



**Centre/School/Special Centre: Physical Sciences**

**Department: CHEMISTRY**

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[manoramachem@hotmail.com](mailto:manoramachem@hotmail.com)**

**Personal Webpage Link : <https://orcid.org/my-orcid?orcid=0000-0001-5872-6160>**

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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. S. R. Bhardiya, D. Patel, B. Khunthey, Sanju Yadav, A. Rai, V. K Rai, **Manorama Singh**, *Electrocatalytic quantification of quinol in cosmetic samples using Co-doped graphitic carbon nitride @biomolecules assisted electrochemically reduced graphene nanosheets* *Talanta*, **2023**, 269, 125400 [IF: 6.100]
2. S. R Bhardiya, A. Asati, H. Sheshma, V. K. Rai, A. Rai, **Manorama Singh**, *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: 4.598]
3. 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: 9.221]
4. S. R. Bhardiya, H. Sheshma, A. Asati, A. Rai, V. K. Rai, **Manorama Singh**, *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]
5. H. Kashyap, P. K. Singh, S. Mahata, V. K. Rai, A. Rai, **Manorama Singh**, *AuNPs/Neutral red-biofunctionalized graphene nanocomposite for nonenzymatic electrochemical detection of organophosphate via NO<sub>2</sub> reduction* *Sensors & Actuators: B. Chemical*, **2019**, 290, 195-202. [IF: 9.221]
6. A. Sahu, S. Mahata, P. Shukla, A. Rai, V. K. Rai, **Manorama Singh**, *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]

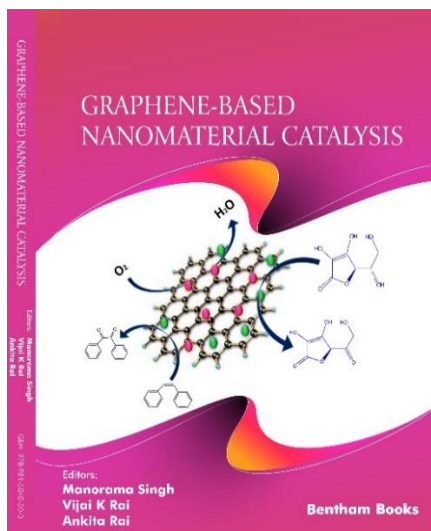
7. Anjumala Sahu, P. Shukla, S. Mahata, V. K. Rai, A. Rai, **Manorama Singh**, *First bio-covalent functionalization of graphene with threonine towards drug sensing via electrocatalytic transfer hydrogenation* *Sensors & Actuators: B. Chemical*, **2019**, 281, 1045-1053, [IF: 9.221]
8. F. Verma, A. Sahu, 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: 5.6]
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.:

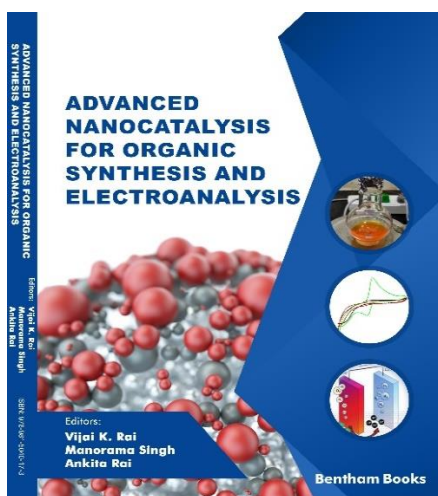
### (A) Book Chapters

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).

