



Faculty Details proforma for DU Web-site

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cc: director@ducc.du.ac.in)

Title	Dr.	First Name	Yogender Pal	Last Name	Khasa	Photograph
Designation	Assistant Professor					
Address	Department of Microbiology, University of Delhi South Campus, Benito Juarez Road, New Delhi 110021, India					
Phone No Office	+91-11-24157369					
Residence	Flat No 15, Type IV, UDSC-New Delhi- 110021					
Mobile	91-9958708210					
Email	yogi110@gmail.com					
Web-Page						
Educational Qualifications						
Degree	Institution				Year	
Ph.D.	Jawaharlal Nehru University, N. Delhi-67				2006	
PG	Jawaharlal Nehru University, N. Delhi-67				1999	
UG	University of Delhi				1997	
Postdoctoral Research Work	University of Nebraska, Lincoln, USA- 68588				2006-2008	
	Seattle Biomedical Research Institute, Seattle, USA-98109				2008-2009	
Career Profile						

June 2008-Nov. 2009:	<p>Postdoctoral Research Scientist Seattle Biomedical Research Institute Seattle, WA, USA-98109. Project: Expression and optimization of Liver, blood and pregnancy stage malaria vaccine in <i>E. coli</i> and <i>Pichia pastoris</i>.</p>
July. 2006-May 2008	<p>Postdoctoral Research Associate</p> <p>Department of Chemical and Biomolecular Engineering (Biological Process Development Facility). University of Nebraska, Lincoln, NE, USA-68588.</p> <p>Project: 1). Bioprocess development for whole chain antibody production in <i>Pichia Pastoris</i>. 2). Development of cell surface display technology using native <i>Pichia pastoris</i> proteins.</p>
July 2001 – April 2006:	<p>PhD from Jawaharlal Nehru University, (School of Biotechnology) New Delhi-110067</p> <p>Project: ‘Bioprocess strategies for the overproduction of recombinant human Granulocyte Macrophage-Colony Stimulating Factor in <i>Escherichia coli</i> and <i>Pichia pastoris</i>’</p>
2000- 2001	<p>Junior Research Fellow at Centre for Biotechnology, JNU, N. Delhi-110067. Project: Production of recombinant Asparaginase in <i>E. coli</i>”</p>
1999-2000	<p>Junior Research Fellow at Centre for Biotechnology, JNU, N. Delhi-110067.</p> <p>Project: “Technology development for recombinant Streptokinase in <i>E. coli</i>”.</p>
1997- 1999	<p>Master of Science in Biotechnology from School of Biotechnology, JNU, N. Delhi-110067.</p> <p>Project: Different bioprocess strategies for overexpression of recombinant proteins under T7 promoter using different induction systems for T7 RNA polymerase in <i>E. coli</i>.</p>
1994-1997	<p>Bachelor of Science, Chemistry (H) University of Delhi, Delhi-110007</p>

Administrative Assignments
<ol style="list-style-type: none"> 1. Resident Tutor, Aravali P.G. Men's Hostel, University of Delhi South Campus (08-07-2010 to 06-07-2010) Tow years tenure 2. Member, Board of Research Studies, Faculty of inter-disciplinary & Applies sciences, University of Delhi South Campus New Delhi-110021, India (Since October 2015).
Areas of Interest / Specialization
<p>Bioprocess Engineering, Recombinant protein expression in different heterologous system, Yeast Cell Surface Display Technology.</p> <p>“Over the years in this wonderful world of investigation, I have gained extensive experience in the area of molecular biology and bioprocess engineering. This expertise over two disparate fields has helped me immensely to establish an independent research programme. In recombinant gene expression, it is always critical to understanding and solving the various bottlenecks that arise during protein production in various heterologous systems, such as <i>E. coli</i>, various Yeasts, and Mammalian cells. Since I also work with therapeutically important recombinant proteins such as cytokines thus find natural use in industry. During the past 13 years, I have been working for the cloning, expression, and optimization of various therapeutically important biomolecules at large scale using bioprocess optimization strategies. Few of the technologies developed during this journey at various places have been successfully transferred to industry for commercial exploitation.”</p>
Subjects Taught
Industrial and food microbiology, Environmental microbiology, Diversity of Prokaryotic and eukaryotic microbes, Plant-Pathogen Interaction
Publications Profile
<ol style="list-style-type: none"> Adivitiya, Babbal, Mohanty S, Dagar VK and Khasa YP (2019) Development of a streptokinase expression platform using the native signal sequence of the protein with internal repeats 1 (PIR1) in <i>P. pastoris</i>: gene dosage optimization and cell retention strategies. Process Biochemistry, 83:64–76 (IF: 2.88) Babbal, Adivitiya, Mohanty S and Khasa YP (2019) Bioprocess optimization for the overproduction of catalytic domain of Ubiquitin-like protease 1 (Ulp1) from <i>S. cerevisiae</i> in <i>E. coli</i> Fed-batch culture” Enzyme and Microbial Technology, 120:98-109. (IF: 3.55)

