

CURRICULUM VITAE

1. Personal Information

Name : **Prof. Ramesh Chander Kuhad**

Designation : Vice Chancellor
Central University of Haryana
Village-Jant Pali, Mahendergarh,
Haryana-123029
&
Professor,
Lignocellulose Biotechnology Laboratory
Department of Microbiology
University of Delhi South Campus
Benito Juarez Road
New Delhi-1100021

Postal Address : Vice Chancellor
Central University of Haryana
Village-Jant Pali, Mahendergarh,
Haryana-123029

E-mail Address : kuhad85@gmail.com

Academic Qualifications : MSc, M.Phil. and Ph.D. (Microbiology)

Teaching Experience : 29 years

Research Experience : 32 years

Students Guided/Guiding : (20+4) Ph.D., 5 M.Phil. and 24 M.Sc.

Teaching Specialization : Environmental and Industrial Microbiology

Research Specialization : **Plant Residue Biotechnology**
a. Bioethanol Biotechnology
b. Animal Feed Biotechnology
c. Pulp and Paper Biotechnology

2. Administrative and Academic Experience

a) Administrative positions held:

S. No.	Title	Institution
1.	Vice Chancellor	Central University of Haryana, Mahendergarh, Haryana (16.04.2015-till date)
2.	Joint Director	Institute of Life Long Learning (ILLL) University of Delhi South Campus, New Delhi (18.04.2012 -16.04.2015)
3.	Dean,	Faculty of Interdisciplinary and Applied Sciences University of Delhi (17.10.06-16.10.08)
4.	Head,	Department of Microbiology University of Delhi South Campus, New Delhi (17.10.05-16.10.08)
5.	Chairman	Department of Biotechnology Kurukshetra University, Kurukshetra (7.8.03 – 3.3.05)
6.	O. S. D. as Principal	Deshbandhu college (E) University of Delhi, Kalka Ji, New Delhi (10.9.01 – 10.6.03)
7.	Warden	Saramati P.G. Men's Hostel University of Delhi South Campus, New Delhi (10.5.02 - 6.8.03)
8.	Warden	Aravali P.G. Men's Hostel University of Delhi South Campus, New Delhi (26.4.05 – 13.1.08)
9.	Provost	Saramati and Aravali P. G. Men's Hostel University of Delhi South Campus, New Delhi (14.1.08 - continue)

b) Academic positions held:

Institution	Post held	From	To	Role
Central University of Haryana, Mahendergarh, Haryana	Vice-Chancellor and Professor	16.04.2015	Continued	Administration and Teaching & Research
Institute of Life Long Learning, University of Delhi South Campus, New Delhi	Joint Director and professor	18.04.2012	16.04.2015	Teaching, Research and administration
Department of Microbiology, University of Delhi South Campus, New Delhi	Professor	17.09.2008	Continued	Teaching & Research
Department of Microbiology, University of Delhi South Campus, New Delhi	Professor, Head and Dean	17.09.2006	16.09.2008	Teaching, Research & Administration
Department of Microbiology, University of Delhi South Campus, New Delhi	Professor and Head	17.09.2005	16.09.2006	Teaching & Research
Department of Microbiology, University of Delhi South Campus, New Delhi	Professor	04.03.2005	16.09.2005	Teaching & Research
Department of Biotechnology, Kurukshetra University, Kurukshetra	Professor and Chairman	07.08.2003	03.03.2005	Teaching, Research & administration
Department of Microbiology, University of Delhi South Campus, New Delhi	Reader (Associate Professor)	27.07.98	06.08.2003	Teaching & Research
Department of Microbiology, University of Delhi South Campus, New Delhi	Senior Lecturer	01.09.1990	26.07.1998	Teaching & Research
Department of Microbiology, University of Delhi South Campus, New Delhi	Lecturer	01.09.1988	31.08.1990	Teaching and Research
Department of Microbiology Bhopal University, Bhopal	Lecturer	17.07.1985	31.08.1988	Teaching & Research

c)Representation in Statutory Bodies of Universities/Institutions

Governing Council/Planning Board/Executive Council/Academic Council etc

- **Member**, Selection Committee for the post of Secretary, UGC (2018).
- **Member**, Departmental Promotion Committee for the post of Under Secretary, UGC. (2018).
- **Member**, Departmental Promotion Committee to consider the candidature of Joint Secretary for promotion to the post of Additional Secretary, UGC (2017).
- **Member**, Expert committee to review the performance and evaluate the achievements of Madurai Kamaraj University in the current phase under the scheme of UPE (Universities with Potential for Excellence), UGC (2017).
- **Member**, Technical Committee to monitor the project for providing wi-fi in the Central Universities and give decisions on all technical matters, UGC (2016).
- **Member**, Departmental Promotion Committee to hold interviews for promotion to the post of Professor (under CAS), Babasaheb Bhimrao Ambedkar University (A Central University) (2017).
- **Chairman**, Committee for the dissemination of CEC Digital Educational Content through Universities & Educational Institutions Online & Offline, Consortium for Educational Communication (CEC) (2017).
- **Member**, Search Committee for selection of Vice-Chancellor, Bangalore University, Govt. of Karnataka (2017).
- **Member**, Selection Committee for Vice Chancellor of Bastar University, Govt. of Chattisgarh (2017).
- **Member**, Selection Committee of the academic faculty of the NCERT, NCERT (2016).
- **Member of Committee** to discuss the proposed UGC Regulations on Minimum Qualifications for Appointment of Teachers and other Academic Staff in Universities and Colleges and Measures for the Maintenance of Standards in Higher Education.
- **Member, Governing Body**, Information and library Network Centre (INFLIBNET), New Delhi.
- **Member of Review Committee** regarding grant of financial up-gradations under the MACP Scheme to the Group-A employees of UGC. (2017)
- **Member of Review Committee** for the UGC officials/officers regarding periodical review/retirement of Central Government Servant. (2017)
- **Member of Screening Committee** for the post of Standing Council/Panel Advocate to represent UGC
- **Member, Finance Committee**, National Accreditation and Assessment Council (NAAC), New Delhi (2016 onwards)
- **Member, Search committee** to suggest a panel of three persons for appointment of Vice Chancellor to Potti Sreeramulu Telugu University, Hyderabad, Govt. of Telangana (2016).
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- **Member, Departmental Promotion Committee** for the post of Under Secretary. (2016 onwards)
- **Member, Establishment Committee** of the NCERT (2016-2019)

