

# Curriculum Vitae

## PERSONAL PROFILE

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**Name** : Dr. Anil Kumar  
**Address** : Professor & Head (Retired), School of Biotechnology, Devi Ahilya University (DAVV),  
Khandwa Road, Indore 452001, India  
**Telephone** : +91-9425058373 (M)  
**Email** : [ak\\_sbt@yahoo.com](mailto:ak_sbt@yahoo.com)  
**Website** : <http://www.biotech.dauniv.ac.in>  
**Date of Birth** : January 1, 1954  
**Father's Name** : Late Mr. Jagdish Prasad  
**Nationality** : Indian

## PROFESSIONAL SUMMARY

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**Research Experience** : Approx. 46 years  
**Teaching Experience** : Approx. 38 years  
**Leadership Experience** : Approx. 27 years  
**Administrative Experience** : Approx. 27 years

Professor and Head (Retired) of the School of Biotechnology at Devi Ahilya University (DAVV), Indore, India from June 20, 1991 to December 31, 2018 (up to the last day of retirement). Procured doctorate degree (Ph.D.) in biochemistry in 1983. In 1985, joined Prof. Jack Preiss lab at the Michigan State University, East Lansing, USA as a visiting research associate. After three years of hard work, returned to India with a sole intention to serve the birth country. Since 1988, constantly working in teaching, research, and administrative domains and serving the nation.

Areas of expertise are enzyme technology, molecular biology, and genetic engineering. An internationally acclaimed scientist nearly 190 full-length research papers, 13 books, and 32 chapters in various edited books. Successfully guided nearly 30 Ph.D. students. Foremost scientist to deduce the amino acid sequence of glycogen synthase, a study published in J. Biol. Chem. in 1986 and the work was humbly dedicated to Dr. Luis F. Leloir on the occasion of his 80<sup>th</sup> birthday.

Authored books are published by various national and international publishers, such as Horizon Scientific Press (UK), Nova Science Publishers (USA), Anamaya Publishers (India), MV Learning (UK), Viva Books Pvt Ltd. (India), etc. Authored number of chapters for many books, including Encyclopedia of Molecular Cell Biology & Molecular Medicine, which has an editorial board comprising 14 members, 10 of which are Nobel laureates. In 2012, the chapter on Regulation of Gene Expression was published in Epigenetic Regulation and Epigenomics (a two-volume series from Wiley VCH). An updated version of the same chapter was published in RNA Regulation from Wiley VCH itself in 2014. This chapter was again published in Synthetic Biology- Advances in Molecular Biology and Medicine (Ed. Robert A Meyers, Wiley- VCH) in 2015.

Fellow of many societies, including World Society of Cellular & Molecular Biology, France where 21 of the colleague fellows are Noble laureates. Editor-in-chief of the Canadian Journal of Biotechnology. Associate Editor of the Journal of Cell & Tissue Research. Member of the Editorial Board of many journals, such as Journal of Proteomics & Bioinformatics, Journal of Computer Science & Systems Biology, Current Trends in Biotechnology and Pharmacy, Biotechnology & Molecular Biology Reviews, Nano Biomedicine and Engineering, British Biotechnology Journal, etc. Honorary Advisor of HS Counseling, Canada.

Presented research work at a number of International Conferences. Hosted and chaired a symposium at the 4th World Congress of Cellular & Molecular Biology held at Poitiers, France in 2005. Hosted and organized 5th World Congress of Cellular & Molecular Biology (November 02–06, 2009) & was the Congress President.

The research laboratory is of international standards where students of different origins conduct their research work. Although the lab specializes in enzyme technology, the students work in many diversified areas.

Apart from the teaching and research, have immense administrative experience and equipped with leadership skills. Worked as an acting Vice-Chancellor of DAVV numerous times. Founder member of the School of Biotechnology at DAVV. Served as the head of the entire department from 1991 to 2018. Served as an officer-in-charge of the Bioinformatics Sub Center, DAVV from 1993 to 2018. Served as a director of International Institute of Professional Studies at DAVV in 2004. Appointed as a chairman of several university committees.

