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EDUCATION

- Ph. D.** **2009**
Department of Chemistry, University of Rajasthan
Title: Microwave assisted synthesis and characterization of biologically important germanium and tin complexes
- M.Sc., Organic Chemistry** **2004**
Department of Chemistry, Banasthali Vidyapith
- B. Sc.** **2001**
M.J.R.P. College, Jaipur, University of Rajasthan

RESEARCH SUMMARY

Synthesis and chemistry using microwave technique of Organometallic compounds of germanium and tin metals using different -N, -S, -O containing donor ligands like bioactive Schiff bases, hydrazine carboxamide, hydrazine carbothioamide, hydrazine dithiocarbazoic acid benzyl ester and benzothiazoline. Studies of their physico-chemical properties are conducted using *mass*, *NMR* (1H , ^{13}C , ^{119}Sn), *IR*, *UV* and *elemental studies and scanning electron microscopy (SEM)*. The important aspects of the work are: comparative study of microwave and thermal methods of synthesis and biological activity (anti-fungal, bacterial, fertility, hepatotoxic activity).

Publications

16. Bioinorganic Chemistry of Platinum(IV) Complexes as Platforms for Anticancer Agents, L Nagyal, A Kumar, R Sharma, R Yadav, P Chaudhary and Rajeev Singh*, **Current Bioactive Compounds**, 16(6).726-737, (Bentham Science) (ISSN: 1573-4072) **(2020)**
(<https://doi.org/10.2174/1573407215666190409105351>) (Scopus CiteScore: 1.4)
15. Synthesis of nano-sized Titania using new chemically modified Schiff base complexes of Titanium(IV) isopropoxide through sol-gel technology, N K Mishra, A Kumar, P Chaudhary, Rajeev Singh*, **Materials Research Innovations**, 23:1, 43-48 (ISSN: 1433-075X) (Taylor & Francis) (Scopus CiteScore: 3.1) (<https://doi.org/10.1080/14328917.2017.1372087>) **(2019)**
14. Reviewing Gold(III) complexes as effective biological operators, Pooja Patanjali, R Kumar, Sourabh, A Kumar, P Chaudhary, Rajeev Singh*, **Main Group Chemistry**, 17(1), 35-52 (ISSN: 1024-1221) (*IOS Press*) (DOI 10.3233/MGC-180247) (IF: 1.039) **(2018)**

13. Green synthesis and characterization of silver nanoparticles using aqueous petal extract of medicinal plant *Combretum indicum*, G Bahuguna, A Kumar, N Mishra, C Kumar, A Bahlwal, **Pratibha Chaudhary**, R Singh*, *Materials Research Express* 3, 075003. DOI:10.1088/2053-1591/3/7/075003 (2016)
12. Structural investigation of nanomixed $x\text{SnO}_2\text{-Al}_2\text{O}_3$ synthesized by sol-gel route; C Kumar, NK Mishra, A Kumar, M Bhatt, **Pratibha Chaudhary**, R Singh*, *Applied Nanoscience*, 1-6 (DOI: 10.1007/s13204-015-0515-6) (ISSN 2190-5509) (Springer) (2016)
11. Organotin(IV) complexes of thiohydrazones of phenethylamine: Synthesis, characterization, biological and thermal study; A Kumar, **Pratibha Chaudhary**, R Singh*, NK Kaushik, *Main Group Chemistry*, 15 (163-178) (DOI 10.3233/MGC-150196) (ISSN print 1024-1221) (IOS Press) (2016)
10. Thin film coating through sol-gel technique, G Bahuguna, N K Mishra, **Pratibha Chaudhary**, A Kumar, R Singh*, *Research Journal of Chemical Sciences*, E-ISSN: 2231-606X, Vol. 6(7), Page 65-72 (2016)
9. Synthesis, characterization, thermal and biological activity of some novel Cadmium(II)-pyridine and purine base complexes; N Gandhi, A Kumar, C Kumar, N Mishra, **Pratibha Chaudhary**, NK Kaushik, R Singh* *Main Group Chemistry*, 15 (1), 35-46, (DOI 10.3233/MGC-150181) (ISSN print 1024-1221) (IOS Press) (2016)
8. Structural and optical properties of $\text{SnO}_2\text{-Al}_2\text{O}_3$ nanocomposite synthesized via the sol-gel route, NK Mishra, C Kumar, A Kumar, M Kumar, **Pratibha Chaudhary**, R Singh*, *Materials Science-Poland*, 33(4) 714-718, DOI: 10.1515/msp-2015-0101 (ISSN 0137-1339) (De Gruyter) (2015)
7. Sol-gel derived nanomaterials and its applications: A review, A Kumar, N Yadav, M Bhatt, N K Mishra, **Pratibha Chaudhary**, R Singh*, *Research Journal of Chemical Sciences*, 5(12), 98-105, E-ISSN: 2231-606X (2015)
6. R Singh, **Pratibha Chaudhary**, NK Kaushik, A Review: Organotin Compounds in Corrosion Inhibition, *Reviews in Inorganic Chemistry* 30 (4) 275-295 (2010), DOI: 10.1002/chin.201115260, ISSN: 2191-0277
5. **Pratibha Chaudhary**, M Swami, D K Sharma, RV Singh, Ecofriendly synthesis, antimicrobial and antispermatogenic activity of triorganotin(IV) complexes with 4'-nitrobenzanilide semicarbazone and 4'-nitrobenzanilide thiosemicarbazone, *Applied Organometallic Chemistry*, 23 (4), 140 – 149 (2009), DOI: 10.1002/aoc.1484, Online ISSN: 1099-0739
4. RV Singh, **Pratibha Chaudhary**, Shikha Chauhan, Monika Swami, Microwave-assisted synthesis, characterization and biological activities of organotin (IV) complexes with some thio-schiff bases, *Spectrochimica Acta Part A: Mol. and Biomol. Spectroscopy*, 72(2), 260-68, (2009), DOI:10.1016/j.saa.2008.09.017; ISSN: 1386-1425.

