

Prof. Vinod Prasad Singh

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Academic Profile (B.Sc. onwards)

• B.Sc.	Gorakhpur University, Gorakhpur	1984
• M.Sc.	Gorakhpur University, Gorakhpur	1986
• Ph.D	Banaras Hindu University, Varanasi	1992

Academic Positions Held

• Position	University/Institution	Duration
• Lecturer	C.S. J.M. University, Kanpur	25.6.1997-10.11.2005
• Reader	Banaras Hindu University, Varanasi	11.11.2005-10.11.2008
• Associate Professor	Banaras Hindu University, Varanasi	11.11.2008-10.11.2011
• Professor	Banaras Hindu University, Varanasi	11.11.2011-till date

Administrative Positions Held at BHU

• Position	Details	Duration
• Addl. Superintendent, UG examination	For conducting B.Sc. Examination of Faculty of Science of all subjects	2007-2010
• Member of counseling board,	For B.Sc. Admissions	2008-2014
• Hostel Warden	Rama Krishna Hostel	July 2009-June 2012
• Admin. Warden	Broacha Hostel	July 1012-June 2015
• Program Officer NSS	Science Faculty Unit, BHU	November 2009-June 2013

Teaching Experience : PG classes: 09 years; UG classes: 17 years.

Details of courses taught

Name of the course	UG level	PG level
B.Sc., B. Tech. & M.Sc.	Inorganic Chemistry	Spectroscopy
	Atomic Structure & Bonding	Solid state Chemistry
	Coordination Compounds	Metal carbonyls
	Acid-base theories	ORD-CD techniques
	Chemistry of Lanthanides	Inorganic Polymers

Research Field(s) of Specialization

1.	Coordination Chemistry
2.	Bio-inorganic Chemistry
3.	Heterogeneous Catalysis
4.	Corrosion Inhibition
5.	Chemo Sensors

Summary of Scientific Contributions (10-15 lines)

The research group of Prof. V.P. Singh mainly deals with the development of the techniques for the synthesis of new mononuclear/poly nuclear coordination complexes (homo- or hetero-metallic) of transition metal ions possessing fascinating architectures. Various Schiff base N, O donor chelators and bridging co-ligands are used to design such complexes aiming to increase the dimensionality of the complexes by utilizing the covalent, as well as weak interactions, for example, hydrogen bonding and pi-pi stacking etc. to produce supra-molecular assemblies. The characterizations are done by various physico-chemical techniques, like UV-Vis, Fluorescence, IR, NMR, Mass, EPR spectroscopy, magnetic susceptibility measurements, electrochemical and thermo gravimetric analyses. The structures of the synthesized ligands and their complexes are established by the single-crystal X-ray diffraction studies. The DFT calculations are carried out to optimize the probable structures of the synthesized compounds. The applications of the synthesized compounds in various fields like Bio-inorganic Chemistry, Corrosion inhibition, Chemo-sensor and Catalysis have also been investigated.

Research Guidance

No. of students awarded/submitted Ph.D	:	08
No. of students working for Ph.D	:	05

Details of Ph.D.(s) awarded and submitted

S. No	Name of student	Year of award	Title of Ph.D. thesis
1.	Archana Singh	2005	Synthesis and Characterization of Heterobimetallic Tetrathio cyanate Complexes with some Bioactive Acylhydrazones.
2.	Anshu Katiyar	2006	Synthesis and Physico-chemical Studies on some Bioactive Metal Complexes with Hydrazine derivatives.
3.	Parul Gupta	2006	Synthesis, Spectral Studies and Biocidal Activity of Metal Complexes with some Dihydrazones.
4.	Shweta Singh	2011	Synthesis, Physico-chemical and Bio-activity of Metal Complexes with some N,O Donor Ligands.
5.	Pooja Singh	2012	Synthesis, Characterization and Corrosion Inhibition Studies of some Transition Metal(II) Complexes with Heterocyclic Schiff Bases.
6.	Diyya Pratap Singh	2014	Synthesis, Structural studies and Application of Metal Complexes with some Acyldihydrazones.