3. Adivitiya, Babbal, Mohanty S and **Khasa YP (2018)** “Development of deglycosylated and plasmin resistant variants of recombinant streptokinase in *P. pastoris*” **Applied Microbiology and Biotechnology**, 102:10561–10577. (IF: 3.67)
4. Dagar VK, and **Khasa YP (2018)** “Combined effect of gene dosage and process optimization strategies on high-level production of recombinant human Interleukin-3 (hIL-3) in *Pichia pastoris* fed-batch culture” **International Journal of Biological Macromolecules**, 108:999-1009 (IF: 4.78)
5. Bindal S, Dagar VK, Saini M, **Khasa YP**, and Gupta R (2018) “High level extracellular production of recombinant γ -glutamyl transpeptidase from *Bacillus licheniformis* in *Escherichia coli* fed-batch culture” **Enzyme and Microbial Technology**, 116:23-32. (IF: 3.55)
6. Dagar VK, Adivitiya, and **Khasa YP (2017)** “High-level expression and efficient refolding of therapeutically important recombinant human Interleukin-3 (hIL-3) in *E. coli*.” **Protein Expression and Purification**, 131:51-59. (IF:1.3)
7. Nash SD, Prevots RD, Kabyemela E, **Khasa YP**, Lee KL, Fried M, and Duffy PE (2017) A Malaria-Resistant Phenotype with Immunological Correlates in a Tanzanian Birth Cohort Exposed to Intense Malaria Transmission. **American Journal of Tropical Medicine and Hygiene**, 96(5):1190-1196 (IF: 2.82).
8. Singha TK, Gulati P, Mohanty A, **Khasa YP**, Kapoor RK and Kumar S (2017) Efficient genetic approaches for improvement of plasmid based expression of recombinant protein in *Escherichia coli*: A review. **Process Biochemistry** 55:17–31 (IF: 2.88)
9. Adivitiya, and **Khasa YP (2017)** “The evolution of recombinant thrombolytics: Current status and future directions.” **Bioengineered** 8(4):331-358. (IF: 1.7)
10. Devi N, Adivitiya, and **Khasa YP (2016)** “A combinatorial approach of N-terminus blocking and codon optimization strategies to enhance the soluble expression of recombinant hIL-7 in *E. coli* fed-batch culture” **Applied Microbiology and Biotechnology**, 100(23):9979-9994 (IF: 3.67)
11. Dagar VK, Adivitiya, Devi N and **Khasa YP (2016)** “Bioprocess development for extracellular production of recombinant human interleukin-3 (hIL-3) in *Pichia pastoris*”. **Journal of Industrial Microbiology and Biotechnology**, 43(10):1373-1386. (IF: 2.99)
12. Adivitiya, Dagar VK, Devi N and **Khasa YP (2016)** “High-level production of active