3. RV Singh, **Pratibha Chaudhary**, K Poonia and S Chauhan, Microwave-assisted synthesis, characterization and biological screening of nitrogen–sulphur and nitrogen–oxygen donor ligands and their organotin(IV) complexes, *Spectrochimica Acta Part A: Mol. and Biomol. Spectroscopy*, 70 (3), 587-594, (2008), DOI:10.1016/j.saa.2007.08.002; ISSN: 1386-1425.
2. K Poonia, S Maanju, **Pratibha Chaudhary** and R.V. Singh, Use of microwave technology for the synthesis of Organotitanium (IV) and Organozirconium (IV) complexes with HPOH, HO \cap N \cap OH and HO \cap N \cap SH type of ligands, *Transition Metal Chemistry*, 32 (2) 204, (2007), DOI: 10.1007/s11243-006-0151-9; ISSN: 0340-4285.
1. RV Singh, Pratibha Gupta, Pratibha Chaudhary, C.N. Deshmukh, (Review) Coordination Compounds of Germanium (IV) Formed with Soft and Hard Donor Atoms: A Look into the Past and Present Work, **Main Group Metal Chemistry**, 28 (2) 93-118 (2005), DOI: 10.1515/MGMC.2005.28.2.93; ISSN: 2191-0219.

BOOK CHAPTER

1. **Chapter 5: Advancing water quality assessment via artificial neural networks (ANNs)**,
Book title: Spectroscopy and Machine Learning for Water Quality Analysis, ISBN: 978-0-7503-3047-3, Publisher: IOP Publishing Ltd
(<https://doi.org/10.1088/978-0-7503-3047-3ch5>) (April 2021)
2. **Chapter 20, Nanotechnology for water treatment: A green approach (2019)**
Book: Green Synthesis, Characterization and Applications of Nanoparticles (1st Edition) (ISBN: 9780081025796) *Elsevier*
(<https://doi.org/10.1016/B978-0-08-102579-6.00021-6>).
3. Chapter “Sol-Gel deposition of thin films” (2019)
Book: Digital Encyclopedia of Applied Physics by *Wiley-VCH Verlag GmbH & Co. KGaA*

CONFERENCES

1. **Solid State Chemistry Conference (SSC 2016)**, 18 to 23 September, 2016, **Czech Republic**, Morphological And Structural Investigation Of Synthesized Vanadium And Titanium Based Mixed Metal Oxide Nanoparticles, **Pratibha Chaudhary***, N.Yadav, N. K Mishra, A. Kumar, R. Singh (POSTER)
2. **Solid State Chemistry Conference (SSC 2016)**, 18 to 23 September, 2016, **Czech Republic**, Synthesis Of NanoTiO₂ using new modified Schiffs base complexes of Titanium(IV) isopropoxide through Sol- Gel process, R. Singh*, N. K Mishra, A. Kumar, **Pratibha Chaudhary** (ORAL)