7.	Karishma Tiwari	2014	Synthesis and Characterization of some Schiff Bases as Chemosensors for the Detection of Al ³⁺ and Water Content
8.	Monika	2014	Synthesis, Characterization and Applications of some 3d-Transition Metal(II) Complexes with N,O Donor Ligands

Sponsored Projects : Projects completed: ...02 ; Projects in hand: ...01

Details of the Projects (completed and ongoing)

S. No.	Project title	Investigator(s)	Sponsoring agency	Duration of the project	Cost of the project (Rs. in lakhs)
1.	Synthesis, reactivity and structural investigation on transition metal complexes with nucleobases, nucleosides/nucleotides.	Dr. V.P. Singh	CSIR, New Delhi	1.11.2009 to 31.10.2012	12 Lakh
2.	Transition metal coordination polymers derived from polymeric Schiff bases: Synthesis, Characterization and biological applications.	Dr. V.P. Singh	UGC, New Delhi	1.05.2009 to 30.04.2012	5.3 Lakh
3.	Transition metal complexes with heterocyclic Schiff bases: Synthesis, characterization and applications.	Dr. V.P. Singh	UGC, New Delhi	1.07.2015 to 30.06.2018	14 Lakh

List of Publications: 67 Publications in International Journals

1.	Synthesis, structural investigations and corrosion inhibition studies on Mn(II), Co(II), Ni(II), Cu(II) and Zn(II) complexes with 2-amino-benzoic acid (phenyl-pyridin-2-yl-methylene)-hydrazide. P. Singh, D.P. Singh, K. Tiwari, M. Mishra, A.K. Singh and V.P. Singh , <i>RSC Advances</i> , 5, 45217- 45230 (2015).
2.	Evaluation of antiwear activity of substituted benzoylhydrazones and their copper (II) complexes in paraffin oil as efficient low SAPS additives and their interactions with metal surface using density functional theory. Vinay Jaiswal†, Shraddha R. Gupta‡, Rashmi B. Rastogi‡*, Rajesh Kumar‡ and V.P. Singh , <i>J. Materials Chemistry A</i> , 3, 5092-5109 (2015).
3.	Binuclear Cu(I) complex of (N'1E,N'2E)-N'1,N'2-bis(phenyl(pyridin-2-yl)methylene)oxalohydrazide: synthesis, crystal structure and catalytic activity for the synthesis of 1,2,3-triazoles. D.P. Singh, B.K. Allam, K.N. Singh and V.P. Singh , <i>J. Mol. Cat. A: Chem.</i> , 398, 158-163 (2015).
4.	Synthesis, characterization and corrosion inhibition property of nickel(II) and copper(II) complexes with some acylhydrazine Schiff bases. M. Mishra, K. Tiwari, P. Mourya, M.M. Singh and V.P. Singh , <i>Polyhedron</i> , 89, 29-38 (2015).
5.	Versatile coordination behaviour of a multi-dentate Schiff base ligand with Mn(II), Cu(II) and Zn(II) metal ions and their corrosion inhibition study. M. Mishra, K. Tiwari, A.K. Singh and V.P. Singh , <i>Inorg. Chim. Acta</i> , 425, 36-45 (2015).

