

Dr. ABHILASH

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✉ Scientist, Biohydrometallurgy Lab, Recycling & Waste Utilisation Group,
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CSIR-National Metallurgical Laboratory, Jamshedpur – 831007, INDIA
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OBJECTIVE

Challenging research scientist position specialized in microbial mineral biotechnology with a high-growth engineering research organization engaged in interdisciplinary process and technological solutions in minerals, metals, materials and environment, with keen interest for expertise build-up and practice long-term research initiatives/collaborations

PROFESSIONAL OVERVIEW

- Experience in teaching under-graduate and post-graduate students in microbiology, cell biology, environmental microbiology, genetics and engaging practical labs
- Experience in sophisticated research techniques and technologies: biohydrometallurgy, microbial isolation and characterization, reactor design/operation, bioremediation and waste recycling, process testing and validation
- Organized, take-charge professional with exceptional follow through abilities and detail orientation; able to plan and forthseeing projects from concept to successful conclusion
- Demonstrated ability to efficiently prioritize a broad range of responsibilities in order to achieve maximum level of operating effectiveness
- Expertise in lab and field research, data collection/analysis and project management, ability to align with cross-functional scientific and research teams

EDUCATIONAL QUALIFICATIONS

Ph.D. (Biochem. Engg)- Biohydrometallurgy of Uranium ores, **Jadavpur University**, INDIA
M.Sc. Biotechnology (Mineral Biotechnology), **Bangalore University**, INDIA
B.Sc. Microbiology (with Chemistry), **Nagpur University**, INDIA

PROFESSIONAL EXPERIENCE (Chronologically)

Currently Employed as **Scientist**, CSIR-National Metallurgical Laboratory, Jamshedpur (since 2010)
Serving as **Assistant Professor**, ACSIR-NML, Jamshedpur
Inducted as Corporate Faculty at MRD Life Sciences, Lucknow, India
Worked as **Junior Scientist**, CSIR-National Metallurgical Laboratory, Jamshedpur (since 2007)
Served as **Project Assistant**, CSIR-National Metallurgical Laboratory, Jamshedpur
Worked as **Lecturer**, SRN ADARSH College, Bangalore University

COMPETENCY AND RESEARCH INTERESTS

RESEARCH

- **Bioleaching**: uranium from low grade indian ores, copper from low grade Indian ores and converter slag, zinc from tailings/ complex/lean ores, metals from ocean deposits, metals from industrial wastes

- **Biosorption/Bioremediation:** heavy metals from effluents, sludges, mine overburdens, acid mine drainage
- **Bio-beneficiation:** chromite, iron ores and slimes, refractory bauxite ores, manganese ores, coal, etc.
- **Material Biosynthesis:** inorganic nanomaterials from wastes
- **Biocorrosion:** microbial corrosion evaluation
- **Bioenergy:** envisaging alternate energy conversion routes

R&D PROCESSES DEVELOPED

- Isolation, characterization and purification of microbial isolates from various sources (22 Industrially important patented isolates)
- Developed the process for bioleaching of low grade silica-rich and apatite-rich ore of uranium, and tested industrial scale of realization (lab scale to 2ton column scale)
- Developed the know-how for bioleaching of low grade chalcopyrite ore (high recovery with consortia leaching)
- Developed the know-how for Biosorption/bioremediation of tannery effluents (for trivalent chromium source)
- Designed the air-lift bioreactor for large scale bioleaching of sea nodules (using extremophiles)
- Developed microbial based composite for metal remediation from aqueous wastes (product)
- Developed the know-how for bioleaching of zinc tailings and synthesis of Zn based nanomaterials (30-60nm ZnO powders of >99% purity)
- Developed know-how for microbial upgradation of iron ore slimes (upgradation from 43% Fe to 58% Fe)
- Developed process for bio-desulphurization of high sulfur coal (total sulfur reduction from 3.5% to <0.5%)