- **Nominee**, Planning and Monitoring Board of the Graphic Era University (2016 onwards) **UGC**
- **Chairman**,
Expert Committee to Rai Technological University, Bangalore (2016 onwards)
- **Commission Member**, University Grants Commission (2016-2019)
- **Member**,
Expert committee to make Central University campuses Wi-Fi enabled, Central University of Kashmir, Kashmir (2016 onwards)
- **UGC**
Nominee, Local Programme Planning and Management Committee (LPPMC), UGC-Human Resource Development Centre, Gauhati University, Guwahati, Assam (2016-2018)
- **Member**,
General Council, National Council of Educational Research and Training (NCERT), New Delhi (2016-2019)
- **Member**,
Planning Board, Hemchandracharya North Gujarat University, Patan (2016-2019)
- **Member**,
Academic Council, Cochin University of Science and Technology, Kochi. (2015 onwards)
- **Member**,
Executive Committee, National Accreditation and Assessment Council (NAAC), New Delhi (2015 onwards)
- **Member**,
Planning and Monitoring Board, National Institute of Food Technology Entrepreneurship and Management (NIFTEM), Sonapat, Haryana (2013-2014)
- **Member**,
Governing Council, Inter-University Accelerator Centre, New Delhi (2013-2015)
- **Chairman**,
Central Pool Grievance Committee, University of Delhi, Delhi (2011-2015)
- **Member**
Executive Council, Deenbandhu Chhotu Ram University of Science and Technology, Murthal, Sonapat, Haryana (2011-2013).
- **Member**
Executive Council, Guru Jambheshwar University of Science and Technology, Hisar, Haryana (1999-2010).
- **Member**
Academic Council, Deenbandhu Chhotu Ram University of Science and Technology, Murthal, Sonapat, Haryana (2008-2010).
- **Member**
Academic Council, Jawaharlal Nehru University, Delhi (2006-2008).
- **Member**
Academic Council, University of Delhi, Delhi (2005-2008)
- **Member**
Executive Committee of Goyal award, Kurukshetra University (2004-2005).
- **Member**
Court, Guru Jambheshwar University of Science and Technology, Hisar, Haryana (1999-2002).
- **Member**
Establishment Committee, Guru Jambheshwar University of Science and Technology, Hisar, Haryana (2000-2003; 2007-2010).
- **Member Establishment Committee**, Deenbandhu Chhotu Ram University of Science and Technology, Murthal, Haryana (2012-2013)

- **Member Advisory Committee**, Centre with Potential for Excellence in Particular Area, University of Mysore, Mysore (2013)
- **Member, Academic Audit Committee**, Guru Jambheshwar University of Science and Technology (2013 onwards)
- **Member, Academic Audit Committee**, Kurukshetra University, Kurukshetra (2013 onwards)

• **P.G. Board/Research Committee etc**

- Council, IUCAA, Ganeshkhind, Pune (2015-2017) **Member,**
- UGC Mid Term Monitoring Committee for on the spot assessment of BHU under the scheme of UPE (2015 onwards) **Chairman,**
- **Expert**, PACE-TDD project entitled “Chitosan based drug delivery system for dental and oral diseases” of M/s. ICPA Health Products Ltd., Mumbai (2015 onwards) **PRC**
- LRC of Defence Research & Development Establishment (DRDE), Gwalior. (2016-2017) **Chairman,**
- **U.G. and PG Board of Studies** in Biotechnology, Kurukshetra University, Kurukshetra (2003-2005). **Chairman**
- **Adhoc Board of Studies** in Biotechnology and Applied Sciences, Kurukshetra University, Kurukshetra (2003-2005) **Convenor**
- **Adhoc Board of Studies** in Chemical/Mechanical/civil engineering, Kurukshetra University, Kurukshetra (2003-2005) **Convenor**
- **Member, Board of Research Studies**, Faculty of Inter-disciplinary and Applied Sciences, University of Delhi (2001-2003; 2005-2008; 2013-2015)
- **P.G. Board of Studies in Microbiology**, M.D. University, Rohtak, Haryana (2013-2015) **Member,**
- **Board of Studies in Microbiology**, Maharaja Ganga Singh University, Bikaner, Rajasthan (2014-2016) **Member,**
- **Board of studies** in Biotechnology, Chaudhary Devi Lal University, Sirsa (2004-2006) **Member**
- **Board of studies in Biotechnology**, Himachal Pradesh University, Shimla (2008-2010) **Member,**
- **Course committee** on Faculty of Interdisciplinary and Applied Sciences, University of Delhi South Campus, New Delhi (2006-2008). **Chairman**
- **Committee of Courses in Microbiology**, U. D. S. C. New Delhi (1988-continue). **Member**
- P.G. Board of Studies in Microbiology and Biotechnology, M.D.U, Rohtak (2009-2010) **Member,**
- **Research Degree Committee**, Department of Microbiology, University of Delhi south Campus, New Delhi (2005-2008). **Chairman,**
- **Departmental Research Committee**, Faculty of Medical Sciences, University of Delhi, Delhi (2013-2015) **Member,**