- streptokinase in *Pichia pastoris* fed-batch culture.” **International Journal of Biological Macromolecules**. 83:50–60 (IF: 4.78)
13. **Khasa YP**, Khushoo A and Mukherjee KJ (2013) “Enhancing toxic protein expression in *E. coli* Fed-batch culture using kinetic parameters: hGM-CSF as a model system” **Journal of Bioscience and Bioengineering**. 115 (3):291–297. (IF: 2.03)
14. Kumar M Kaur N, Gautam k, Pathak RK, **Khasa YP**, Gupta LR (2013) “Reporting Heavy Metal Resistance Bacterial Strains from Industrially Polluted Sites of Northern India Using Fatty Acid Methyl Ester (FAME) Analysis and Plasma-Atomic Emission Spectroscopy (ICP-AES).” **Advanced Science Letters**, 19:3311-3314. (IF: 1.25)
15. Kumar M, Pal A, Singh J, Garg S, Bala M, Vyas A, **Khasa YP** and Pachouri U (2013) “Removal of chromium from water effluent by adsorption onto *Vetiveria zizanioides* and *Anabaena* species.” **Natural Science** 5:341-348.
16. Jadon N, Devi N, Garg S, Kumar A, **Khasa YP** and Kumar M (2013) “Optimization of Process Parameters for the production of Cellulases under Solid State Fermentation.” **Journal of pure and applied microbiology**.” 7(1):653-660
17. Shrivastava B, Nandal P, Sharma A, Jain KK, **Khasa YP**, Das TK, Mani V, Kewalramani NJ, Kundu SS and Kuhad RC (2012) “Solid-state bioconversion of wheat straw into digestible and nutritive ruminant feed by *Ganoderma* sp. rckk02.” Accepted for publication **Bioresource Technology**107:347-351. (IF: 6.67)
18. Kumar A, Gupta R, Shrivastava B, **Khasa YP** and Kuhad RC (2012). Xylanase production from an alkalophilic actinomycete isolate *Streptomyces* sp. RCK-2010, its characterization and application in saccharification of second generation biomass. **Journal of Molecular Catalysis B: Enzymatic**, 74:170-177. (IF: 2.18)
19. **Khasa YP**, Khushoo A, Tapryal S, Mukherjee KJ (2011) “Optimization of human Granulocyte Macrophage-colony stimulating factor (hGM-CSF) expression using native asparaginase and xylanase gene’s signal sequences in *Escherichia coli*.” **Appl Biochem Biotechnol**. 165(2):523-37. (IF: 2.14)
20. Meagher MM, Seravalli JG, S. Swanson T, Ladd RG, **Khasa YP**, Inan M, Harner JC, Johnson SK, Cott KV, Lindsey C, Wannemacher R, and Smith LA. (2011) Process Development and cGMP Manufacturing of a Recombinant Ricin Vaccine: an Effective and Stable Recombinant Ricin A-Chain Vaccine RVEc™ **Biotechnology Progress** 27:1036-

1047 (IF: 2.4)