## **WORK HISTORY**

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<b>Professor and Head</b> School of Biotechnology, Devi Ahilya University, Indore, India	06/1991-12/2018
<b>Reader</b> School of Biochemistry, Devi Ahilya University, Indore, India	09/1989-06/1991
<b>Scientist Pool Officer</b> CSIR, New Delhi, India (Biochemistry Department, Lucknow University)	08/1988-09/1989
<b>Visiting Research Associate</b> Biochemistry Department, Michigan State University, East Lansing, USA	08/1985-08/1988
<b>Lecturer</b> Biochemistry Department, Lucknow University, Lucknow, India	07/1980-01/1986
<b>Lecturer</b> Biochemistry Department, Lucknow University, Lucknow, India	01/1978-12/1979

## **EDUCATION**

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<b>Ph.D.:</b> Biochemistry Lucknow University, Lucknow, India	1983
<b>Master of Science (M.Sc.):</b> Biochemistry Lucknow University, Lucknow, India Score: 691/1000; 1 <sup>st</sup> position in order of merit of Lucknow University	1973
<b>Bachelor of Science (B.Sc.):</b> Botany, Zoology, Chemistry, English Lucknow University, Lucknow, India Score: 585/900; 39 <sup>th</sup> position in order of merit of Lucknow University	1971

## **HONORS AND AWARDS**

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1. Distinguished Leadership award of American Biographical Institute and nominated as Deputy Governor in their Board.
2. Awarded Biotechnology Overseas Associateship from DBT. Availed the Associateship from Oct. 2003 to Jan. 2004 (in Jack Preiss Lab, Michigan State University, USA).

3. Honorary Fellowship of World Society of Cellular & Molecular Biology, France.
4. Felicitations from CIMAP Lucknow (an organization of CSIR, New Delhi) for the valuable contributions in the field of Biotechnology.
5. Awarded Fellow of the Year 2000 by the Society of Plant Research.
6. Honorary Advisor of HS Counseling, Canada (since Apr 2016).
7. Invited to act as Guest Editor of a thematic issue 'Role of Metabolomics in Advancing Biofuel Research' by the Journal 'Current Metabolomics'. This issue is published in 2016.
8. Name included in the International Directory published by The American Chemical Society, USA.
9. Name included in the book 'Curriculum Vitae International' of International Biographical Research Foundation.
10. Name included in Marquis Who's Who, Asian/American Who's Who and in many other publications.
11. Nominated as a President for the Society for Science & Environment for the year 2007.
12. Nominated member in International Scientific Committee of 4<sup>th</sup> World Congress of Cellular and Molecular Biology Society held on October 7-12, 2005 at Poitiers, France.
13. Expert member in the Ministry of Human Resource Development, Govt. of India, New Delhi for the selection of candidates for Japan, Russia, Australia, Germany, Commonwealth, etc. (numerous times).
14. Expert (Governor's/Chancellor's nominee) in the selection of teachers (Professors, Readers, Lecturers) in number of universities (numerous times).
15. Member of Advisory board for the book 'Dictionary of Biotechnology' authored by Somani.
16. External member on the Board of Studies in Biotechnology at Amravati University, Amravati, India.
17. External member on the Faculty board of Life Science, Jiwaji University, Gwalior, India.
18. Convener Indore Chapter and life member of Society of Biological Chemists, Plant Research, and Indian Science Congress Association, India.
19. Expert member of the Standing Committee of the Madhya Pradesh State Government.
20. Elected Senate member for Devi Ahilya University (DAVV, Indore, India) Court (in 1997 for three years).
21. External member on the Post Graduate Board of Studies in Biotechnology at Nagarjuna University, Nagarjuna Nagar, Guntur, India.
22. Honorary Fellowship of Association of Biotechnology & Pharmacy.