- **Member,**
Departmental Research Committee, Department of Microbiology, University of Delhi South Campus (1988- continue).
- **Member**
Departmental Research Committee, Department of Zoology, University of Delhi , Delhi (2013-2014)
- **Member**
Research Development and Patent Council Advisory Committee, MD University, Rohtak, Haryana (2014-2016).
- **Member, Research Degree Committee,** Department of Microbiology, CCS University, Meerut (2009-2011)
- **Member Expert, Research Degree Committee** of Life Sciences of Uttarakhand Technical University, Dehradun (June, 2014)

- **Governing Body of Colleges**

- **Chairman, Governing Body,** Acharya Narendra Dev College, University of Delhi Delhi (2014 onwards)
- **Chairman, Governing Body,** Saheed Bhagat Singh College, University of Delhi, Delhi (2013 onwards)
- **Member Governing Body,** Devanga Arts College, Virudhnagar, Tamilnadu (2012-2018)
- **Member Governing Body,** Acharya Narendra Dev College, University of Delhi, Delhi (2013-2014).
- **Member Governing Body,** Dayal Singh College, University of Delhi, Delhi (2010-2011).
- **Member Governing Body,** P.G.D.A.V college, University of Delhi, Delhi (2006-2007; 2010-2012; 2014-2016)
- **Member Governing Body,** Ram Lal Anand College, University of Delhi, Delhi (2012-2014).
- **Member Governing Body,** Rani Amrit Kaur College of Nursing, University of Delhi, Delhi (2010-2011).
- **Member Governing Body,** Saheed Bhagat Singh College, University of Delhi, Delhi (2006-2010; 2014-2016).
- **Member Governing Body,** Sri Aurobindo college, University of Delhi, Delhi (2005-2006)

- **Disciplinary/Inspection/Biosafety Committee etc**

- **Chairman,**
Expert Committee to have on the spot assessment of fulfilment of criteria in terms of programmes, faculty infrastructural facilities, financial viability etc in respect of Babu Banarsi Das University, BBD City, Faizabad Road, Lucknow UP, University Grant Commission , New Delhi
- **Chairman,**
Expert Committee to have on the spot assessment of fulfilment of criteria in terms of programmes, faculty infrastructural facilities, financial viability etc in respect of The Rai University, Saroda, Dholka Taluka, Ahmedabad, Gujarat, University Grant Commission , New Delhi
- **Chairman,**
Expert Committee to have on the spot assessment of fulfilment of criteria in terms of programmes, faculty infrastructural facilities, financial viability etc in respect of Mother Teresa Women’s University, Kodaikanal, University Grant Commission , New Delhi
- **Chairman,**
Expert Committee to have on the spot assessment of fulfilment of criteria in terms of programmes, faculty infrastructural facilities, financial viability etc in respect of OP Jindal Global University, Sonapat, Haryana, University Grant Commission , New Delhi
- **Member,**
Expert Committee constituted by UGC for considering the viability of the project entitled “National Centre for alternatives to animal experiments’ received from Bharathidasan University under the scheme “Centre with Potential for Excellence in Particular Area” , University Grant Commission , New Delhi

- **Member**
Review Committee, UGC to evaluate the performance of Universities with Potential of Excellence (2015 onwards)
- **Coordinator**
Visiting Team for smooth conduct of Examinations, University of Delhi South Campus (1998-1999, 1999-2000 and 2000-2001).
- **Member**
Standing Committee on Course Committee University of Delhi (2006-2008)
- **Member, Inspection Committee** to conduct the feasibility of imparting UG/PG/Super specialty courses in various Departments/Institutes/ Hospitals of Delhi under Faculty of Medical Sciences, University of Delhi (2013-2014).
- **Member**
Examination disciplinary Committee, University of Delhi South Campus (1999-2001).
- **Member**
Secretary Institutional Biosafety Committee, University of Delhi South Campus, New Delhi (2006-2008)
- **Member, Bio-safety Committee**, J.P. Institutes of Science and Technology, Noida, U.P. (2010-2012)
- **Member, Biosafety Committee**, Daiichi Sankyo, Gurgaon (2010-2013)
- **Member, Board of Residence**, Health and Discipline, University of Delhi, Delhi (2013-14)
- **Member, Expert Committee** to visit Mohammad Ali Jauhar University, Rampur nominated by UGC (August, 2014)
- **Member UGC Expert Committee** to visit NIIT University, Neemrana (September, 2014)
- **Member, Expert Committee** to visit University of Calcutta, Kolkata nominated by UGC (August, 2014)
- **Member, Expert Committee** to visit IFTM University, Moradabad nominated by UGC (September, 2014)
- **Member, Mid-Term Monitoring Committee** of University of Rajasthan nominated by UGC (October, 2014)
- **Member, Expert Committee** to visit DAV University, Sarmastpur for on spot assessment appointed by UGC (June, 2014)

d)Representation in state/National/International-level bodies:

- **Chairman-UGC Committee** to rationalize and fix ceiling on the Non-Plan grants paid by UGC every year to 8 Deemed to be Universities, 53 Colleges of University of Delhi, 4 Colleges of BHU, Punjab University besides 6 Inter University Centres and 22 EMMRCs run by UGC. (2016 onwards)
- **Chairman**, Subcommittee of the standing committee for the task of production of courseware e-content for post graduate subjects by University Grant Commission, New Delhi (2013-2014)
- **Member-UGC Standing Committee** on developing courseware E-content for P.G. subjects (2012-2014).
- **Expert Member, Steering Committee** for the Center of Excellence Program of the Ministry of Environment and Forest, Govt. of India at CEMDE, University of Delhi, Delhi (2005-onwards).
- **Member- Task Force of Animal Biotechnology, Department of Biotechnology**, Government of India, New Delhi (2010-2013)
- **Member**, APEX Committee for North-Eastern Region (Environmental Biotechnology and Allied areas) constituted by Department of Biotechnology, Ministry of Science and Technology, Government of India (2013-2015)
- **Co-Chairman**, Expert Committee of the Twinning Program for North-Eastern Region (Environmental Biotechnology and Allied areas) constituted by Department of Biotechnology, Ministry of Science and Technology (Government of India) (2013-2015)
- **Member**, Research Advisory committee (RAC), National Bureau of Agriculturally Important Microorganisms (ICAR), New Delhi (2013-2015)
- **Member, Bio-safety Committee** of Daiichi Sankyo, Gurgaon (2010-2013)

- **Member of the jury for Merck-India Innovation Award** for innovative research by Indian Scientists (2012 onwards)
- **Member for developing a Fix Point Chart for transmission** of educational programs on its 24x7 Vyas Higher Education Channel under Consortium for Educational Communication-an Inter University Centre of University Grants Commission (September, 2013).
- **Member, Expert Committee** for fresh induction/review of existing microbiology departments under scheme of special assistance program (SAP) nominated by UGC (July, 2014)

e)Representation in Editorial Boards of National/International Journals

- **Associate Editor**, Annals of Microbiology (2012 onwards)
- **Editor**, Scientific Reports (Nature Publishing Group) (2011-2014) (2015 onwards)
- **Editor**, Advances in Biology (2014 onwards)
- **Editor**, Journal of Fungal Biology and Biotechnology (2014 onwards)
- **Editor**, Journal of Sustainable Bioenergy Systems (2013 onwards)
- **Editor**, Indian Journal of Microbiology (2006- onwards)
- **Guest-Editor**- Special Issue of 3 Biotech (2011), an International Journal
- **Guest-Editor**- Special Issue of Biodegradation (2010), an International Journal
- **Reviewer for research papers for International journals:** Biotechnology for Biofuels, BMC Biotechnology, Biodegradation, Journal of Applied Microbiology, Biotechnology Progress, Bioprocess and Biosystem Engineering, International Journal of Hydrogen Energy, Fuel, National Academy Science Letters, International Journal of Biodegradation and Biodeterioration, Journal of cleaner production, Applied Microbiology and Biotechnology, Environmental Progress, Biotechnology and Bioprocess Engineering, Chemosphere, Journal of Plant Pathology, Scientific Research, Annals of Microbiology, Industrial Microbiology and Biotechnology, Gene, Journal of Bioscience and Bioengineering, New Biotechnology, Energy Policy, Biochemical Engineering Journal, Journal of Biotechnology, Central European Journal of Chemistry, Bioenergy Research, Biotechnology Advances, Journal of Molecular Catalysis B: Enzymatic, Engineering in Life Science, Applied Biochemistry and Biotechnology, Renewable and Sustainable Energy Reviews, Process Biochemistry, Bioresource Technology, , Brazilian Journal of Microbiology, Enzyme and Microbial Technology, Indian Journal of Microbiology, and FEMS Microbiology Letters.

f) Representation in Professional bodies:

- **Founder Chairman**, Indian Academy of Microbiological Sciences (2014-2016)
- **President**, Association of Microbiologists of India (2010-2011)
- **President-Elect**, Association of Microbiologists of India (2009-2010)
- **General Secretary**, Association of Microbiologists of India (2005-2010).
- **Treasurer**, Association of Microbiologist of India (1992-94, 2000-2005).
- **Life Member**, Biotech Research Society of India
- **Life Member**, Association of Microbiologists of India
- **Life Member**, National Academy of Agricultural Sciences

3. Awards and Honors

a)Fellow Of Academic Bodies

1. **Fellow** of Biotech Research Society of India (**FBRS**)
2. **Fellow** of National Academy of Agricultural Sciences (**FNAAS**)
3. **Fellow** of **National Academy of Sciences (FNAS)**

b)Scholarships/Fellowships/Awards

1. **Association of Microbiologists of India (AMI)- Prof. G.S. Rangasamy Award (2017)**
2. **Association of Microbiologists of India (AMI)- Dr. G.B. Manjrekar Award (2014)**
3. **Association of Microbiologists of India (AMI) Platinum Jubilee Life Time Achievement Award (2013)**
4. **Association of Microbiologists of India (AMI) Titan Biotech Award (2011).**
5. **Short Term Biotechnology Overseas Research Associateship Award** Department of Biotechnology, Ministry of Science and Technology, (Govt. of India). (2002-2003)
6. **Association of Microbiologists of India (AMI)- Alembic Award (1999)**
7. **Biotechnology Long Term Overseas Research Associateship Award** by Department of Biotechnology, Ministry of Science and Technology, (Govt. of India). (1995-1996)
8. **UNIDO/ICGEB Fellowship** for Short Term Research Training at the University of Santiago, Santiago, Chile. (1994)
9. **Commonwealth Scholarship for Post Doctoral Research** by Government of United Kingdom, at the University of Manchester, United Kingdom (1985-1986).
10. **National Scholarship Award** (Govt. of India) during Graduation (1972).
11. **Merit Scholarship Award** Board of School Education, Haryana, Chandigarh (1972).
12. **Senior Research Fellowship** from C.S.I.R., New Delhi (1983-1985).
13. **Junior Research Fellowship** from C.S.I.R., New Delhi (1981-1983).