21. Deswal D, **Khasa YP** and Kuhad RC (2011) Optimization of Cellulase production by a brown rot fungus *Fomitopsis* sp. RCK2010 under Solid State Fermentation. *Bioresource Technology*, 102:6065–6072 (IF: 6.67)
22. **Khasa YP**, Conrad S, Sengul M, Plautz S, Meagher MM and Inan M (2011) Isolation of *Pichia pastoris* PIR-gene family and their utilization for cell surface display and recombinant protein secretion. *Yeast*, 28: 213–226. (IF: 2.3)
23. Kuhad RC, Gupta R, **Khasa YP**, Singh A and Percival Zhang YH (2011) Bioconversion of pentose sugars to ethanol: present and future prospects. *Renewable & Sustainable Energy Reviews*, 15: 4950– 4962 (IF: 10.56)
24. Gupta R, **Khasa YP** and Kuhad RC (2011) Evaluation of pre-treatment methods in improving the enzymatic saccharification of Cellulosic materials. *Carbohydrate Polymers*, 84:1103–1109. (IF: 6.04)
25. Shrivastava B, Thakur S, **Khasa YP**, Gupte A, Puniya AK , and Kuhad RC (2011) White rot fungal conversion of wheat straw to energy rich cattle feed. *Biodegradation*, 22(4):823-31. (IF: 2.53)
26. Gupta R, Mehta G, **Khasa YP**, and Kuhad RC (2011) Fungal delignification of lignocellulosic biomass improves the saccharification of cellulose. *Biodegradation*, 22(4):797-804. (IF: 2.53)
27. Tapryal S, **Khasa YP** and Mukherjee KJ (2010) Single chain Fv fragment specific for human GM-CSF: Selection and expression using a bacterial expression library. *Biotechnology Journal*, 1078-1089. (IF: 3.50)
28. Kuhad RC, Gupta R, **Khasa YP** and Singh A (2010) Bioethanol production from *Lantana camara* (Red sage): Pretreatment, Saccharification and Fermentation. *Bioresource Technology*, 101(21):8348-8354. (IF: 6.67)
29. **Khasa YP**, Khushoo A, Srivastava L and Mukherjee KJ (2007) Kinetic studies of constitutive hGM-CSF expression in continuous culture of *Pichia Pastoris*. *Biotechnology Letters*, 29: 1903-1908. (IF: 2.15)
30. **Pal Y**, Khushoo A and Mukherjee KJ (2006) “Process optimization of constitutive human granulocyte macrophage colony stimulating factor (hGM-CSF) expression in *Pichia pastoris* fed batch culture”. *Applied Microbiology and Biotechnology*, 69: 650-657. (IF: 3.67)

31. Khushoo A, Pal Y and Mukherjee KJ (2005) "Optimization of extracellular production of recombinant asparaginase in Escherichia coli in shake-flask and bioreactor". *Applied Microbiology and Biotechnology*, 68: 189-197. (IF: 3.67)
32. Khushoo A, Pal Y, Singh BN, and Mukherjee KJ (2004) "Extracellular expression and single-step purification of recombinant Escherichia coli L-asparaginase II". *Protein Expression and Purification*, 38(1):29-36. (IF: 1.3)
33. Pal Y, Gupta JC and Mukherjee KJ (2001) "Optimizing recombinant protein expression in the T7 system under the control of the proUp promoter". *Biotechnology Letters*, 23: 41-46. (IF: 2.15)

Book Chapter

1. Babbal, Adivitiya, Mohanty S and Khasa YP (2019) "Enzymes as Therapeutic Agents in Human Disease Management" in A handbook on high value fermentation products Editors: Saurabh Saran, Vikash Babu, Asha Chaubey by Scrivener Publishing LLC, USA. Volume 1, Chapter 10, Page 225-264.
2. Babbal, Adivitiya and Khasa Y.P. (2017). Microbes as biocontrol agents. *Probiotics and Plant Health*. Chapter 24:507-552. Springer Nature Singapore Pte Ltd. Singapore.
3. Adivitiya, Dagar VK, and Khasa Y.P. (2017). Yeast expression systems: Current status and future prospects. *Yeast Diversity in Human Welfare*. Chapter 9:215-250. Springer Nature Singapore Pte Ltd. Singapore.
4. Kumar S, Dagar VK, Khasa YP and Kuhad RC. Genetically Modified Microorganisms (GMOs) for Bioremediation in "Biotechnology for Environmental Management and Resource Recovery" published by Springer (2013) Chapter 11, Page 191-218.
5. Kuhad RC, Gupta R and Khasa YP. Microbial decolorization of colored industrial effluents. "Microbes in Environmental Management and Biotechnology" published by Springer (2012) Editors, Satyanarayana T and Johri BN. Chapter 35: Page 787-813.
6. Kuhad RC, Gupta R and Khasa YP. Bioethanol production from lignocellulosics: an overview. In: *Wealth from waste* (2011). Edited by Dr. Banwari Lal Teri Press Chapter 2: 53-106.