6.	A dihydrazone based fluorescent probe for selective determination of Al ³⁺ ions. Divya Pratap Singh and V. P. Singh , <i>J. Chem. Lumin.</i> , 155, 7-14 (2014).
7.	Synthesis, spectral and single crystal X-ray diffraction studies on Mn(II), Ni(II), Cu(II) and Zn(II) complexes with 2-hydroxy-benzoic acid (phenyl-pyridin-2-yl-methylene)-hydrazide. P. Singh, D.P. Singh, V.P. Singh , <i>Polyhedron</i> , 81, 56-65 (2014).
8.	(E)-4-[[2-(2,4-dinitrophenyl)hydrazono] benzene-1,3-diol] as a solvatochromic Schiff base and chromogenic signaling of water content by its deprotonated form in acetonitrile. K. Tiwari, M. Mishra and V.P. Singh , <i>RSC Advances</i> , 4, 27556-27564 (2014).
9.	Synthesis, structural, electrochemical and corrosion inhibition properties of two new ferrocene Schiff bases derived from hydrazides. S.R. Gupta, P. Maurya, M.M. Singh and V.P. Singh , <i>J. Organomet. Chem.</i> , 767, 136-143 (2014).
10.	Synthesis, structural investigation, DNA and protein binding study of some 3d-metal complexes with N ⁷ -(phenyl-pyridin-2-yl-methylene)-thiophene-2-carboxylic acid hydrazide. Monika Mishra, Karishma Tiwari, Sachin Shukla, R. Mishra and V. P. Singh , <i>Spectrochim. Acta A</i> , 132, 452-464 (2014).
11.	Synthesis, structural and corrosion inhibition studies on Mn(II), Cu(II) and Zn(II) complexes with a Schiff base derived from 2-hydroxypropiophenone. M. Mishra, K. Tiwari, A.K. Singh and V.P. Singh , <i>Polyhedron</i> , 77, 57-65 (2014).
12.	A binuclear Mn(II) complex as an efficient catalyst for transamidation of carboxamides with amines. D.P. Singh, B.K. Allam, K.N. Singh and V.P. Singh , <i>RSC Advances</i> , 4, 1155-1158 (2014).
13.	Synthesis, spectroscopic (electronic, IR, NMR and ESR) and theoretical studies of transition metal complexes with some unsymmetrical Schiff bases. V.P. Singh , S. Singh, D.P. Singh, K. Tiwari and Monica Mishra, <i>J. Mol. Struct.</i> , 1058, 71-78 (2014).
14.	Synthesis, spectral and single crystal X-ray diffraction studies on some transition metal(II) complexes with <i>o</i> -amino acetophenone benzoyl hydrazone. V.P. Singh , S. Singh, D.P. Singh, P. Singh, K. Tiwari, Monica Mishra and R. Butcher, <i>Polyhedron</i> , 56, 71-81 (2013).
15.	5-[2-(1-hydroxy-naphthalen-2-yl)-vinyl]-1H-pyrimidine-2,4-dione as Al ³⁺ selective colorimetric and fluorescent chemosensor. V.P. Singh , K. Tiwari, M. Mishra, N. Srivastava and S. Saha, <i>Sensors & Actuators B: Chemical</i> , 182, 546-554 (2013).
16.	A highly sensitive and selective fluorescent sensor for Al ³⁺ ions based on thiophene 2-carboxylic acid hydrazide Schiff base. Karishma Tiwari, Monika Mishra and Vinod P. Singh* , <i>RSC Advances</i> , 3, 12124-12132 (2013).
17.	Synthesis, structural and corrosion inhibition properties of some transition metal(II) complexes with 2-thiophenonyl hydrazones. Pooja Singh, A.K Singh and V.P. Singh , <i>Polyhedron</i> , 65, 73-81 (2013).
18.	Synthesis, characterization and catalytic application of some novel binuclear transition metal complexes of bis-(2-acetylthiophene) oxaloyldihydrazone for C-N bond formation. Divya Pratap Singh, Dushyant S. Raghuvanshi, K.N. Singh and Vinod P. Singh* , <i>J. Mol.</i>