c) **Facilitation/Appreciation/Merit/Research Poster Awards**

1. **Felicitation by Association of Microbiologists of India (AMI)** during 38th Annual Conference of AMI at New Delhi (December 13, 1997) and again in 42nd Annual Conference of AMI at Gulbarga (November 9th-11th, 2001) for services to AMI as Treasurer (1993-2001).
2. **Certificate of Appreciation and Trophy awarded by plant science colloquium, H.A.U. Hisar**, for the research project being adjudged as one of the best projects submitted in the Regional contest “Innovative ideas in Plant Research” (1987).
3. **Facilitation award** by Madhya Pradesh Shikshak Congress (1988).
4. **Fourth Rank in Merit in M.Phil in Life Sciences Faculty** (1981).
5. **First Rank in Merit in M.Sc. in Life Science Faculty** (1980).
6. **Merit certificate for being standing- IInd in aggregated in B.Sc. IInd year** (1976)
7. **Merit certificate for being standing First in Botany in B.Sc. IIIrd year** in College (1977).
8. **The American Society for Microbiology Best Poster Prize** for the poster “Influence of Ganoderma sp. RCKK-02in goats” during the International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues and Challenges at BIT, Mesra, Ranchi, India. (2010)
9. **Awarded with Second prize for Best Research Poster** in the field of “Microbes in Food and Fermentation” during the 20th Annual Conference of AMI at National Chemical Laboratory, Pune, India (2009)

4. Intellectual property, technological innovations, new products

A. Patents Filed:

1. **Title** : Method of producing alkalothermostable xylanase from *Bacillus pumilus* MK001 by solid state fermentation
- Inventors** : **R. C. Kuhad & Mukesh Kapoor**
- File No** : **IN 984 DEL 2008**

2. **Title** : A process for production of fermentation sugars from lignocellulosic substrates
Inventors : **R. C. Kuhad** & Rishi Gupta
File No : **IN 1348DEL2011**

3. **Title** : A Bioconversion method to improve nutritional properties of lignocellulosic residues
Inventors : **R. C. Kuhad**, Bhuvnesh Shrivastava & Anup Kalra
File No : **IN 4039DEL2012**

4. **Title** : A novel process for biobleaching of kraft pulps employing laccase and xylanase enzymes and oxygen as mediator.
Inventors : R. K. Jain, Vasanta Vadde Thakur, **R. C. Kuhad** & R. M. Mathur
File No : **IN2944/DEL/2013**

B Processes and products developed

(i) PROCESSES

(A) In-vivo enzymatic digestion of the substrate/raw material resulting in enhanced production of enzyme(s): The concept or process for concomitant production of biochemically and physiologically different enzymes such as xylanase and laccase using the same substrate was developed. The in vivo enzymatic digestion (IVED) of substrate (wheat bran) facilitated hyper laccase production from a white rot fungus *Ganoderma* sp., when grown on IVED treated wheat brand under submerged and solid state fermentation conditions.

(B) Genetic transformation of lignin degrading fungi using *Agrobacterium tumefaciens* without external addition of acetosyringone: The concept/strategy using both Cauliflower Mosaic Virus (CaMV)35S and GPD promoter demonstrated comparable efficacy in the expression of hpt and uid genes in white-rot fungi, respectively. *Agrobacterium* mediated transformation was achieved without external addition of acetosyringone, as white-rot fungi grown on lignin related compounds and acetosyringone was identified as one of the lignin degraded product in the culture medium. Moreover co-cultivation of the fungus and bacterium at low temperature could significantly increase the transformation efficiency.

I Isolation of high quality soil DNA with the application of lignin degrading enzymes: New concept using ligninolytic enzymes for extraction of pure, high molecular weight DNA from soils, lead to development of a new improved and cost effective protocol to isolate DNA more amenable for molecular manipulations.

(D) Concentration of sugars in acid hydrolysates: Based on concept of increasing sugars concentration in the acid hydrolysates of plant materials for improving ethanol fermentation, a process design has been developed to enhance the fermentable sugars concentration in the acid hydrolysate by looping the steps of acid hydrolysis. Moreover, the process developed saves ~30-40% acid and 60-70% water required for the conversion of the lignocellulose biomass to fermentable sugars.

(ii) PRODUCTS

Enzymes – Cellulase, Xylanase, Laccase & Pectinase

Biofuel- Bioethanol

Animal feed- Fermented feed (Biotech Feed)

Pharmaceuticals- Quinoxalines, Benzopyranocoumarins, 5-Deaza-10-oxaflavin

C Methods developed/ modified :

- In situ method for xylanase / laccase
- DNA isolation method

D Novel bacterial species identified

Two novel bacterial species belonging to genus *Bacillus* have been identified and named as *Bacillus paraflexus* sp. Nov. and *Bacillus pseudoflexus* sp. Nov.