## **SOCIETIES AND HONORARIES**

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1. Editor-in-chief of Canadian Journal of Biotechnology, Canada (since Oct 2016).
2. Associate Editor of the Journal of Cell & Tissue Research.
3. Editorial board member of Journal of Proteomics & Bioinformatics.
4. Editorial board member of Journal of Computer Science & Systems Biology.
5. Editorial board member of Current Trends in Biotechnology and Pharmacy.
6. Editorial board member of Biotechnology & Molecular Biology Reviews.
7. Editorial board member of Nano-Biomedicine and Engineering.
8. Editorial board member of British Biotechnology Journal.
9. Editorial board member of Journal of Advanced Biology & Biotechnology.

10. Editorial board member of Bioengineering and Biosciences.
11. Ex-member of New York Academy of Sciences, USA.
12. Ex-member of Bioencapsulation Research Group, France.
13. Ex-member of Biotechnology Club, BCIL, New Delhi, India.
14. Life member of Biotechnology Society of India.
15. Member of the Society for Bioscience and Bioengineering, Japan.
16. Ex-member of the American Society of Biochemistry and Molecular Biology.
17. Ex-member of the American Chemical Society.
18. Life member of Society for Biological Chemist, India.

## **ADMINISTRATIVE EXPERIENCE**

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1. Worked as an acting Vice-Chancellor of DAVV, Indore, India numerous times.
2. Chairperson, CET (Combined Entrance Test) for Professional Courses, DAVV, Indore, India (2004, 2017, 2018).
3. Member of the Executive Council of DAVV, Indore, India (under Professors category from May 2009 to May 2012).
4. Director of International Institute of Professional Studies, DAVV, Indore, India (March-November 2004).
5. Officer In-charge of Bioinformatics Sub Center sponsored by the Department of Biotechnology, Govt. of India, New Delhi (1993–2018).
6. Chairman of the School of Biotechnology, DAVV, Indore, India (June 1991–December 2018).
7. Founder member of the School of Biotechnology in Devi Ahilya University (DAVV), Indore, India. The department was founded in 1991 and was commenced in one room. Within few years, the department acquired its own new building (about 20000 sq.ft.). Today, School of Biotechnology is hosting 3 different courses for master's students and has 2 entire buildings. The department is well-equipped with different laboratories and is giving immense exposure to students. Under Dr. Anil Kumar's supervision and guidance, the School of Biotechnology has gained national as well as international acclaim in no time.
8. Chairperson of Board of Studies of Biotechnology, DAVV, Indore, India.
9. Dean, Faculty of Engineering Sciences, DAVV, Indore, India.

## **ACHIEVEMENTS**

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1. Director of the International Conference 'Emerging Challenges in Biotechnology, Human Health and Environment' held on Dec. 18–20, 2014 at DAVV, Indore, India.
2. President of the 5<sup>th</sup> World Congress of Cellular and Molecular Biology held on Nov. 2–6, 2009 at DAVV, Indore, India (jointly in collaboration of World Society for Cellular & Molecular Biology).
3. Vice-President of the Society for Science & Environment for the year 2006.
4. Chaired a Symposium entitled 'Enzymes of carbohydrate metabolism and their exploitation in biotechnology' in the 4<sup>th</sup> World Congress of Cellular and Molecular Biology Society held on October 7–12, 2005 at Poitiers, France.
5. Senior most Professor of Biotechnology in the entire state of Madhya Pradesh, India.
6. Recognized mentor to guide Postdocs and Ph.D. students from developing nations through The World Academy of Sciences, Italy.

7. Dr. Anil Kumar and his team have developed various low-cost lab scale technologies, such as production of glucose-1-phosphate, low methoxyl pectin for sugar free jams & jellies.
8. Organized various conferences and workshops.
9. Published nearly 150 full-length research papers, 12 books, and 25 chapters in various edited books.