	<i>Cat. A: Chem.</i> , 379, 21-29 (2013).
19.	Structural investigations on bis-(semicarbazido)dihydrazine nickel(II) complex synthesized by using uracil and hydrazine hydrate. V.P. Singh , Monica Mishra and K. Tiwari, <i>Inorg. Chim. Acta</i> , 398, 89-97 (2013).
20.	Synthesis, spectral characterization and thermal studies of Co(II), Ni(II), Cu(II) and Zn(II) complexes with 2-amino benzoic acid- and 2-hydroxy benzoic acid thiophen-2-ylmethylene hydrazide. V.P. Singh and Pooja Singh, <i>J. Molecular Structure</i> , 1035, 363-370 (2013).
21.	Synthesis Spectral and Thermal Studies of Some Polymeric Mixed Ligand Uracil-Hydrazide Complexes with Transition Metal Ions. V.P. Singh , K. Tiwari and Monica Mishra, <i>Designed Monomers and Polymers</i> , 16, 456-464 (2013).
22.	Synthesis, Thermal Studies and Spectral Characterization of Co(II), Ni(II), Cu(II) and Zn(II) Complexes with some Polymeric Diacetyl Acyldihydrazone Ligands. V.P. Singh and D.P. Singh, <i>Macromolecular Research</i> , 21, 757-766 (2013).
23.	Synthesis, characterization and biocidal activity of some transition metal(II) complexes with isatin salicylaldehyde acyldihydrazones. V.P Singh , S. Singh and D.P. Singh, <i>J. Enz. Inh. Med. Chem.</i> , 27, 319-329 (2012).
24.	Synthesis, structural and corrosion inhibition studies on cobalt(II), nickel(II), copper(II) and zinc(II) complexes with 2-acetylthiophene benzoylhydrazone. V.P. Singh , Pooja Singh and A.K. Singh, <i>Inorg. Chim. Acta</i> , 379, 56-63 (2011).
25.	Synthesis, physico-chemical and spectral studies of cobalt(II), nickel(II), copper(II), zinc(II) and cadmium(II) complexes with di-butanone acyldihydrazones. V. P. Singh and S. Singh, <i>J. Coord. Chem.</i> , 64, 3068-3080 (2011).
26.	N ⁷ -[1-(2-Aminophenyl) ethylidene] benzohydrazide. V.P. Singh and S. Singh , <i>Acta Cryst. E</i> 66, 01172 (2010).
27.	Aluminium(III), Chromium(III) and Iron(III) Complexes with 5-Iodouracil and 5-Iodouracil-Histidine and their Antitumour Activity. V. P. Singh , S. Singh, K. K. Narang and D. Bhattacharya, <i>J. Enz. Inh. Med. Chem.</i> 24, 105-110 (2009).
28.	Synthesis, electronic and IR spectral studies on some polymeric cobalt(II), nickel(II), zinc(II) and cadmium(II) azido complexes with hydrazine. V.P. Singh , K.B. Singh and K.K.Narang, <i>J. Macromol. Sc. Part-A, Pure and Appl. Chem.</i> , 46, 110-115 (2009).
29.	Synthesis, physico-chemical characterization and antimicrobial activity of Mn(II), Co(II), Ni(II), Cu(II) and Zn(II) complexes with <i>p</i> -amino acetophenone isonicotinoyl hydrazone. V. P. Singh , A. Katiyar and S. Singh, <i>J. Coord. Chem.</i> , 12, 1336-1346 (2009).
30.	Synthesis, physico-chemical studies of manganese(II), cobalt(II), nickel(II), copper(II) and zinc(II) complexes with <i>p</i> -amino acetophenone benzoylhydrazone and their bioactivity. V. P. Singh , S. Singh and A. Katiyar, <i>J. Enz. Inh. Med. Chem.</i> 24, 577-588 (2009).
31.	Synthesis, Electronic and ESR Spectral Studies on Copper(II) Nitrate Complexes with some Acylhydrazines and Hydrazones. V. P. Singh , <i>Spectrochim. Acta Part-A</i> , 71, 17-22

	(2008).
32.	Synthesis, physico-chemical characterization and biocidal activity of cobalt(II), nickel (II), copper(II), zinc(II) and cadmium(II) complexes with some acyldihydrazones. V. P. Singh and P. Gupta, <i>J. Enz. Inh. Med. Chem.</i> 23, 797-805 (2008).
33.	Synthesis, spectral studies of copper(II) tetrathiocyanato dithallate(I) complexes with some acylhydrazones and their antimicrobial activity. V. P. Singh and A. Singh, <i>J. Coord. Chem.</i> , 61, 2767-2780 (2008).
34.	Synthesis, spectral studies and bio-activity of some ligand bridged polymeric transition metal complexes with acetone p-amino acetophenone isonicotinoyl hydrazone. V. P. Singh and Anshu Katiyar, <i>J. Macromolecular Sci. Part-A, Pure and Appl. Chem.</i> , 45, 470-478 (2008).
35.	Synthesis, structural studies and bio-activity of Mn(II), Co(II), Ni(II), Cu(II) and Zn(II) complexes with p-amino acetophenone salicyloyl hydrazone. V. P. Singh and Anshu Katiyar, <i>J. Coord. Chem.</i> , 61, 3200-3212 (2008).
36.	Synthesis, characterization of some transition metal(II) complexes of acetone p-amino acetophenone salicyloyl hydrazone and their anti microbial activity. V. P. Singh , A. Katiyar and S. Singh, <i>Biometals</i> , 21, 491-501 (2008).
37.	Synthesis, structural studies and antimicrobial activity of copper(II) tetrathiocyanato diargentate(I) complexes with some acylhydrazones. V. P. Singh , A. Singh and S. Singh, <i>J. Appl. Polymer Sc.</i> , 110, 1336-1343 (2008).
38.	Synthesis, physico-chemical studies of metal(II) complexes with diacetyl benzaldehyde acyldihydrazones and their bio-activity. V. P. Singh and P. Gupta, <i>J. Coord. Chem.</i> , 61, 3922-3933 (2008).
39.	Synthesis, structural characterization and antimicrobial activity of some transition metal(II) complexes with acetone p-amino acetophenone benzoylhydrazone. V. P. Singh and A. Katiyar, <i>Pesticide Biochem. Physiol.</i> , 92, 8-14 (2008).
40.	Synthesis, physico-chemical studies of polymeric nickel(II) tetrathiocyanato diargentate(I) complexes with some acylhydrazones and their bio-activity. V. P. Singh and A. Singh, <i>J. Macromol. Sc. Part-A, Pure and Appl. Chem.</i> , 45, 1066-1073 (2008).
41.	Synthesis, Spectral Studies of Cobalt(II) Tetrathiocyanato Dicopperate(I) Complexes with some Acylhydrazones and their Antimicrobial Activity. V. P. Singh and A. Singh, <i>Russian J. Coord. Chem.</i> , 34, 373-380 (2008).
42.	Synthesis, Spectral and Biological Studies of Some Metal(II) Complexes with Benzil Salicylaldehyde Acylhydrazones. V. P. Singh , P. Gupta and N. Lal, <i>Russian J. Coord. Chem.</i> , 34, 270-277 (2008).
43.	Synthesis, structural studies and bio-activity of some metal(II) complexes with glyoxal salicylaldehyde acyldihydrazones. V. P. Singh and Parul Gupta, <i>J. Coord. Chem.</i> , 61, 1532-1544 (2008).

