma, A. Rai, V. K. Rai, **Manorama Singh**
A Novel Bioconjugated Reduced Graphene Oxide-Based Nanocomposite for Sensitive Electrochemical Detection of Cadmium in Water
***Sensors & Actuators: B. Chemical*, 2021,** *328*, 129019-129028**. [IF: 7.460]**

7. **Manorama Singh,** S. R. Bhardiya, H. Sheshma, A. Asati, A. Rai, V. K. Rai
Design of a sensitive electrochemical sensor based on ferrocene-reduced graphene oxide/Mn spinel for hydrazine detection
***Electroanalysis,* 2021,** *33*, 464-472 **[IF: 3.223]**

8. P. Shukla, A. Asati, S. R. Bhardiya, **Manorama Singh,** V. K. Rai, A. Rai

Metal free C-H activation over graphene oxide toward direct synthesis of structurally different amines and amides in water
***J. Org. Chem*. 2020,** *85*, 15552−15561 [**IF: 4.8]**

9. P. K. Singh, S. R. Bhardiya, A. Asati, V. K. Rai, **Manorama Singh** Ankita Rai
Cu/Cu_2O@g-C_3N_4: Recyclable photocatalyst under visible light to access 2-aryl-/benzimidazoles/benzothiazoles in water
***ChemistrySelect*, 2020**, 5, 14270-14275. **[IF: 2.019]**

10. **Manorama Singh,** A. Sahu, P. K. Singh, F. Verma, V. K. Rai, A. Rai
A novel ternary graphene-based nanocomposite modified electrode for acetaminophen detection
***Electroanalysis, 2020,** 32, 1516-1522* [**IF: 3.223]**

11. V. K Rai, F. Verma, S. R. Bhardiya, H. Sheshma, A. Rai, **Manorama Singh**
Facile Syntheiss of γ-Ketonitriles in water via C(Sp2)-H Activation of Aromatic Aldehydes over Cu@g-C3N4 under Visible light
***Eur. J. Org. Chem*., 2020**, 5841-5846. **[IF: 3.021]**

12. V. K. Rai, S. Mahata, H. Kashyap, **Manorama Singh,** A. Rai
Bioreduction of Graphene oxide: Catalytic applications of (reduced) GO in organic synthesis
***Current Organic Synthesis*, 2020**, *17*, 164-191. **[IF: 1.983]**

13. P. Shukla, A. Asati, S. R. Bhardiya, **Manorama Singh,** V. K. Rai, A. Rai
Cu(I)-Induced Activation of Furan for Inverse Electron Demand ADAR with Alkenes toward Regioselective Synthesis of Tetrahydropyridine,
***J. Org. Chem*. 2020**, *85*, 7772−7780. [**IF: 4.8]**

14. **Manorama Singh,** S. R. Bhardiya, F. Verma, V. K. Rai, A. Rai
Graphene based nanomaterials for fabrication of Pesticide electrochemical sensors
***Current Graphene Science*, 2020**, *3*, 26-40.

15. V. K. Rai, F. Verma, S. Mahata, S. R. Bhardiya, **Manorama Singh**, A. Rai
Metal doped -C_3N_4/Fe_2O_4: Efficient and versatile heterogeneous catalysts for organic transformations
***Current Organic Chemistry*, 2019**, *23, 1282-1304.* **[IF: 1.933]**

16. **Manorama Singh**, Anjumala Sahu, S Mahata, P K Singh, V. K. Rai, A. Rai
Efficient electrochemical determination of p-aminophenol using a novel tricomponent graphene- based nanocomposite
***New J. Chem.* 2019**, *43*, 14972 **[IF: 3.591]**

17. **Manorama Singh**, H. Kashyap, P. K. Singh, S. Mahata, V. K. Rai, A. Rai
AuNPs/Neutral red-biofunctionalized graphene nanocomposite for nonenzymatic electrochemical detection of organophosphate via NO_2 reduction
***Sensors & Actuators: B. Chemical*, 2019**, *290*, 195-202. **[IF: 7.460]**

