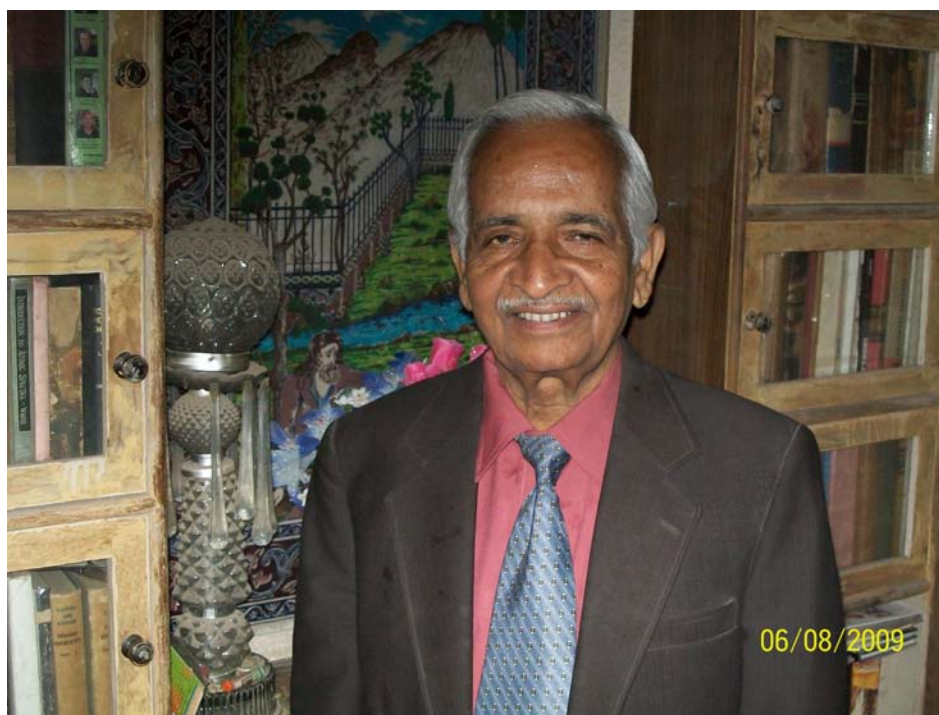


## ***Padmakar V Khadikar-Curriculum Vitae***

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Padmakar V. Khadikar was born on January 15, 1936 in Indore (MP), India, where he finished the ten-year high school (1953). His father Late Vinayak Mukund Khadikar was a Spinning Superintendent in Textile Mills and his mother Late Mrs. Anusuya Khadikar was a housewife. He married with Kusum, the then Education Officer, and has two daughters Leena and Sneha.

The younger daughter Sneha and her husband Sanjay Karmarkar are both chemist and are gracing Laxmi Fumigation & Pest Control Pvt. Ltd., Indore, as Directors. Leena is M. A. in fine arts and her husband Anup Patwardhan is in Bank Services.

Khadikar graduated from Holkar Science College, Indore, in 1958. He won his masters degree in 1960. His first paper "Geometrical Isomerism" was published in Holkar Science Journal in 1957. Following this second paper entitled "Atomic Energy for War and Peace" was published in 1958 in the same Journal. He got his doctorate degree from Vikram University, Ujjain, in 1966 while working at Madhav College, Ujjain.

The work of his doctoral thesis entitled "Physicochemical Studies in Cobalt (II) Complexes" was carried out under the supervision of Late Professor W.V.Bhagwat. D.Sc.; FNASc. In his Ph.D. thesis he reported comprehensive study of Bjerrum's and Irving-Rossotti methods. Professor Janik Bjerrum offered marvelous supervision for the completion of his Ph.D. thesis.

During 1967-1977, Khadikar has published 67 research papers related to formation (stability) constants, solvent extraction and analytical chemistry. With the association of Professor C K Jorgensen of Cynamide European Division, Khadikar started working on electronic, infra-red and vibrational spectroscopy and in these areas he has published 44 research papers.