44.	Synthesis, spectral studies of metal(II) complexes with succinic acid dihydrazones and their biological activity. V. P. Singh and Parul Gupta, <i>Pharm. Chem. J.</i> , 42, 196-202 (2008).
45.	Synthesis, physico-chemical characterization and bio-activity of cobalt(II) tetrathiocyanato diargentate(I) complexes with some acylhydrazones. V. P. Singh and A. Singh, <i>J. Macromolecular Sci. Part-A, Pure and Appl. Chem.</i> , 45, 77-84 (2008).
46.	Synthesis, structural characterization and antimicrobial activity of nickel(II) tetrathiocyanato dicuperate(I) complexes with some acylhydrazones. V. P. Singh and A. Singh, <i>Toxicol. & Environment. Chem.</i> , 90, 565-576 (2008).
47.	Synthesis, Characterization and Biocidal activities of some Metal(II) Complexes with Diacetyl Salicylaldehyde Acyldihydrazone. V. P. Singh and P. Gupta, <i>J. Coord. Chem.</i> , 59, 1486 (2006).
48.	5-Bromouracil and 5-Bromouracil-Histidine Complexes with Metal(III) ions and their Antitumour Activity. V. P. Singh , Archana Singh, K. K. Narang and D. Bhattacharya, <i>Transition Met. Chem.</i> , 29, 107 (2004).
49.	Synthesis and Spectral Studies of Copper(II) Sulphate Complexes with some Acetophenone Acylhydrazones. B. Singh, R. Srivastava, K. K. Narang and V. P. Singh , <i>Synth. React. Inorg. Met.-Org. Chem.</i> , 29, 1867 (1999).
50.	Synthesis, Characterization and Antitumour Activity of 5-Chlorouracil and 5-Chlorouracil-Histidine Complexes with some Metal(III) ions. K. K. Narang, V. P. Singh and D. Bhattacharya, <i>Synth. React. Inorg. Met.-Org. Chem.</i> , 28, 37 (1998).
51.	Synthesis, Characterization and Antitumour Activity of Uracil and Uracil-Histidine Complexes with Metal(III) ions. K. K. Narang, V. P. Singh and D. Bhattacharya, <i>Transition Met. Chem.</i> , 22, 333-337 (1997).
52.	5-Fluorouracil and 5-Fluorouracil-Histidine Complexes with Al(III), Cr(III) and Fe(III) ions and their Antitumour Activity. K. K. Narang, V. P. Singh and D. Bhattacharya, <i>Polyhedron</i> , 16, 2491 (1997).
53.	Synthesis, Electronic and ESR Spectral Studies on 5-coordinate Copper(II) Chloride Complexes with Mono-Acylhydrazines and Hydrazones. K.K. Narang and V.P. Singh , <i>Synth. React. Inorg. Met.-Org. Chem.</i> , 27, 721 (1997).
54.	Synthesis, Characterization and X-ray Diffraction Studies and Antifungal Activity of Cobalt(II) Complexes with some Aroylhydrazines. K.K. Narang, V.P. Singh , K.P. Singh and G.D. Mishra, <i>Synth. React. Inorg. Met.-Org. Chem.</i> , 26, 191 (1996).
55.	E.S.R. Studies on Acylhydrazine and Hydrazone Copper(II) Sulfate Complexes. K.K. Narang and V.P. Singh , <i>Transition Met. Chem.</i> , 26, 191 (1996).
56.	Synthesis, Characterization and Physicochemical studies of some Copper(II) Tetrathiocyanato Dithalate(I) Complexes with Hydrazides and Hydrazones. K.K. Narang, J.P. Pandey and V.P. Singh , <i>Polyhedron</i> , 13, 529 (1994).