18. **Manorama Singh**, A. Sahu, S. Mahata, P. Shukla, A. Rai, V. K. Rai
Efficient electrocatalytic oxidation of p-phenylenediamine using a novel PANI/ZnO anchored bio-reduced graphene oxide nanocomposite
***New J. Chem.* 2019**, 43, 6500-6505. **[IF: 3.591]**

19. P. K. Singh, F. Verma, S. R. Bhardiya, **Manorama Singh**, V. K. Rai, A. Rai
A Facile Iodine-Promoted N-Ts Insertion into Enals: cis-Selective Construction of Aziridin-2-aldehyde in Water,
ChemistrySelect, **2019**, *4*, 1240-1243. **[IF: 2.019]**

20. F. Verma, P. Shukla, S. R. Bhardiya, **Manorama Singh**, A. Rai, V. K. Rai
Photocatalytic C(sp^3)–H activation towards α-methylenation of ketones using MeOH as 1C source steering reagent
***Advanced Synthesis & Catalysis*, 2019**, *361*, 1171-1462. **[IF: 5.851]**

21. V. K. Rai, S. Mahata, S. R. Bhardiya, P. Shukla, A. Rai, **Manorama Singh**
A novel carbocatalytic hydride transfer strategy for efficient reduction of structurally different aldehydes and ketones in water
***Tetrahedron Lett.*, 2019**, *60*, 524-529. **[IF: 2.379]**

22. A. Sahu, P. Shukla, S. Mahata, V. K. Rai, A. Rai, **Manorama Singh**
First bio-covalent functionalization of graphene with threonine towards drug sensing via electrocatalytic transfer hydrogenation
Sensors & Actuators*: *B. Chemical, **2019**, *281*, 1045-1053, **[IF: 7.460]**

23. P. Shukla, S Mahata, H Kashyap, **Manorama Singh**, V. K. Rai, A. Rai
A facile and efficient carbocatalytic route to quaternary C-bearing N-tosylaziridines from Morita-Baylis - Hillman adduct in water
***Tetrahedron Lett.*, 2019**, *60*, 1943-1948. **[IF: 2.379]**

24. S. Mahata, A. Sahu, P. Shukla, A. Rai, **Manorama Singh**, V. K. Rai
A novel and efficient reduction of graphene oxide using Ocimum sanctum L. leaf extract as an alternative renewable bio-resource
***New J. Chem.* 2018**, *42*, 19945-19952. [**IF: 3.591**].

25. F. Verma, P. Shukla, S. R. Bhardiya, **Manorama Singh**, A. Rai, V. K. Rai
Visible Light-Induced Direct Conversion of Aldehydes into Nitriles in Aqueous Medium Using Co@g-C_3N_4 as Photocatalyst
***Cat. Comm.* 2019**, *119*, 76-81. **[IF: 3.626]**

26. F. Verma, A. Sahu, P. K. Singh, A. Rai, **Manorama Singh**, V. K. Rai
Visible-light driven regioselective synthesis of 1H-tetrazoles from aldehydes through isocyanide-based [3+2] cycloaddition
Green Chemistry 2018, *20, 3783-3789* **[IF: 10.18]**

27. V. K. Rai, F. Verma, G. P. Sahu, **Manorama Singh**, A. Rai
One-Pot Allan–Robinson/Friedländer Route to Chromen-/Quinolin-4-ones through the Domino Acetylative Cyclisation of 2-Hydroxy-/2-Aminobenzaldehyde
***Eur. J. Org. Chem.* 2018**, 537-544. **[IF: 3.021]**

28. S. Mahata, A. Sahu, P. Shukla, A. Rai, **Manorama Singh**, V. K. Rai

Bio-inspired unprecedented synthesis of reduced graphene oxide: a catalytic probe for electro-/chemical reduction of nitro groups in an aqueous medium,
***New J. Chem.* 2018**, *42*, 2067-2073. [**IF: 3.591**]

29. S. Mahata, A. Sahu, P. Shukla, A. Rai, **Manorama Singh**, V. K. Rai
Graphene oxide catalyzed C-N/C-S/[3+2] cyclization cascade for green synthesis of thiazolidinone in water
***Lett. Org. Chem.* 2018**, *15*, 665-672. **[IF: 0.867]**