5. List of 20 best research publications along with Impact Factor and Citations

S. No.	Title of Publication	Impact Factor	Citation
1	Shrivastava, B., Jain, K.K., Kalra, A., Kuhad R.C. (2014). Bioprocessing of wheat straw into nutritionally rich and digested cattle feed. <i>Scientific Reports</i> . Doi:10.1038/srep06360	5.078	0
2	Sharma, A., Thakur, V.V., Shrivastava, A., Jain, R.K., Mathur, R.M., Gupta, R., Kuhad R.C. (2014) Xylanase and laccase based enzymatic kraft pulp bleaching reduces adsorbable organic halogen (AOX) in bleach effluents: A pilot scale study. <i>Bioresource Technology</i> . http://dx.doi.org/10.1016/j.biortech.2014.06.066	5.039	0
3	Sharma KK, Shrivastava B, Sastry VRB, Sehgal N and Kuhad RC (2013). Middle redox potential laccase from <i>Ganoderma</i> sp: its application in improvement of feed from monogastric animals. <i>Scientific Reports</i> . 3:1299	5.078	1
4	Nandal P, Ravella SR. Kuhad RC (2013). Laccase production by <i>Coriolopsis caperata</i> RCK2011: Optimization under solid state fermentation by Taguchi DOE methodology. <i>Scientific Reports</i> . 3:1386	5.078	3
5	Kumar S., Gupta R., Kumar G., Sahoo D. And Kuhad R.C. (2013). Bioethanol production from <i>Gracilariaverrucosa</i> , a red alga, in a biorefinery approach. <i>Bioresource Technology</i> . 135: 150–156	5.039	13
6	Gupta R, Kumar S., Gomes J. and Kuhad R.C. (2012). Kinetic study of batch and fed-batch enzymatic saccharification of pretreated substrate and their subsequent fermentation to ethanol. <i>Biotechnology for Biofuels</i> 5:16	6.22	7
7	Kuhad R.C. , Gupta R., Khasa Y.P. and Singh A. (2011). Bioconversion of pentose sugars to ethanol: Current and Future prospects. <i>Renewable and Sustainable Energy Reviews</i> . 15:4950-4962.	5.510	25

8	Gupta, R., Khasa, Y.P. and Kuhad, R.C. (2011). Evaluation of pretreatment methods in improving the enzymatic saccharification of cellulosic materials. <i>Carbohydrate Polymers</i> . 84: 1103-110	3.916	27
9	Kuhad, R.C. , Gupta, R., Khasa Y.P. and Singh A. (2010). Bioethanol production from <i>Lantana camara</i> (red sage): Pretreatment, saccharification and fermentation. <i>Bioresource technology</i> 101: 8348-8354.	5.039	38
10.	Kuhad, R.C. , Mehta, G., Gupta, R., and Sharma, K.K. (2010). Fed batch enzymatic saccharification of newspaper cellulose improves the sugar content in the hydrolysates and eventually the ethanol fermentation by <i>Saccharomyces cerevisiae</i> . <i>Biomass and Bioenergy</i> . 34: 1189-1194.	3.411	24
11	Kidwai, M., Poddar, R., Diwanian S. and Kuhad, R. C. (2009). Laccase from basidiomycetous fungus catalyzed synthesis of substituted 5-deaza-10-oxaflavin via Domino reaction. <i>Advance Synthesis and Catalysis</i> . 351:589-595.	5.542	27
12	Gupta, R., Sharma, K.K., Kuhad, R.C. (2009). Separate hydrolysis and fermentation (SHF) of <i>Prosopis juliflora</i> , a woody substrate, for the production of cellulosic ethanol by <i>Saccharomyces cerevisiae</i> and <i>Pichia stipitis</i> -NCIM 3498. <i>Bioresource Technology</i> 100: 1214-1220.	5.039	75
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6. Publications:

1. Research Publication- 174; Citation = 8037; H-index: 49
(Research Articles 125; Reviews 15; Chapters 34)

2. Books- 4

a) Book Published - Four (4)

1. **Title** : Lignocellulose Biotechnology: Present and Future Prospect
Editors : **Kuhad R C** and Singh A
Publisher : I. K. International, New Delhi 2007
2. **Title** : Advances in soil bioremediation. Soil Biology Series
Editors : Singh A, **Kuhad R C** and Ward O P
Publisher : Springer, Verlag, Germany 2009
3. **Title** : Bioaugmentation , Bostimulation and Biocontrol. Soil Biology Series.
Editors : Singh A, Parmar, N. and **Kuhad R C**
Publisher : Springer, Verlag, Germany. 2011
4. **Title** : Biotechnology for environmental management and resource recovery
Editors : **Kuhad RC** and Singh A.
Publisher : Springer, Verlag, Germany. 2013

b) Research Articles - One Hundred thirty three (140)

S. No.	Publication
140	Hemansi, Gupta, R., Kuhad, R.C. , Saini, J.K. (2018) Cost effective production of complete cellulase system by newly isolated <i>Aspergillus niger</i> RCKH-3 for efficient enzymatic saccharification: Medium engineering by overall evaluation criteria approach (OEC). Biochemical Engineering Journal . doi.org/10.1016/j.bej.2018.01.019.
139	Gupta, R., Hemansi, Gautam, S., Shukla, R., Kuhad, R.C. (2017) Study of charcoal detoxification of acid hydrolysate from corncob and its fermentation to xylitol. Journal of Environmental Chemical Engineering . 5: 4573–4582.
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d) Book Chapters - Thirty four (34)

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25	Singh A., Parmar N., Kuhad RC. , Ward OP (2011) Bioaugmentation, Biostimulation and Biocontrol in soil biology. In: Bioaugmentation, Biostimulation and Biocontrol. (Editors) A. Singh et al. Springer Verlag, Germany.
26	Kuhad RC., Singh S., Lata, Singh A. (2011) Phosphate-Solubilizing Microorganisms. In: Bioaugmentation, Biostimulation and Biocontrol. (Editors) A. Singh et al. Springer Verlag, Germany.
27	Sharma A., Shrivastava A., Sharma S., Gupta R. and Kuhad R.C. (2013). Microbial pectinases and their applications. In: Biotechnology of Environmental Management and Resource Recovery. (Editors) Kuhad, R.C. and Singh A. Springer Verlag, Germany. pp 107-124.
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	Delhi, India. Pp 11-34
32	Singh, A., Hamme, JDV., Kuhad RC. , Parmar N., Ward OP (2014). Subsurface Petroleum Microbiology. In: Geomicrobiology and Biogeochemistry, Soil Biology 39 (Editors) N. Parma and A. Singh. Springer Verlag Germany.
33	Shrivastava B., Jain K K., Kumar R., Prusty S, Kumar S., Chakraborty S., Chaudhary HS., Puniya M., Kuhad RC. , (2015). 'Omics' Approaches to Understand and Manipulate Rumen Microbial Function. A.K. Puniya et al. (eds.), Rumen Microbiology: From Evolution to Revolution, DOI 10.1007/978-81-322-2401-3_15 © Springer India 2015
34	Chakraborty, S., Gupta, R., Jain, K.K., Hemanshi, Gautam, S., Kuhad, R.C. (2016) Cellulases: Application in Wine and Brewery Industry. V. Gupta et al (eds.), Book: New and Future Developments in Microbial Biotechnology and Bioengineering, © Elsevier. 193-200.