57.	Synthesis, Characterization, Electrical Conductance, Thermal Decomposition, X-ray Diffraction Studies and Biological Activity of Aluminium(III) Complexes with Acylhydrazines. K.K. Narang and V.P. Singh, <i>Synth. React. Inorg. Met.-Org. Chem</i> , 24, 791 (1994).
58.	Synthesis and Characterization of some Bivalent Transition Metal Complexes with Acetylaceton mono-benzoylhydrazine and Acetylaceton mono-isonicotinoyl hydrazone. K.K. Narang and V.P. Singh, <i>Synth. React. Inorg. Met.-Org. Chem</i> , 24, 891 (1994).
59.	Complexes with Acetylaceton bis-benzoylhydrazine and Acetylaceton bis-isonicotinoyl hydrazone. K.K. Narang and V.P. Singh, <i>Transition Met. Chem.</i> , 18, 287 (1993).
60.	Synthesis, Characterization and Biological Activity of Co(II), Ni(II), Cu(II) & Zinc(II) Complexes with Valeraldehyde Benzoylhydrazone and Valeraldehyde isonicotinoyl hydrazone. K.K. Narang and V.P. Singh, <i>Synth. React. Inorg. Met.-Org. Chem</i> , 23, 607 (1993).
61.	Synthesis, Characterization, Thermal Studies and Biological Activity of Iron(III) Complexes with some Acylhydrazines. K.K. Narang and V.P. Singh, <i>Synth. React. Inorg. Met.-Org. Chem</i> , 23, 971 (1993).
62.	Synthesis, Characterization, Solid State Conductance, Thermal Studies, X-ray Diffraction and Biological Activity of Chromium(III) Complexes with Acylhydrazines. K.K. Narang, V.P. Singh and K.P. Singh, <i>Synth. React. Inorg. Met.-Org. Chem</i> , 23, 1187 (1993).
63.	X-ray Diffraction Studies on Tris-Benzoylhydrazine Manganese(II) Chloride Trihydrate. K.K. Narang and V.P. Singh, <i>Crystal Res. Technol</i> , 26, K105 (1991).
64.	X-ray Diffraction Studies on Bis-isonicotinoylhydrazine Cobalt(II) Nitrate. K.K. Narang and V.P. Singh, <i>Crystal Res. Technol</i> , 26, K108 (1991).
65.	Synthesis and Studies of Polymeric Glyoxalimine Oxamide and Glyoxalimine Malonamide Complexes with some Bivalent Transition Metal ions. K.K. Narang, M.K. Singh, V.P. Singh, V.B. Tare and A.K. Gogalani, <i>Synth. React. Inorg. Met.-Org. Chem</i> , 20, 1125 (1990).
66.	X-ray Diffraction Studies on Tris-Benzoylhydrazine Cobalt(II) Chloride Trihydrate. K.K. Narang and V.P. Singh, <i>Crystal Res. Technol</i> , 25, K163 (1990).
67.	X-ray Diffraction Studies on Diaquo Bis-isonicotinoylhydrazine Cobalt(II) Chloride. K.K. Narang and V.P. Singh, <i>Crystal Res. Technol</i> , 25, K160 (1990).

Membership of Academic Societies

- Member/Life member.....Chemical Research Society of India (Life Member)
- MemberRoyal Society of Chemistry