Khadikar started his academic career in 1960 as a Lecturer in Chemistry at Madhav College, Vikram University, Ujjain and then at School of Chemistry, Vikram University, Ujjain. In 1977 he joined University of Indore, Indore University, as a Reader in Chemistry. In 1983, the University of Indore was renamed as Devi Ahilya Vishwavidyalaya (DA University) where he was promoted to the post of Professor in Physical Chemistry in 1986. He retired at the beginning of 1996 (January 1996). At D.A. University, Indore, he served as Head Department of Chemistry (1986); Dean, Faculty of Science (1988); Member of Executive Council (Two terms). He is founder Head of Computer Center and M.Sc. Computer Science (SW), Devi Ahilya Vishwavidyalaya, Indore (DA University, Indore). For a short time he served in the Department of Biotechnology at DA University, Indore.

While at DA University, Indore, Khadikar worked on Microbiology, Pharmaceutical Chemistry, Drug Designing (23), Thermal Analysis (18), Electronic Spectroscopy (18); ESR Spectroscopy (10); X-Ray Absorption Spectroscopy (28), Mössbauer Spectroscopy and NMR (10) (Papers published in the respective areas of research are mentioned in parenthesis).

Fullbright Award was awarded to Khadikar in 1988 under INDO-US Cultural Exchange Program. At Provo (Utah), USA he worked with Professor Reed M. Izatt and Nolan Manglsen. He worked on X-ray crystallography as well as Extended X-ray Absorption Spectroscopy.

After his retirement (1996) at DA University Indore, Khadikar joined APS University, Rewa as a UGC Visiting Professor. There he worked on Computer-Aided Drug

Designing and has published 240 research papers related to this topic. While at Rewa, Khadikar came in contact with Professor Claudiu T. Supuran and has published 40 research papers on Carbonic Anhydrase Inhibitors (CA Inhibitors) and Activators. Later he collaborated with Professor A. T. Balaban and Brian Clare and used Balaban type indices in drug designing.



Khadikar with Professor Milan Randic

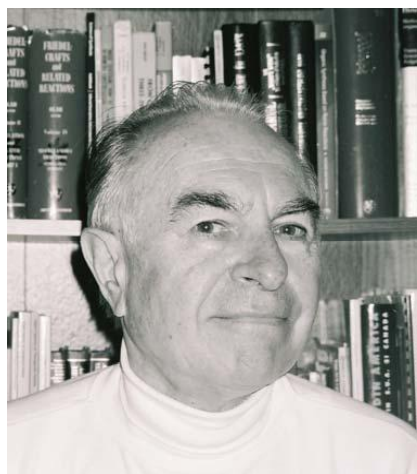
The Padmakar-Ivan (PI) index was introduced by Khadikar. It is extensively used in nanotechnology in particular carbon nanotubes. He is the first scientist in the world who is honored by launching a special issue of Iranian Journal of Mathematical Chemistry with the title : “Role of Padmakar-Ivan Index in Nanotechnology”. In addition, he is the first scientist of India who is using graph –theoretical descriptors in nanotechnology.

Professor Khadikar is one of the outstanding chemists of India and is held in high esteem for his pioneering contribution in Chemistry- especially in the area of Chemical Topology, Graph Theory and QSAR. He is a versatile scientist and his major activities have been in diverse areas such as Chemistry of Solutions, Solid State Reactivity, Thermal Chemistry, Spectroscopy, QSAR, Medicinal Chemistry, Pharmaceutical Chemistry, Chemistry of Propellants, Environmental Chemistry, Pollution Research, Chemical Topology and Graph Theory. Versatile talents allowed Professor Khadikar to receive a number of significant results in different fields, particularly in the Chemistry of Chalcones, Flavanoids,, Flavons and other Natural Products, X-ray K-absorption Spectroscopy, Mössbauer Spectroscopy, Topology and Drug Design. His poinior work in the chemistry of Chalcones has been cited in the book : “ The Chemistry of Chalcones and Related Compounds ”, by N.R.Dhar, John Wiley, NY, 1981; and that of X-ray K-absorption Spectroscopy has been cited in a book : “X-Ray Spectra and Chemical Bonding”,

A.Meisel; G. Lhardt ; R.Szargan, Springer–Verlag Berlin,Heidelberg New York,1989 . His pionior work in the field of chemical graph theory and topology has been cited in almost all the recent books of QSAR and topology.The important among them being : QSPR / QSAR Studies By Molecular ; M.V.Diudea (Ed), Nova Science Pub.;Huntington,NY,2000 and “Handbook of Molecular Descriptors”, R.Todeschini.; V. Consonni, Wiley –VCH, NY,2000.