7. Research Experience

a) Post-Doctoral Research/Visits abroad

S. No.	Type of Assignment	Funded by	Associated with the person/Institution
1	Post-doctoral Research (1985-86)	Commonwealth Scholarship Programme	Dr. David Moore, Department of Cell and Structural Biology, University of Manchester Manchester, U.K.
2	UNIDO/ICGEB Short Term Fellowship (1994)	UNIDO/ICGEB Long and Short Term Fellowship Programme	Prof. R. Vicuna, Department of Biochemistry University of Santiago, Sanitago, Chile
3	Long-Term Overseas Research Associateship Award (1995-96)	Department of Biotechnology	Prof. Karl-Erik. L. Eriksson, Professor of Biochemistry and Eminent Scholar of Biotechnology, Department of Biochemistry and Molecular Biology University of Georgia Athens, U.S.A.
4	Participation in Colloquium on Lignin Biodegradation and Practical Utilization (27-30 June, 1990)	ICGEB sponsored/ Training Programme supported by ICGEB/DBT	International Centre for Genetic Engineering and Biotechnology, Padriciano, Trieste, Italy
5	Participation in International Conference at Lisbon, Portugal (2-4 December, 2009).	Visit funded by University of Delhi.	Oral presentation in 3 rd International Conference on Environmental, Industrial and applied Microbiology.
6	Visit to deliver lectures and discussion about research collaboration (19-25 September, 2010).	Funded by Tampere University of Technology, Finland	Prof. Matti Karp, Department of Chemistry and Biochemical Engineering, Tampere University of Technology, Tampere, Finland.
7	Delivering lectures at 4 th Interdepartmental twinning symposium at Tammela, Tampere, Finland (28 September-5 October, 2011).	Funded by Tampere University of Technology, Finland	Prof. Matti Karp, Department of Chemistry and Biochemical Engineering, Tampere University of Technology, Tampere, Finland.

b) Training/workshop courses in India/Abroad

S. No.	Type of Assignment	Organizing Institute
1	Inorganic Biochemistry Summer Workshop- 1995	University of Georgia, Athens, U.S.A. July 29- August 9, 1995.
2	Refresher Course on "Software Applications on	Computer Centre, University of Delhi South Campus and sponsored by CPDHE, University of Delhi, December 23,

	Personal Computer”	1992- 15 January, 1993
3	Short term course on “Analysis And Design Of Novel Bioreactors	Biotechnology Division, Department of Chemical Engineering I.I.T. Kharagpur, sponsored by Department of Biotechnology (Govt. of India), New Delhi, May, 10-24, 1989
4	Winter School on “Modern analytical and biochemical Engineering Methods for Engineers and Scientists”	Department of Chemical Engineering, Andhra University, Visakhapatnam, sponsored by Department of Biotechnology (Govt. of India), New Delhi, December 28, 1988 to January 10, 1989
5	Short term course in Fortran-arranged by Department of Computer Science and Application	Bhopal University, Bhopal and sponsored by Madhya Pradesh Council of Science and Technology, Bhopal, 25 March to 19 April, 1985
6	Environment Science Training Course	Youth and Biosphere and Department of Environment, Government of Madhya Pradesh (India), June 5-11, 1981 and June 5-11, 1982
7	Instrumentation and Statistical Course	`

8. Research Grant Received

a) Completed projects

S. No.	Title of the Project	Funding Agency
1.	The hydrolysis of hemicelluloses by species of white-rot fungus <i>Cyathus</i> .	UGC (Completed)
2.	The solar pasteurization of plant residues followed by fungal fermentation of produce protein rich animal feed.	DST (completed)
3.	Bacteria as source of Nutrition for zooplankton, and the role of bacterivorous zooplankton in reducing microbial load in wastewater: An experimental evaluation.	MEF (Completed)
4.	Cellulases Free Thermotolerant and Alkalostable Xylanases for Pulp and Paper Industry.	DBT (Completed)
5.	Cloning and Characterization of Ligninase/Laccase Gene(s) from white-rot fungus.	DBT (Completed)
6.	Marine Fungi as a source of laccase and xylanase enzymes for Biotechnological applications	DBT (Completed)
7.	Heterotrophic Chemo-organotropic and aerobic Gram positive Bacteria	MEF (Completed)
8.	Bioconversion of Lignocellulosics feedstock into ethanol as biofuel	DBT (Completed)
9.	Decolorization of dye waste waters using laccase over-producing marine and terrestrial fungi	DBT (Completed)
10.	Microbial production of biotech feed by solid state fermentation and recombinant DNA technology in collaboration with Ayurvet Pvt. Ltd. Delhi	DBT (Completed)
11.	Bioconversion of cellulotics into sugars and ethanol	CSIR (NIMTLI) (Completed)
12.	Production of bioethanol from lignocellulosic biomass	DBT (Completed)