MANAGEMENT

- Managing Biohydrometallurgy Laboratory and Pilot Scale Unit
- Managed research projects and coordinated group research activities and projects
- Promoting research collaboration with inland and overseas academia, industry and research centers through active participation and in organizing lectures, conferences, short courses and workshops

EXTRACURRICULAR SKILLS

Computer Skills: Web authoring and designing, Operating systems, Business softwares,
Bioinformatics tools: NCBI, BLAST

PROJECTS HANDLED, INVOLVED, ENVISAGED

COMPLETED

- * Team Member for "Biomineral Processing for extraction of metal values from ores/concentrates/wastes", Funded by CSIR, New Delhi (2002-2007)
- * Team Member for "Treatment/bioremediation of electroplating and leather tanning effluents containing chromium", Funded by CSIR New Delhi (2002-2007)
- * Project Leader for "Microbial leaching of Narwapahar uranium ore :In House Project" (2009-10)
- * Co-Project Leader for "Bioleaching of Metals from Sea Nodules in Columns and Air Lift Reactors :In House Project" (2009-10)
- * Activity Leader for "Bioleaching of zinc ores/tailings for synthesis of nanosized Zn-based materials" under Biomaterials Module of NanoStructured Advanced Materials, Funded by CSIR, NewDelhi (2007-12)

- * Team Member for "Providing safe drinking water in rural areas using Solar Disinfection technique", Funded by DST (2007-09)
- * Team Member for "Development of cost effective mine water reclamation technology for providing safe drinking water", Funded by DST (2007-09)
- * Team Member in "Characterisation of Samples", Funded by OMML (2009-10)
- * Project Leader in "Characterisation of Copper Slag Samples", Funded by BIRLA COPPER" (2010-11)
- * Team Member in "Evaluating Corrosion of Zn-Ni Coated Steel", Funded by TATA STEEL" (2010-12)
- * Project Leader in "Biochemical beneficiation of iron ore slimes", Funded by TATA STEEL" (2011-12)
- * Project Leader in "Biosynthesis of iron oxide based magnetic nanoparticles from industrial wastes", Funded by DST-ILTP under Indo-Russian Collaboration (2010-13)
- * Activity Leader in "Biodesulfurisation of High Sulfur Indian Coals", Funded by Ministry of Steel (2011-14)
- * Project Leader in "Processing of spent Lithium Ion battery", Funded by Renault Nissan R&D, India (2012-13)
- * Project Leader in "Chemical and bioremediation of chromite mine effluents", Funded by TATA STEEL (2014)

ONGOING

- * Team Member in "Development of newer technologies for rare earth extraction from secondary resources", Funded by CSIR, New Delhi
- * Project Leader in "Hydrometallurgical replenishment of red mud for extraction of rare earth elements", Funded by NALCO
- * Project Leader in "Scale-up trials in Biobeneficiation of Joda Iron ore slimes", Funded by TATA STEEL
- * Project Leader in "Biochemical dephosphorisation of LD slag", Funded by TATA STEEL
- * Project Leader in "Extraction of REE"s from blast furnace slag", Funded by TATA STEEL

INDUSTRIAL & RESEARCH COLLABORATIONS

- * **National:** UCIL; HCL; HZL; SIL; SESA STERLITE-VAL; Binani Zinc; Himadri Group, Kolkata; Nikshepa Biomining Corporation, Bangalore; OMC; Sai Coatings Private Limited, Hyderabad; TATA STEEL; NALCO; Renault Nissan R&D India Centre ; MSPL, Hospet; Birla Copper, Dahej
- * **International:** Arafura World Resources, Perth; CSIRO, Perth; CMRDI, Cairo; ISCEOR & ICCT of Siberian Branch of Russian Academy of Sciences, Krasnoyarsk, Russia