3. **15th International IUPAC Conference on High Temperature Materials Chemistry (HTMC-XV)** (29 March-01 April 2016), **Orléans, France**, Synthesis Of nano-sized titania using new chemically modified Schiff base complexes of Titanium(IV) isopropoxide through sol-gel technology, R Singh, NK Mishra, M Bhatt, A Kumar, **Pratibha Chaudhary**, (POSTER) (Not attended due to delay in response from funding agency for travel grant)
4. Structural investigation of alumina nanoparticles synthesized via sol-gel technique (Poster), NK Mishra, M Bhatt, A Kumar, C Kumar, **P Chaudhary** and Rajeev Singh*, 3rd Indo-UK conference on Recent Advances in Chemical Sensors, Gargi College, University of Delhi (NK Mishra won second prize in poster presentation) (25th -26th Aug 2015)
5. Structural investigation of alumina nanoparticles synthesized via sol-gel technique (Poster), NK Mishra, A Kumar, C Kumar, **P Chaudhary** and Rajeev Singh*, 3rd National Conference on Nanoscience and Instrumentation Technology (NCNIT-2015), NIT-Kurukshetra, Haryana, India (6-7 June 2015).
6. Synthesis of alumina and mixed oxides alumina nanoparticles via sol-gel technology (Oral), NK Mishra, A Kumar, C Kumar, **P Chaudhary** and Rajeev Singh*, 3rd National Conference on Nanoscience and Instrumentation Technology (NCNIT-2015), NIT-Kurukshetra, Haryana, India (6-7 June 2015).
7. Morphological and structural investigation of alumina nanoparticles synthesized via sol-gel technique (Poster), NK Mishra, A Kumar, C Kumar, P Chaudhary and Rajeev Singh*, 3rd National Conference on Nanoscience and Instrumentation Technology (NCNIT-2015), NIT-Kurukshetra, Haryana, India (6-7 June 2015).
8. Synthesis, characterization and morphological study of mixed Sn-Al oxide nanocomposites (Poster), C Kumar, A Kumar, NK Mishra, P Chaudhary, Rajeev Singh*, 9th National Conference on 'Solid State Chemistry and Allied Areas (ISCAS-2015), University of Delhi (8-10 May 2015).
9. Synthesis and characterization of alumina nanoparticles via sol-gel technique (Poster), NK Mishra, C Kumar, A Kumar, P Chaudhary and Rajeev Singh*, 9th National Conference on 'Solid State Chemistry and Allied Areas (ISCAS-2015), University of Delhi (8-10 May 2015).
10. Schrodinger Workshop on Computational Methods in Drug Discovery, University of Delhi (2015).
11. 2nd Indo-German Workshop on Supramolecular Chemistry, University of Delhi (2015).
12. Two weeks Faculty Development Programme on Frontiers in Chemical and Polymer Sciences (Under TEQIP-II), Delhi Technological University (15-26 December, 2014).

- 13.** International Conference on Electron Microscopy and XXXV Annual Meeting of the Electron Microscope Society of India, University of Delhi, 9-11 July 2014
- 14.** Seminar on Microscopic Techniques, Indian Society of Analytical Scientists, (June, 2014).
- 15.** Attended 1st International Conference on Emerging Trends of Nanotechnology in Drug Discovery, University of Delhi (26-27 May 2014).
- 16.** Synthesis and characterization of tin oxide (SnO₂) nanoparticles via the sol-gel method, National Conference on Recent Trends in Chemical Sciences, Manipal University, Jaipur 21-22 February, 2014.
- 17.** Workshop on Foundation Courses of the Four Year Undergraduate Program of University of Delhi, Popular Lecture Series, ARSD College, 16-17 January 2014.
- 18.** Oral lecture (Chemical Synthesis / CS-O-08): 44th IUPAC World Chemistry Congress, Istanbul, Turkey, 11-16 August 2013. Microwave-assisted synthesis, characterization and biological activities of organotin(IV) comp. (Accepted but not presented)
- 19.** Poster, Thiohydrazone Complexes of Organotin(IV) with promising Anti-Corrosion and Bioactivity Results, Rajeev Singh, Pratibha Chaudhary, Narender Kumar Kaushik (Poster, P1050), 44th IUPAC World Chemistry Congress, Istanbul, Turkey, 11-16 August 2013. (Accepted but not presented)
- 20.** Attended Project Monitoring Session of Chemical of Organic & Medicinal Chemistry & Chemical Technology Research Committee, CSIR Complex, New Delhi (2013).
- 21.** Northern Regional Science Congress Science for Shaping the Future of India, Indian Science Congress Association, New Delhi (2012).
- 22.** National Workshop on "Basics and Applications of Spectroscopic Techniques", ISAS-KMC, New Delhi (2012).
- 23.** National Seminar on Recent Developments in Polymers, Bhaskaracharya College Applied Sciences, University of Delhi (2009).
- 24.** Attended 42nd IUPAC Congress, Glasgow, United Kingdom (2008).
- 25.** National Seminar on Chemical Aspects of Environmental Challenges and their Management (CAECM-07), Jaipur (2007).
- 26.** International Conference & Expo on Botanical Products, Jaipur, India (2006).
- 27.** Synthesis and structural studies of organotin (IV) complexes with biologically potent Schiff bases, (Poster); International Conference on Sustainable

Development and Resource Utilization: Current Trends and Perspectives, Jaipur, India, (2005).

PROFFESIONAL AFFILIATIONS

- **Guest Editor**, Special Issue “Bioactivities of Organotransition Metal Complexes including Metallocene”, Bioinorganic Chemistry and Applications (2014-15)
- **Life member**, Society for Materials Chemistry (LM876)
- **Life Member**, Indian Society of Analytical Scientists (LMT-2010/22)
- **Life member**, The Indian Science Congress Association (**ISCA**) (L21525)
- International Association of Engineers (IAENG) (Membership No. 105976)

OTHERS

- Member, Fellowship Committee, Sports Committee, Acharya Narendra Dev College, University of Delhi (2012-13)
- Certificate course in German language from University of Rajasthan, 2002.
- State level, Volleyball player (1994-95); District level Volleyball player (1992-93, 1993-94 and 1994-95).
- Member, Reception committee, International Conference on Sustainable Development and Resource Utilization: Current Trends and Perspectives, Jaipur, India, (2005).