13.	Evaluation of xylanase and laccase at pilot and mill scale in pulp and paper industry in collaboration with Jay biozyme Technologies, Pune.	DBT (Completed)
14.	Preparation and screening of DNA library from wood decaying soil and termite mounts for novel lignocellulolytic enzymes	DBT (Completed)
15.	Process development and application of pectinase for retting of plant fibres in collaboration with Jay biozyme Technologies, Pune.	SBIRI, DBT (Completed)
16.	Development of pretreatment strategies and bioprocess for improved production of cellulolytic enzymes and ethanol from crop byproduct for demonstration at pilot plant	MNRE (Completed)
17.	Optimization of cellulase production from <i>Thermoascus aurantacus</i> RCK 2011, a thermophilic fungus and its application in cellulose hydrolysis	UGC (Completed)
18.	Production on courseware e-content Development for Post-Graduate Subject 'Microbiology' (e-PG Pathshala)	UGC (Completed)

b) Ongoing Research Projects

1.	Development of seaweeds biorefinery and pilot demonstration of bioethanol production	DBT (Ongoing)
2.	DBT Virtual Enzyme Centre-Development of enzyme formulations for treatment of ligno-cellulosic biomass	DBT (Ongoing)

9. Organizational/Team Building/ Leadership Activities:

- Treasurer, General Secretary, President Elect and President of Association of Microbiology (AMI)** since 1992, actively involved in the growth of AMI and eventually in developing microbiology discipline in our country. We have been encouraging University teaching departments to organize scientific program to enthuse young microbiologists and recently we have taken up the objective to popularize microbiological sciences at school and college levels as well. To begin with, we have organized one/two days colloquium/seminars at M.D. University, Rohtak, D.C.R.U.S.T., Murthal, University of Delhi South Campus, New Delhi and Punjab University, Chandigarh.
- Joint Director, Institute of Life Long Learning (ILLL)**, University of Delhi South Campus, heading a team of Fellows working for e-content development for under-graduate courses in Science subjects (since April 2012 onwards).
- Organizing Chairman**, 54th Annual Conference of AMI and International Symposiums. November 17-20, 2013 at MD University, Rohtak, India
- Organizing Chairman**, 49th Annual Conference of AMI and Internal Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics" 18-20 Nov, 2008 at University of Delhi. Delhi, India
- Organizing Secretary**, National Symposium on "Lignocellulose Biotechnology: Present and Future Prospects" December 10-11, 2001 at University of Delhi South Campus, New Delhi-21.
- Organizing Secretary**, workshop on "Environmental Management of Water-borne Diseases" on October 29, 1999 at University of Delhi South Campus, New Delhi.
- Organizing Secretary**, National Seminar on "Microbial Technologies for Environmental Management and Resource Recovery" October 1-2, 1997 at University of Delhi South Campus, New Delhi during
- Coordinator Visiting Team for smooth conduct of University Examinations**, University of Delhi South Campus (1998-1999, 1999-2000 and 2000-2001).
- Convenor**, Accommodation, Transport and Publicity Committee 38th Annual Conference of AMI, December 12-14, 1997 at Jamia Milia Islamia, New Delhi.
- Convenor**, Finance Committee of National Symposium on "New Frontiers in Microbial Technology February 15-17, 1987 at Bhopal University, Bhopal.
- Member Organisation of Symposium** on "Microbes in the service of Human Society" at Delhi during October, 1989.

12. **Member Organisation** (Reception and Audiovisual Committee) of XIV International Congress of Microbiology September 5-11, 1986. University of Manchester, Manchester. U.K.

10. Experience of quality assurance and Information technology in academic/administrative functioning

1. **Joint Director, Institute of Life Long Learning (ILLL)**, University of Delhi South Campus, New Delhi. (2012 onwards)
2. **Member-UGC Standing Committee** on developing courseware E-content for P.G. subjects (2011-2012).
3. **Chairman**, Subcommittee of the Standing Committee for the Task of Production of Courseware e-Content for Post-graduate subjects by University Grant Commission, New Delhi (2012-2014)
4. **Principle Investigator/ Coordinator** for developing e-content for M.Sc. Microbiology under project funded by UGC (2014-2015)
5. **Co-Chairman**, Expert Committee of the Twinning Program for North-Eastern Region (Environmental Biotechnology and Allied areas) constituted by Department of Biotechnology, Ministry of Science and Technology (Government of India) (2013-2015)
6. **Expert Member, Steering Committee** for the Center of Excellence Program of the Ministry of Environment and Forest, Govt. of India at CEMDE, DU (2005-onwards).
7. **Member**, APEX Committee for North-Eastern Region (Environmental Biotechnology and Allied areas) constituted by Department of Biotechnology, Ministry of Science and Technology (Government of India) (2013-2015)
8. **Member Monitoring Committee**, for granting the status of "University of Potential with Excellence" (UPE) by University Grant Commission, New Delhi (2014)
9. **Member**, UGC Committees for granting 2-'P' and 12-'B' status to various Universities (2010 onwards)
10. **Member Planning and Monitoring Board**, National Institute of Food Technology Entrepreneurship and Management (NIFTEM), Sonapat, Haryana (2013-2014)
11. **Member, Internal Quality Assurance Cell (IQAC)**, Guru Jambheshwar University of Science and Technology, Hisar, Haryana (2013-2014)
12. **Member, Academic Audit Committee**, Kurukshetra University, Kurukshetra (2013 onwards)
13. **Member**, Research Development and Patent Council Advisory Committee, M.D. University, Rohtak.
14. **Expert**, for reviewing research grants from DST, DBT, UGC and MNRE (Govt. Of India)
15. **Expert member** for selection of Faculty in various Institutions/Universities.
16. **Examiners** for M.Sc./M.Tech/Ph.D thesis of National/International Institutions.

Prof. R. C. Kuhad

FORWARDED

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