## **PROFESSIONAL AFFILIATIONS**

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1. Formed a tie-up with Senior Expert Services (SES), Germany. Every year an expert had been invited from Germany to train the trainer (since 2015).
2. Formed collaboration with Institute of Biotechnology, Argentina (since 2015).
3. Formed collaboration with Mangosuthu University of Technology, South Africa (since 2013).
4. Formed collaboration with District Administration, Pingshan New District, Shenzhen, China and signed MoA to help them in the field of Cancer Diseases Biotechnology (since 2013).
5. Represented DAVV at the University of Saskatchewan, Canada and formed collaboration between both the Universities (since 2012).
6. Formed collaboration with Institute of Integrative Omics and Applied Biotechnology (IIOAB), West Bengal and signed MoA for joint research (since 2010).
7. Formed collaboration with the Institute of Transgene Life Sciences, Lucknow and signed MOU (since 2010).
8. Represented DAVV at the University of Poitiers, France and formed a collaboration between both the Universities (since 2010).
9. Formed collaboration with Institute of Animal Physiology, Academy of Sciences of Czech Republic, Czech Republic and signed MoA to conduct research collaboratively (since 2010).

## **CONFERENCES/WORKSHOPS**

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1. Organized one workshop on Bioinformatics at DAVV almost every year since 1997.
2. Plenary lecture at an international conference on Recent Advances in Bioenergy Research, Punjab (2016).
3. Organized an international conference on Scenario of Biotechnology in 21<sup>st</sup> century at DAVV (2016).
4. Organized a national conference on Developing Strategies and Institutions for Mahseer Conservation in India at DAVV (2016).
5. Organized an international conference on Challenges in Biotechnology, Human Health and Environment at DAVV (2014).
6. Invited lecture at 1<sup>st</sup> International Conference of Emerging Industry (ICEI-2013), China (2013).
7. Organized 5<sup>th</sup> World Congress on Cellular and Molecular Biology at DAVV (2009).
8. Organized a national conference on Science and Environment at DAVV (2006).
9. Presented paper at 3<sup>rd</sup> International Symposium on Signals, sensing and plant primary metabolites, Germany (2006).
10. Invited lecture at 4<sup>th</sup> World Congress on Cellular and Molecular Biology, France (2005).
11. Hosted and chaired a session on Enzymes during World Congress on Cellular and Molecular Biology, France (2005).
12. Presented paper at XIX International Congress of Genetics, Australia (2003).

13. Invited lecture at Bioencapsulation VI conference, Spain (1997).
14. Organized several other national conferences at DAVV.
15. Invited to deliver lectures at several other national and international conferences.

## **SUPERVISION EXPERIENCE**

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### **Main supervisor (Ph.D. students)**

1. Gaurav Singh (December, 2019)
2. Shivani Bhagwat (January 2018)
3. Ritu Jain (July 2015)
4. Rachana Tiwari (May 2013)
5. Meeta Sharma (April 2013)
6. Monika Dhote (April 2013)
7. Krityanand K. Mahatman (December 2010)
8. Raghvendra K. Mishra (November 2009)
9. Priti Maheshwari (February 2007)
10. Neel Kamal (August 2006)
11. Mamta Gupta (December 2003)
12. Suchi Srivastava (November 2003)
13. Sunita Dhawan (January 2003)
14. Puja Yadav (January 2002)
15. Vinay K. Singh (March 2001)
16. Arun Gupta (October 2000)
17. Vanita Anand (July 2000)
18. B.N. Mishra (July 1998)
19. Sanjay Koul (April 1998)
20. Anand Nighojkar (December 1996)
21. Sadhana Srivastava (January 1996)
22. B. Venkaiah (July 1995)

### **Co-Guide (Ph.D. students)**

1. Fatema Matkawala (November,2020)
2. Mukesh Patidar (April 2017)
3. Debargh Kumar S. Dutta (June 2008)
4. Meenal Banerjee (August 2006)
5. Vrijesh Parekh (April 2003)
6. D. Vijaya Raghava Prasad (May 2002)
7. P.P. Banerjee (May 2002)
8. Shipra Agrawal (May 2001)
9. Savithri Bhat (April 2001)