30. V. K. Rai, F. Verma, M. Satnami, **Manorama Singh**, A. Rai
Morita-*Baylis-Hillman enal-based triple cascade strategy for anti-selective synthesis of highly functionalized tetrahydropyridines using iminium-enamine catalysis*
Tetrahedron Lett., **2018**, *59*, 1783–1786. **[IF: 2.379]**

31. H. Kashyap, P. K. Singh, F. Verma, V. K. Rai, A. Rai, **Manorama Singh**
Facile construction of AuNPs modulated SDS wrapped G-TC tailored electrode for sensitive detection of ascorbic acid
***New J. Chem.* 2017**, *41*, 6938. **[IF: 3.591**

32. F. Verma, P. K. Singh, S. R. Bhardiya, **Manorama Singh**, A. Rai, V. K. Rai
A co-operative effect of visible light photocatalysis and $CoFe_2O_4$ nanoparticles for green synthesis of furans in water
***New J. Chem.* 2017**, *41*, 4937-4942. **[IF: 3.591]**

33. P. Shukla, S. Mahata, A. Sahu, **Manorama Singh**, V. K. Rai, A. Rai
First graphene oxide promoted metal-free nitrene insertion into olefins in water: towards facile synthesis of activated aziridines
RSC Advances, **2017**, *7*, 48723–48729. **[IF: 3.36]**

34. **Manorama Singh**, S. R. Bhardiya, H. Kashyap, F. Verma, V. K. Rai, I. Tiwari
Decoration of GO with Fe spinel-Naf/DMAP: an electrochemical probe for sensing H_2O_2 reduction,
RSC Advances, **2016**, *6*, 104868-104874. **[IF: 3.36]**

35. V. K. Rai, G. P. Sahu, **Manorama Singh**, A. Rai
A facile anti-selective synthesis of 3-nitropyridin-2-ones using Morita-Baylis Hillman adduct of nitroalkene
Lett. Org. Chem. **2016**, *13*, 547-553. **[IF: 0.867]**

36. I. Tiwari, **Manorama Singh**, K. P. Singh
Fabrication, characterization and application of carbon ceramic nanocomposite prepared by using multiwalled carbon nanotubes and organically modified sol-gel glasses
***J. Indian Chem. Soc.* 2014**, *91*, 1793-1798. [**IF: 0.284**]

37. I. Tiwari, **Manorama Singh**, M. Gupta, S. K. Aggarwal
Electroanalytical properties and application of anthraquinone derivative- functionalized multiwalled carbon nanotubes nanowires modified glassy carbon electrode in the determination of dissolved oxygen.
Materials Research Bulletin, **2012**, *47, 1697-1703* **[IF: 4.641]**

38. I. Tiwari, K. P. Singh, **Manorama Singh**, C. E. Banks
Polyaniline/polyacrylic acid/multi-walled carbon nanotube modified electrodes for sensing ascorbic acid

Anal. Methods, **2012**, *4*, 118-124. **[IF: 2.896]**

39. I. Tiwari, **Manorama Singh**
Preparation and characterization of methylene blue- SDS-multiwalled carbon nanotubes nanocomposite for the detection of hydrogen peroxide
***Microchimica Acta,* 2011,** *174*, 223-*230* **[IF: 6.232]**

40. I. Tiwari, **Manorama Singh**
Amperometric biosensor for nanomolar detection of hydrogen peroxide based on encapsulation of thymol blue-ormosil composite
Sensor Letters, **2011**, *9***,** 1323-1330 **[IF: 0.64]**

41. Ida Tiwari, K.P.Singh, **Manorama Singh**
A novel amperometric hydrogen peroxide biosensor based on Horseradish Peroxidase incorporated in organically modified sol-gel glass matrix /graphite paste with multiwalled carbon nanotubes
***Analytical Letters,* 2010**, *43*, 2010-2030**. [IF: 1.26]**

42. I. Tiwari, K. P. Singh, **Manorama Singh**
An insight review on the application of polymer-carbon nanotubes based composite materials in sensor technology
***Russian Journal of General Chemistry*, 2009**, *79*, 2685-269 **[IF: 0.87]**

Manorama