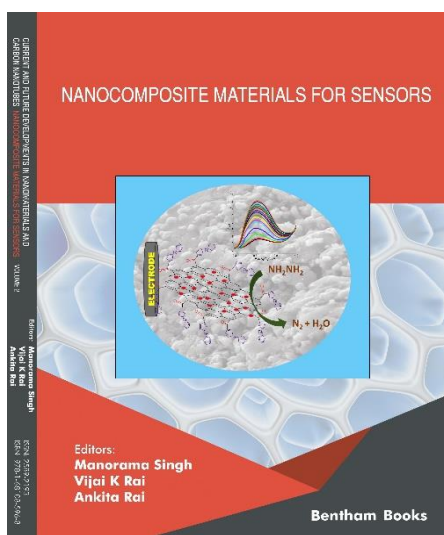
**(B)Books (03)**



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



*Advanced Nanocatalysis For Organic Synthesis and Electroanalysis, 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 (2022 -onwards)
  3. Ms Swati Jaiswal (2022 -onwards)
  4. Mr Robind Kumar (CSIR project JRF) (2023 -onwards)
- M.Sc. Dissertation**      **38**

## Administrative/Other Responsibilities

- Member, Admission Committee (B. Tech first year, UG, PG and Ph.D.), GGV (Continue.)
- 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 .....(Continue..)
- 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 .....(Continue..)
- Member, University-Industry Interface Cell, GGV .....(Continue..)
- Warden, Girls Hostel, GGV .....(Continue..)
- Member, Board of Studies, Department Of Chemistry (Continue..)
- Assistant Proctor, University Proctorial Board ..... (Continue..)
- Member, Innovation Cell, R & D Cell, GGV. .... (Continue..)
- Coordinator, NAAC Criteria VII (Continue..) 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.
- (v) ACS journals

**(D) Conference Proceedings: 03**

**(E) Invited Talks/Chaired sessions in Seminar/Conferences: 09**

**(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. Khunthey, S R Bhardiya, **Manorama Singh**, V. K. Rai, A. Rai, Cooperative visible light and Cu/Cu<sub>2</sub>O@g-C<sub>3</sub>N<sub>4</sub> 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/b1nd00070e
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: 4.598]
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: 9.221]



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: 3.03]
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: 4.6]
9. P. K. Singh, S. R. Bhardiya, A. Asati, V. K. Rai, **Manorama Singh** Ankita Rai  
Cu/Cu<sub>2</sub>O@g-C<sub>3</sub>N<sub>4</sub>: Recyclable photocatalyst under visible light to access 2-aryl-  
/benzimidazoles/benzothiazoles in water  
*ChemistrySelect*, **2020**, 5, 14270-14275. [IF: 2.3]
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: 3.03]
11. V. K Rai, F. Verma, S. R. Bhardiya, H. Sheshma, A. Rai, **Manorama Singh**  
*Facile Synthesis of  $\gamma$ -Ketonitriles in water via C(Sp<sup>2</sup>)-H Activation of Aromatic Aldehydes over Cu@g-C<sub>3</sub>N<sub>4</sub> 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: 4.6]
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<sub>3</sub>N<sub>4</sub>/Fe<sub>2</sub>O<sub>4</sub>: 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<sub>2</sub> reduction*  
**Sensors & Actuators: B. Chemical**, **2019**, 290, 195-202. [IF: 9.221]
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: 2.3]
20. F. Verma, P. Shukla, S. R. Bhardiya, **Manorama Singh**, A. Rai, V. K. Rai  
*Photocatalytic C(sp<sup>3</sup>)-H activation towards  $\alpha$ -methylenation of ketones using MeOH as IC source steering reagent*  
**Advanced Synthesis & Catalysis**, **2019**, 361, 1171-1462. [IF: 5.9]
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: 9.221]
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<sub>3</sub>N<sub>4</sub> 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 Acetylation 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: 2.032]
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: 3.925]
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<sub>2</sub>O<sub>4</sub> nanoparticles for green synthesis of furans in water*  
**New J. Chem.** **2017**, 41, 4937-4942. [IF: 3.925]
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: 4.036]
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<sub>2</sub>O<sub>2</sub> reduction,*  
**RSC Advances**, **2016**, 6, 104868-104874. [IF: 4.036]
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: 0.243]

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: 5.6]
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: 3.5]
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: 6.4]
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. I. 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: 2.26]
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]
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