- Guided 4-5 Ph.D. students of Prof. G.G. Sanwal when worked in Lucknow University, India.
- Guided one Research Associate, Dr. Seema Upadhye.
- Guided one SRF, CSIR, Ms. Anjana Gupta.
- Guided DBT-TWAS pre-doctoral fellow, Kamga Gueobu Desiree under Sandwich program of TWAS
- Guided one Postdoc, Dr. Abebe, from Ethiopia for 6 months (under CV Raman International Fellowship program).
- Dr. Rita Sunday from Nigeria worked as a Postdoctoral Scientist for 18 months under my mentorship.
- Mentored Dr. Supriya Ratnaparkhe (DBT Energy Biosciences Overseas Fellowship awardee).
  
- At present, 4 students are registered for Ph.D.

## FUNDED PROJECTS BY VARIOUS FUNDING AGENCIES

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1. Indo-Argentina Joint Research Project- Development of novel chimeric glycoside hydrolases and study of saccharification efficiency and their synergistic action in relation to combinations of pre-treatment methods and types of lignocellulosic biomass. Project sanctioned by DST (PI- Dr. Supriya Ratnaparkhe & Co-PI- Dr. Anil Kumar).
  2. CV Raman International Fellowship for African Researchers awarded to Mr. Abebe Girma Demissie - FICCI project 'Production of glucose isomerase and laccase enzymes from novel bacteria isolate' (PI- Dr. Anil Kumar).
  3. DBT-TWAS Fellowship awarded to Kamga Desiree Guebou - TWAS-DBT project (PI- Dr. Anil Kumar).
  4. M.Sc. Biotechnology program - DBT project (PI- Dr. Anil Kumar).
  5. Distributed Bioinformatics Sub Centre project – DBT project- (PI- Dr. Anil Kumar).
  6. DBT-TWAS Fellowship awarded to Krityanand Kumar Mahatman - TWAS-DBT project (PI- Dr. Anil Kumar).
  7. Assistance for up-grading Biotechnology facility- MPCOST project.
  8. Purification and characterization of starch phosphorylase from a C4 plant leaf - MPCOST project.
  9. Purification, characterization and immobilization of pectinase and cellulase enzymes - CSIR project.
  10. Purification, characterization and immobilization of starch phosphorylase and amylase from sorghum - DST project.
- Many non-sponsored research projects like on waste management, cellulase, xylanase, crop improvement of millet, technology development for banana juice, etc. have been/are being undertaken.

## RESEARCH PUBLICATIONS

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### Books Authored

1. Text Book of Enzymes and Enzyme Technology (2015) by **Anil Kumar** and Sarika Garg, MV Learning, London, United Kingdom (ISBN 10: 8130927500; ISBN 13: 9788130927503).
2. Exploitation of medicinal plants for potential bioactive compounds (2013) by **Anil Kumar** and Priti Maheshwari, Monograph published by Lambert Academic Publishing AG & Co. KG, Koln, Germany (ISBN-13: 978-3659311499).
3. Biochemical Tests: Principles and Protocols (2012) by **Anil Kumar**, Sarika Garg and Neha Garg, Viva Books Pvt. Ltd., New Delhi, India (ISBN-13: 978-8130917108).
4. Xylanase and Starch Phosphorylase and their Potential Exploitation (2011) by **Anil Kumar**, Monograph published by Lambert Academic Publishing AG & Co. KG, Koln, Germany (ISBN-13: 978-3844331516).
5. Xylanase Production using Solid State Fermentation (2011) by K.K. Mahatman, Neha Garg and **Anil Kumar**, Monograph published by Lambert Academic Publishing AG & Co. KG, Koln, Germany ( ISBN-13: 978-3846558935).
6. Text Book of Enzymes and Enzyme Technology (2010) by **Anil Kumar** and Sarika Garg, Anamaya Publishers, New Delhi, India & Anshan Ltd., United Kingdom (International edition) (ISBN13: 978-1905740871; ISBN10: 1905740875).
7. Xylanase: Applications and Biotechnological Aspects (2010) by Neha Garg, K.K. Mahatman and **Anil Kumar**, Monograph published by Lambert Academic Publishing AG & Co. KG, Koln, Germany (ISBN-13: 978-3838375045).