Professor Ivan Gutman  
(Teacher of Khadikar )



Professor Alexandru T. Balaban

Presently, Khadikar's research interests lie in the field of mathematical and computer chemistry. In the field of mathematical chemistry, he works on the development and applications of graph theory and topology in solving problems related to chemistry , in particular computer-aided drug designing, the most interesting being creation of three new topological indices: Padmakar-Ivan (PI) index, Sadhana (Sd) index and Aromatic (A) index. The Padmakar-Ivan (PI) index is extensively applied in solving problems related to nanotechnology, particularly carbon nanotubes.

The cyclic index, namely Sadhana (Sd) index is also applied in nanotechnology but compared to PI index less work has been done on the applications of Sd index. His research in computer chemistry involves the development of algorithm for characterization, generation and enumeration of chemical structures that can be used to generate combinatorial librraries. In addition,a distinct work in computer chemistry has been the computer –aided drug designing.

The contributions of Professor Khadikar in the fields of graph theory, topology and graph-based computer chemistry made him well-known in scientific field as one of the best-known graph theoretical chemists. Consequent to this, Khadikar has been invited to attend the forth Mathematical Chemistry Confrence to be held in Iran and to act as the main speaker in Math.Chem.Meeting of Dezful, Iran.

The administrative acumen of Khadikar remained latent till he took over as Head of the Chemistry Department; Head of Computer Center; Dean Faculty of Science and

Member of the Executive Council of D. A. University, Indore. He is now working as a Technical Director, Laxmi Fumigation & Pest Control, Pvt. Ltd, Indore and is also looking after the research wing of Laxmi Fumigation & Pest Control, Pvt. Ltd, Indore.



Professor Mircea V Diudea

Khadikar has remained Member of American Chemical Society and New York Academy of Sciences. He is a life Member of : Indian Chemical Society, Kolkata; National Academy of Sciences, Allahabad; Indian Association for Cultivation of Sciences, Kolkata ; Research Board of Advisors, U.S.A.; and has been nominated for the International Cultural Diploma of Honor. For his excellent contributions, Professor Khadikar was honored by the Honorable Chief Minister of Maharashtra as an Eminent Scientist outside Maharashtra, India. This year i.e. 2009 Professor Khadikar has been honored as the eminent Professor scientist by the Sahitya Academy of Indore for his worldwide contribution in science.



Khadikar with Professor H. Hosoya

In the year (2006) he had received the most cited paper award for a paper published in Bioorganic and Medicinal Chemistry Letters. He has supervised Ph.D. work of more than 80 students and has published 6 reviews and around 800 research papers in the journals of national and international repute. He remained referee on several journals. Professor Khadikar seeks to find young explorers and enjoys scientific interaction with young enthusiastic researchers. The paternal care toward pupils enabled him to earn general respect and love for them.

The important publication statistics of Professor Khadikar can be summarized as below:

Field of research	Number of Publications
1. Mathematics & Applied Mathematics (Topology & Graph theory)	85
2. Nanotechnology	14
3. QSAR (Topological and computer-aided drug designing)	165
4. QSAR using PI index	65
5. Sadhana index	15
6. Aromatic index	4
7. Szeged index	85
8. Carbonic anhydrase inhibitors & activators	37
9. NMR ,two dimentional NMR	10
10. Mossbaur spectroscopy	8
11. X-Ray absorption spectroscopy	28
12. ESR spectroscopy	10
13. Electronic spectroscopy	16
14. Vibrational spectroscopy	18
15. Thermal analysis	28
16. Microbiology, pharmaceutical chemistry	23
17. Agricultural chemistry	5
18. Solvent extraction	12
19. Analytical chemistry	12
20. Solution chemistry(Formation constants)	55