Conference Organization/ Presentations (in the last three years)

1. Invited guest lecture on **“Development of bioprocess strategies for the over-production of recombinant therapeutics in Yeast expression system: Streptokinase as a case study”** in International Conference on Molecular Basis of Diseases and Therapeutics (ICMBDT-2019) at Central University of Rajasthan, Kishangarh, Ajmer between March 08-10, 2019.
2. Invited guest lecture on **“Engineering of N-glycosylation and plasmin susceptible residues of recombinant streptokinase: Process development and scale-up strategies in *Pichia pastoris*”** in 6th Annual Bioprocessing India Conference on **“Recent advancements & applications in bioprocessing for healthcare, bioenergy and environment”** at Indian Institute of Technology, Delhi, Hauz Khas, New Delhi, 110016, India between December 16-18, 2018.
3. Invited guest lecture on **“Bioprocess optimization of recombinant therapeutics in methylotrophic yeast *P. pastoris* : Streptokinase as a model protein”** in 58th Annual conference of AMI titled **“Microbes for Sustainable Development: Scope & Applications”** at Babashaheb Bhimrao Ambedkar University (A Central University), Lucknow, Uttar Pradesh, India between November 16-19, 2017.
4. Invited guest lecture on **“Bioprocess development for the over-production of recombinant Streptokinase in *Pichia pastoris*”** in **National conference on Biotechnology: Exploring through Innovations (BETI)-2017"** at Central University of Haryana, Mahendergarh, Haryana, between November 13-14, 2017.
5. Invited guest lecture on **“High level production of recombinant streptokinase in *Pichia pastoris* fed-batch fermentation”** in International conference on **Translational biotechnology “BioSangam 2016”** between 4-6th February 2016, at Motilal Nehru National Institute of Technology (MNNIT) Allahabad- 211004 UP, India.
6. Invited guest Lecture on **“Extracellular production of recombinant Streptokinase in *Pichia pastoris*”** in National seminar on **“Recent advances in Agriculture, Biomedical & Environmental Biotechnology”** between May 01-02, 2015 at Anand engineering college, Agra.

7. Invited guest Lecture on “**High level expression of active recombinant streptokinase in *Pichia pastoris***” in National conference on **Evolving trends in Biotechnology** between March 28-30, 2015 at Dr. Harisingh Gour Central University, Sagar, MP-470003.
8. Invited guest Lecture on “**Recombinant therapeutics and their expression bottlenecks**” in **INDO-ITALIAN WORKSHOP ON FOOD TECHNOLOGY & COLD CHAIM MANAGEMENT** at Amity University, Noida, UP on 26th-27th November, 2014
9. Invited guest Lecture on “**Recent advancements in bioprocess technology: a case study of recombinant therapeutics expression in *E. coli***” in National conference on **Bioprocess Technology: Basics, Advancements and Challenges (BTBAC 2014)** on September 13th 2014 at Jaipur National University, Jaipur, Rajasthan-302017
10. Invited guest Lecture on “**Expression of recombinant therapeutics in *Pichia pastoris*: Human Interleukin-3 (hIL-3) as a model system**” in International conference on “**Frontier discoveries and emerging opportunities in life Sciences**” between February 13-15, 2014 at Dr. Harisingh Gour Central University, Sagar, MP-470003.
11. 54th Annual conference and international symposium on “**Frontier Discoveries and Innovations in Microbiology and its Interdisciplinary Relevance**” by Association of Microbiologist of India (AMI) at MDU Rohtak Between 17-20 November 2013.
12. 3rd National science day symposium “**Celebrating glory of Science**” on 27th and 28th February, 2013, at University of Delhi South Campus, New Delhi-110021.
13. Seminar on “**PAT based Bioprocess Optimization**” at ICGEB Campus, New Delhi on 8th May 2012.
14. 7th International Conference on Yeast Biology, Department of Biosciences & Bioengineering, Indian Institute of Technology Bombay, Powai, Mumbai-400076 from December 10-13, 2011, “**Cloning and expression of recombinant human Interleukin-7 in *Pichia pastoris***” Abstract book page 59.
15. 3rd Annual conference and Silver jubilee symposium “**Bioepoch 2011**” at School of Biotechnology, Jawaharlal Nehru University, N. Delhi-110067, India on April 1-2,

2011.