FELLOWSHIPS & PROFESSIONAL AFFILIATIONS/MEMBERSHIPS

- * **Fellow** – Society for Applied Biotechnology, India
- * **Life Member** – Indian Institute of Mineral Engineers (IIME), Indian Institute of Metals (IIM); Association of Microbiologists of India (AMI); Indian Nuclear Society (INS); Biotech Research Society of India (BRSI); Indian Association of Nuclear Chemists and Allied Scientists (IANCAS); Materials Research Society of India (MRSI); Indian Science Congress Association (ISCA); Kerala Academy of Sciences (KAS); Administrative Staff College of India (ASCI); Society of Biological Chemists, India (SBC); National Academy of Biological Sciences, India (NABS); Chemical Research Society of India (CRSI);
- * **Member-** Society for Applied Microbiology, U.K. (SFAM); Society of Industrial Microbiology, U.S. (SIM); The Minerals, Metals & Materials Society (TMS), US; Asia-Pacific Chemical, Biological & Environmental Engineering Society (APCBEEES); European Federation of Biotechnology (EFB-FEMS); American Society of Microbiology (ASM); Indian Society of Education and Environment (ISEE); International Association of Chemical Engineers; IUPAC Affiliate Member

AWARDS AND HONOURS

- * Young Scientist Award in Nuclear Fuel Processing (bioleaching of uranium ores) by Indian Nuclear Society, DAE
- * Young Scientist Award in Environmental Microbiology by Association of Microbiologist, India
- * Young Scientist Award in Engineering Sciences by ISCA at 100th Indian Science Congress

- * Young Scientist Award in Mineral Biotechnology by Biotech Research Society of India
- * Young Metallurgist Award in Nonferrous Metallurgy by Ministry of Steel and Mines, Govt of India
- * Prof. H.J.Arnika Best PhD. Thesis awarded by Indian Assoc. Nucl. Chem. Allied Scientists (DAE)
- * Mishra Award for best paper presented in Bioprocessing at IIME's MPT-2006, Chennai
- * Mishra Award for best paper presented in Bioprocessing at IIME's MPT-2007, Mumbai
- * Mishra Award for best paper presented in Bioprocessing at IIME's MPT-2011, Udaipur
- * Mishra Award for best paper published in the area of Extractive Metallurgy by IIME for 2013-14
- * Second Prize, International Microbiology Photograph Competition, Switzerland, Oct, 2009
- * Adjudged among "Top-10" in all consecutive Fluka Microbiology Photograph Competition since 2010
- * 1st Prize in Oral Paper Presentation in "Raw Materials Category" at IIM's NMDATM2012, Jamshedpur
- * 1st Prize in Oral Paper Presentation in "Nonferrous Category" at IIM's NMDATM2012, Jamshedpur
- * 2nd Prize in Oral Paper Presentation in "Raw Materials Category" at IIM's NMDATM2012, Jamshedpur
- * 1st Prize in Poster Presentation in "Nonferrous Category" at IIM's NMDATM 2013, Varanasi
- * 2nd Prize, International Microbiology Photograph Competition, Switzerland, Oct, 2013
- * 1st Prize in Poster Presentation at Nat. Sem. Recent Advances in Biotechnology, April, 2015, Kolkata

COMMITTEE INVOLVEMENTS (CONF./ACADEMIC)

- * Program Committee Chair, Int. Conf. on Chem. Biol. Environmental Engineering, China, Dec, 2009
- * Member, Research Group on Possibilities of Valuation of H₂S in Black Sea (FP7-EU)
- * Member Expert, TPC-Biomineral Processing, IEEE-World Cong. Eng. Technol., China
- * Member, Application of Mat. Chem. Eng. (AMCE), World Academic Publishing, US
- * Member, Program Committee, Int. Conf. Metall. Technol. Mat. (ICMTM-2012), Korea
- * Member, Technical Committee, Conf. Environ. Poll. Pub. Health (CEPPH 2012), China
- * Member, Editorial Board, 15th Int. Conf. on Nonferrous Metals, 2011, Kolkata, India
- * Chairman, Editorial Board, 16th Int. Conf. Nonferrous Metals, 2012, New Delhi, India
- * Member, Editorial Board, 17th Int. Conf. on Nonferrous Metals, 2013, Ranchi, India
- * Chairman, Editorial Board, 18th Int. Conf. Nonferrous Metals, 2014, Nagpur, India
- * Co-Chairman, Editorial Board, 19th Int. Conf. on Nonferrous Metals, 2015, Bhubaneswar, India
- * Member, Editorial Board, 20th Nat. Conf. on Nonferrous Metals, 2016, Jamshedpur, India
- * Adhoc Reviewer- IMPC-2010, Australia; IMPC-2012, India; IBS-2011, China
- * PhD Examiner-reviewer for Dept. of Microbiology-Biotechnology, Gujarat University, India; BIT, Mesra
- * Int. Committee Member, SIPS-2015, Antalya, Turkey
- * Member, Emirates Association of Chemical, Biological & Environment Engineers
- * Scientific Board member, Institute of Research Engineers and Doctors
- * Scientific Board member, International Institute of Chemical, Biological & Environmental Engineering (IICBEE)