8. Genetic Engineering (2006) by **Anil Kumar** and Neha Garg, Nova Science Publishers Inc., New York, USA (ISBN-13: 978-1594547539).
9. Text Book of Biotechnology (2003) by **Anil Kumar** and Priti Maheshwari, Agrotech Publishing Academy, Udaipur, India (ISBN: 81-85680-73-6).
10. Advanced Topics in Molecular Biology (2001) by **Anil Kumar** and A.K. Srivastava, Horizon Scientific Press, United Kingdom (ISBN-13: 978-1898486282).
11. Carbohydrate Metabolism: A Biotechnological perspective (2001) by **Anil Kumar**, Agrotech Publishing Academy, Udaipur, India (ISBN: 81-85680-46-9).
12. Hand book of Enzymes (2001) by **Anil Kumar**, Agrotech Publishing Academy, Udaipur, India (ISBN: 81-85680-42-6).

### Books Edited

1. Advances in Biofuel Production (2019). Edited by Dr. Anil Kumar & Dr. Sarika Garg. Publisher- Nova Science Inc., New York, USA (ISBN: 978-1-53614-671-4).

### Book Chapters

1. Starch Phosphorylase: Biochemical and Biotechnological Perspectives. A chapter in Theory and Applications of Microbiology and Biotechnology, Vol. 3 (E.A. Makkey Ed.). Tiwari, R. and Kumar, A. Book Publisher International, Hooghly, India. Pp. 43-62, 2020. DOI: 10.9734/bpi/tamb/v3. (Print ISBN: 978-93-89816-12-9, eBook ISBN: 978-93-89816-13-6).
2. Purification and Characterization of Pectin Methylsterase Produced in Solid State Fermentation by *Aspergillus tubingensis*. A chapter in Advances and Trends in Biotechnology and Genetics, Vol. 2. (F.C. Sosa Ed.) Patidar, M., Nighojkar, A., Nighojkar, S. and **Kumar, A.** Book Publisher International, Hooghly, India. Pp. 42-54, 2019. DOI: 10.9734/bpi/atbg/v2. (ISBN:978-93-89246-92-6; ebook ISBN: 978-93-89246-93-3).
3. Xylanase: An Overview. A chapter in Advances and Trends in Biotechnology and Genetics, Vol. 2. (F.C. Sosa Ed.) Sharma, M. and **Kumar, A.** Book Publisher International, Hooghly, India. Pp. 1-23, 2019. DOI: 10.9734/bpi/atbg/v2. (ISBN:978-93-89246-92-6; ebook ISBN: 978-93-89246-93-3).
4. Introduction to Biofuels Production. A chapter in Advances in Biofuel Production (A. Kumar, S. Garg, Eds.). Garg, S. and **Kumar, A.** Nova Science Publishers Inc., New York, USA. pp. 1-15, 2019 (ISBN: 978-1-53614-671-4).
5. Importance of Cellulosic Bioethanol and Pre-treatment Methods for Separating Lignin from Lignocellulosic Biomass. A chapter in Advances in Biofuel Production (A. Kumar, S. Garg, Eds.). Bhagwat, S. and **Kumar, A.** Nova Science Publishers Inc., New York, USA. pp. 17-40, 2019 (ISBN: 978-1-53614-671-4).
6. Hexose Fermentation for Ethanol Production. A chapter in Advances in Biofuel Production (A. Kumar, S. Garg, Eds.). Bhagwat, S. and **Kumar, A.** Nova Science Publishers Inc., New York, USA. pp. 41-53, 2019 (ISBN: 978-1-53614-671-4).
7. Biofuel Production from Pentose Sugars. A chapter in Advances in Biofuel Production (A. Kumar, S. Garg, Eds.). Chordia, N. and **Kumar, A.** Nova Science Publishers Inc., New York, USA. pp. 55-79, 2019 (ISBN: 978-1-53614-671-4).
8. Introduction to Polymerase Chain Reaction. A chapter in Applications of Polymerase Chain Reaction (S. Garg, Ed.). Garg, S. and **Kumar, A.** Arcler Press, Canada, 2018 (ISBN: 978-1773611235).