16. Poster presentation titled “*Pichia pastoris* PIR system for cell surface display and recombinant protein secretion” at 6th CONFERENCE ON RECOMBINANT PROTEIN PRODUCTION in Vienna, Austria from 16-19 February 2011.

Awards and Distinctions

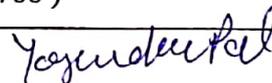
- 2019** **Best poster award** during National Science day Symposium 2019 held at University of Delhi South campus on February 27-28, 2019 titled “**Optimization of bioprocess strategies for the overproduction of catalytic domain of ubiquitin-like protease 1 (Ulp1) in *E. coli* fed-batch culture**”.
- 2017** **Best poster award** during National conference (BESCON-2017) on Biological Engineering in 21st century, held at Netaji Subhas Institute of Technology, New Delhi, India from September 8-9, 2017 titled “**High-level soluble expression of recombinant hTNF-alpha in fed-batch culture of *E.coli*.**”
- 2016** **First prize Poster presentation** at “**Young Scientists’ Conclave**” organized as a part of the India International Science Festival 2016 by the Ministry of Science & Technology, Ministry of Earth Sciences and Vigyan Bharti at CSIR-National Physical Laboratory (NPL) Campus, New Delhi during 7-11 December, 2016.
- 2016** **Dr. Rana Memorial Best Poster Award** during 57th annual conference of Association of Microbiologists of India held at Guwahati University, Guwahati, Assam from November 24-27, 2016. Abstract No. IM-05 Page No. 237 titled “**Expression of bioactive recombinant streptokinase in *Pichia pastoris* fed-batch culture**”.
- 2013** **Editorial Board Member** “Biotechnology and Molecular Biology Reviews”
- 2013** **UGC sponsored Refresher course** in Life Sciences/Biological Sciences/Bio-informatics between February 25 to March 16, 2013.
- 2013** **Platinum Jubilee Best Poster Award (AMI-2013)** at 54th annual conference of Association of Microbiologists of India at MDU Rohtak, between 17-20 November 2013. Abstract No. BTBS-16; Page no. 473 titled “**Cloning, expression and purification of human-IL-3 in *E. coli***”.

- 2010 Young Scientist Award in “*Molecular Microbiology*” by Association of Microbiologists of India (AMI).
- 2010 Best Poster Prize by The American Society for Microbiology (ASM) for the poster entitled “*Influence of Ganoderma spp rekk02 treated straw on nutrient digestibility and nitrogen balance in goats*” during the 51st Annual Conference of Association of Microbiologists of India at Birla Institute of Technology (BIT), Mesra, Ranchi December 14-17 2010.
- 2008-2009 Postdoctoral fellowship at Seattle Biomedical Research Institute, Seattle, WA-USA-98109
- 2006-2008 Postdoctoral fellowship at University of Nebraska, Lincoln, USA-68588
- 2005-2006 Senior Research fellowship (Dept. of Science and Technology, Govt. of India).
- 2002-2004 Senior Research fellowship awarded by Council of Scientific and Industrial Research, Govt. of India.
- 1999-2001 Junior Research Fellow at Jawaharlal Nehru University. (Fellowship offered by Dept. of Biotechnology, Govt. of India)
- June 2000 Cleared CSIR-NET Exam
- 1997-1999 Student scholarship from Department of Biotechnology, Govt. of India, N. Delhi, India.

Association With Professional Bodies

Memberships:

1. Life member of “Association of Microbiologists of India (AMI)” of Delhi Chapter of AMI (No. 1119 – 2010)
2. Life Member “The Biotech Research Society, India” (LM 1768)



Signature of Faculty Member

Dr. Yogender Pai Khasa
Assistant Professor
Department of Microbiology

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