




Faculty Details proforma for DU Web-site

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					
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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:		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> .				

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,</p> <p>(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	
<p>1. Resident Tutor, Aravali P.G. Men’s Hostel, University of Delhi South Campus (08-07-2010 to 06-07-2010) Tow years tenure</p>	

2. **Member**, Board of Research Studies, Faculty of inter-disciplinary & Applied sciences, University of Delhi South Campus New Delhi-110021, India (Since October 2015).

Areas of Interest / Specialization

Bioprocess Engineering, Recombinant protein expression in different heterologous system, Yeast Cell Surface Display Technology.

“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 *E. coli*, various Yeasts and Mammalian cells. Since I also work with therapeutically important recombinant proteins such as cytokines thus find natural use in industry. During past 12 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.”

Subjects Taught

Industrial and food microbiology, Microbial physiology and metabolism, Diversity of Prokaryotic and eukaryotic microbes, Plant Pathogen Interaction

Publications Profile

1. 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.
2. 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.
3. 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.

4. Adivitiya, and **Khasa YP (2016)** “The evolution of recombinant thrombolytics: Current status and future directions.” **Bioengineered (In press)**
5. 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.
6. 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.
7. 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.
8. **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.
9. 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.
10. Jadon N, Devi N, Garg S, Kumar A, **Khasa YP** and Kumar M. Optimization of Process Parameters for the production of Cellulases under Solid State Fermentation. **Journal of pure and applied microbiology**. 2013. 7(1):653-660
11. **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.
12. Shrivastava B, Nandal P, Sharma A, Jain KK, **Khasa YP**, Das TK, Mani V, Kewalramani NJ, Kundu SS and Kuhad RC. Solid state bioconversion of wheat straw

into digestible and nutritive ruminant feed by *Ganoderma* sp. rckk02. Accepted for publication *Bioresource Technology* **2012**. 107:347-351.

13. 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. Process Development and cGMP Manufacturing of a Recombinant Ricin Vaccine: an Effective and Stable Recombinant Ricin A-Chain Vaccine RVEc™ *Biotechnology Progress*. **2011**. 27:1036-1047
14. Deswal D, **Khasa YP** and Kuhad RC Optimization of Cellulase production by a brown rot fungus *Fomitopsis* sp. RCK2010 under Solid State Fermentation. *Bioresource Technology*, **2011**, 102:6065–6072
15. Kumar A, Gupta R, Shrivastava B, **Khasa YP** and Kuhad RC. 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* **2012**. **74**:170-177.
16. **Khasa YP**, Conrad S, Sengul M, Plautz S, Meagher MM and Inan M. Isolation of *Pichia pastoris* PIR-gene family and their utilization for cell surface display and recombinant protein secretion. *Yeast*: **2011**; **28**: 213–226.
17. Kuhad RC, Gupta R, **Khasa YP**, Singh A and Percival Zhang YH. Bioconversion of pentose sugars to ethanol: present and future prospects. *Renewable & Sustainable Energy Reviews*. **2011** **15**: 4950– 4962
18. Gupta R, **Khasa YP** and Kuhad RC. Evaluation of pre-treatment methods in improving the enzymatic saccharification of Cellulosic materials. *Carbohydrate Polymers*: **84**, **2011**:1103–1109.
19. Shrivastava B, Thakur S, **Khasa YP**, Gupte A, Puniya AK , and Kuhad RC. White rot fungal conversion of wheat straw to energy rich cattle feed. *Biodegradation*, 2011 Jul;22(4):823-31.
20. Gupta R, Mehta G, **Khasa YP**, and Kuhad RC. Fungal delignification of lignocellulosic biomass improves the saccharification of cellulose. *Biodegradation*, 2011 Jul; 22(4):797-804.
21. Tapryal S, **Khasa YP** and Mukherjee KJ, Single chain Fv fragment specific for human GM-CSF: Selection and expression using a bacterial expression library. *Biotechnology*

Journal, 2010.1078-1089.

22. Kuhad RC, Gupta R, **Khasa YP** and Singh A. Bioethanol production from *Lantana camara* (Red sage): Pretreatment, Saccharification and Fermentation. *Bioresource Technology*, 2010, 101(21):8348-8354.
23. **Khasa YP**, Khushoo A, Srivastava L and Mukherjee KJ. Kinetic studies of constitutive hGM-CSF expression in continuous culture of *Pichia Pastoris*. *Biotechnology Letters*. 2007 (29): 1903-1908.
24. **Pal Y**, Khushoo A and Mukherjee KJ. "Process optimization of constitutive human granulocyte macrophage colony stimulating factor (hGM-CSF) expression in *Pichia pastoris* fed batch culture". *Applied Microbiology and Biotechnology* 2006 (69): 650-657.
25. Khushoo A, **Pal Y** and Mukherjee KJ. "Optimization of extracellular production of recombinant asparaginase in *Escherichia coli* in shake-flask and bioreactor". *Applied Microbiology and Biotechnology* 2005 (68): 189-197.
26. Khushoo A, **Pal Y**, Singh BN, and Mukherjee KJ. "Extracellular expression and single step purification of recombinant *Escherichia coli* L-asparaginase II". *Protein Expression and Purification* 2004 Nov; 38(1):29-36.
27. **Pal Y**, Gupta JC and Mukherjee KJ. "Optimizing recombinant protein expression in the T7 system under the control of the proUp promoter". *Biotechnology Letters*. 2001 (23): 41-46.

Book Chapter

1. 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.
2. 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.
3. 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.
4. Kuhad RC, Gupta R and **Khasa YP**. Microbial decolorization of colored industrial

effluents. **“Microbes in Environmental Management and Biotechnology”** published by **springer (2012)** Editors, Satayanarayana T and Johri BN. **Chapter 35: Page 787-813.**

5. 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 **“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.
2. 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.
3. 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.
4. 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
5. 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-

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6. 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.
7. 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.
8. 3rd National science day symposium “**Celebrating glory of Science**” on 27th and 28th February, 2013, at University of Delhi South Campus, New Delhi-110021.
9. Seminar on “**PAT based Bioprocess Optimization**” at ICGEB Campus, New Delhi on 8th May 2012.
10. 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.
11. 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.
12. 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

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 57 th 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 <i>Pichia pastoris</i> fed-batch culture ”.
2013	Editorial Board Member “Biotechnology and Molecular Biology Reviews”
2013	UGC sponsored Refresher course in Life Sciences/Biological Sciences/Bioinformatics between February 25 to March 16, 2013.
2013	Platinum Jubilee Best Poster Award (AMI-2013) at 54 th 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 <i>E. coli</i> ”.
2010	Young Scientist Award in “ <i>Molecular Microbiology</i> ” by Association of Microbiologists of India (AMI).
2010	Best Poster Prize by The American Society for Microbiology (ASM) for the poster entitled “ Influence of <i>Gonoderma spp rekk02</i> treated straw on nutrient digestibility and nitrogen balance in goats ” during the 51 st 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:	
<ol style="list-style-type: none">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)	