9. Industrial Enzymes: A Brief Review. A chapter in Commercially Important Enzymes (S. Garg, Ed.). Garg, S. and **Kumar, A.** Delve Publishing, Canada, 2018 (ISBN: 978-1773611198).
10. The Basics of Biofuels Production. A chapter in Current Scenario in Biofuels Production (S. Garg, Ed.). Garg, S. and **Kumar, A.** Delve Publishing, Canada, 2018 (ISBN: 978-1773611228).
11. Basic Aspects of Plant Host Parasite Relationship. A chapter in Plant Host Parasite Relationship (S. Garg, Ed.). Garg, S., Chordia, N. and **Kumar, A.** Delve Publishing, Canada, 2018 (ISBN: 978-1773611211).
12. Secondary Metabolites: Natural Antimicrobial agents. A chapter in Secondary Metabolites: Natural Antimicrobial Agents (S. Garg, Ed.). Garg, S. and **Kumar, A.** Delve Publishing, Canada, 2018 (ISBN: 978-1773611204).
13. Neurodegenerative and Neuropsychiatric Disorders: Present Clinical Drug Research and Future Perspectives. A chapter in Frontiers in CNS Drug Discovery (Prof. Atta-ur-Rahman, FRS and Dr. M. Iqbal Choudhary, Eds). Garg, S., Chordia, N. and **Kumar, A.** Bentham Science Publishers, Vol. 3, pp. 72-145, 2017 (Invited Chapter) (DOI: 10.2174/97816810844351170301; eISBN: 978-1681084435, 2017; ISBN: 978-1681084442; ISSN: 2542-5056 (Print); ISSN: 1879-6613 (Online)).
14. *In silico* approaches for determination of anti-infective drug targets. A Chapter in Frontiers in Anti-infective Drug Discovery (Prof. Atta-Ur-Rahman, FRS and Dr. M. Iqbal Choudhary, Eds). Chordia, N. and **Kumar, A.** Bentham Science Publishers, Vol. 5, pp. 150-193, 2017 (Invited Chapter) (DOI: 10.2174/97816810829121170501; eISBN: 978-1681082912, 2017; ISBN: 978-1681082929; ISSN: 2451-9162 (Print); ISSN: 1879-663X (Online)).
15. Plant Tissue Culture: History and Basics. A chapter in Plant Tissue Culture: Basic and Applied (S. Garg, Ed.). **Kumar, A.** Delve Publishing LLC, Canada, 2017 (ISBN: 978-1680957631).
16. Botany: Introduction and Basics. A chapter in Botany: An introduction to plant biology (S. Garg, Ed.). **Kumar, A.** Delve Publishing LLC, Canada, pp. 1-8, 2017 (ISBN: 978-1680957532).
17. Bacterial resistance against antibiotics. A chapter in Drug Resistance in Bacteria, Fungi, Malaria and Cancer (A. Sajid, G. Arora and V.C. Kalia, Eds.). **Kumar, A.** and Chordia, N. Springer Integrative Biotechnology Series, Springer International Publishing Switzerland. Pp. 171-192, 2017. DOI: 10.1007/978-3-319-48683-3\_7 (Invited Chapter) (ISBN 978-3319486833).
18. Regulation of gene expression. A chapter in Synthetic Biology- Advances in Molecular Biology and Medicine (Robert A. Myers, Ed.). **Kumar, A.**, Garg, S. and Garg, N. Wiley-VCH Verlag GmbH & Co KGaA press, Weinheim, Germany, Vol 1, pp. 61-119, 2015 (Invited Chapter) (ISBN: 978-3527334827).
19. *In Silico* PCR Primer Designing and Validation. A chapter in Methods in Molecular Biology (N.J. Clifton, Ed.). **Kumar, A.** and Chordia, N. Humana Press, USA, Vol. 1275, pp. 143-151, 2015. DOI: 10.1007/978-1-4939-2365-6\_10. (Invited Chapter) ISSN 1064-3745; ISSN 1940-6029 (electronics); ISBN 978-1-4939-2364-9; ISBN 978-4939-2365-6 (eBook).
20. Microbial Associated Phytoremediation Technology for Management of Oil Sludge: Phytoremediation for oil sludge management. A Chapter in Uncovering New Methods for Ecosystem Management Through Bioremediation (Shivom Singh Rathore, Ed.). **Kumar, A.** and Dhote, M. IGI Global Publishers, USA, pp. 1-28, 2015. DOI: 10.4018/978-1-4666-8682-3.ch001. (Invited Chapter) (ISBN 978-1-4666-8682-3 (hardcover) -- ISBN 978-1-4666-8683-0 (ebook)).
21. Next Generation Sequencing Technologies: Relevance in Post Genomic Era. A chapter in Emerging Technologies of the 21st Century (A.K. Roy, Ed.). **Kumar, A.** and Tyagi, S. New India Publishing Agency, New Delhi, India, pp. 41-59, 2014 (Invited Chapter) (ISBN 978-93-83305-33-9).
22. Relevance of Biological Databases in Post Genomic Era. A chapter in Emerging Technologies of the 21st Century (A.K. Roy, Ed.). **Kumar, A.** and Chordia, N. New India Publishing Agency, New Delhi, India, pp. 533-547, 2014 (Invited Chapter) (ISBN 978-93-83305-33-9).

23. Regulation of gene expression. A chapter in RNA Regulation (Robert A. Myers, Ed.). **Kumar, A.**, Garg, S. and Garg, N. Wiley-VCH Verlag GmbH & Co KGaA press, Weinheim, Germany, Vol 1, pp. 285-343, 2014 (Invited Chapter) (ISBN 978-3-527-33156-7).
24. Regulation of gene expression. A chapter in Epigenetic Regulation and Epigenomics. **Kumar, A.**, Garg, S. and Garg, N. Wiley-VCH Verlag GmbH & Co KGaA press, Weinheim, Germany, pp. 191-249, 2012 (Invited Chapter) (ISBN 978-3-527-32682-2).
25. Plant Transformation Technologies. A chapter in Plant Genetic Transformation and Molecular Markers (Ashwini Kumar, Ed.). Yadav, S., Garg, N., Garg, S. and **Kumar, A.** Pointer publishers, Jaipur, India, pp. 1-32, 2010 (Invited Chapter) (ISBN13: 978-81-7132-613-6).
26. Molecular markers for improvement of quality traits in crops. A chapter in Plant Genetic Transformation and Molecular Markers (Ashwini Kumar, Ed.). Yadav, S., Garg, N., Garg, S. and **Kumar, A.** Pointer publishers, Jaipur, India, pp. 199-232, 2010 (Invited Chapter) (ISBN13: 978-81-7132-613-6).
27. Immobilization of Enzymes and Biotechnological Perspectives. A chapter in Biotechnological Applications. (S.K. Mishra and P. Champagne, Eds.). **Kumar, A.** and Garg, S. I K International Pvt Ltd, New Delhi, India, pp. 39-52, 2009 (Invited Chapter) (ISBN: 9789380026299).
28. Proteomics studies to understand the molecular basis of stress tolerance in plants. A chapter in Plant Genomics and Bioinformatics (G.P. Rao, C.V. Wagner, R.K. Singh and M.L. Sharma, Eds.). **Kumar, A.**, Rathore, R.S., Singh, R.K. and Garg, S. Studium Press LLC, Texas, USA, pp. 271-301, 2008 (Invited Chapter) (ISBN 10 : 1-933699-39-6).
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