JOURNAL INVOLVEMENTS

- * Managing Executive Editor, International Journal of Nonferrous Metallurgy, U.S.
- * Member, Editorial Board, International Journal of Environmental Protection, US
- * Member, Editorial Board, Scientific Journal of Environmental Sciences, US
- * Member, Advisory Board, World Research Journal of Environment and Waste Management, US
- * Member, Editorial Board, CIBTECH Journal of Microbiology and Biotechnology
- * Reviewer to International SCI and Non-SCI Journals (Elsevier, Springer, ACS, RSC, Wiley, OMICS, etc)

CONFERENCES/SYMPOSIA/SEMINAR/WORKSHOPS ORGANISED

- * Member, Organising Committee, Training Programme on Extraction of Non-Ferrous Metals and their Recycling (NFTP-2008) at NML, Jamshedpur in Feb, 2008
- * Member, Organising Committee, Training Programme for UCIL's Management Trainees on Mineral

Processing and Extractive Metallurgy (MPEM-2008) at NML, Jamshedpur in July, 2008

- * Member, Organizing Committee- INCOME 2008, NML, Jamshedpur, Dec 2008; MINETECH-2010, Bhubaneswar, May 2010; MPT-2010, NML, Jamshedpur, Dec 2010; CSIR's SSBMT Indoor Sports Finals, NML, Jamshedpur, April 2011; LGO-2013, NML, Jamshedpur, Feb 2013; MMCA-2013, NML, Jamshedpur, Nov 2013

LECTURES DELIVERED

- * Lecture entitled **"Uranium Hydrometallurgy"** at "Training Programme on Mineral Processing and Nonferrous Extractive Metallurgy" for Mgmt. Trainees of M/s UCIL, Jaduguda; held at NML, Jamshedpur from 30th June to 5th July 2008
- * Keynote Lecture on **"Bioremediation and Resource Utilisation"** at "National Seminar on Environmental Bioremediation Technologies", held at Bharathidasan University, Tiruchirapalli, India, 5-6 Nov. 2009
- * Invited Lecture on **"Microbial composites in effluent remediation"** at "Third International Multicomponent Polymer Conference", held at MGU, Kottayam, India, 23-25 Mar. 2012
- * National Science Day Lecture on **"Role of Biotechnology for Shaping Future of Science"** delivered at The Institution of Engineers, Jamshedpur, India, 6th Feb 2013.
- * Invited Lecture on **"Mineral Biotechnology - an inherent tool for mining industry"** at Department of Microbiology and Biotechnology, Gujarat University, Ahmedabad, India, 22-23rd March 2013
- * Invited Keynote Lecture delivered on **"Thermophilic bioleaching of chalcopyrite"** at ICHM-2014, Beijing, China
- * Invited Resource Lecture on **"Role of Microbiology in Minerals-Metals-Materials and Environment Sector"** at National Seminar on Dynamic Microbes at Modern College, Pune, India, 20-21st Feb 2015
- * Invited Lecture on **"Applications of microbial biotechnology in metallurgical industries"** at BRSI's National Seminar on Recent Advances in Biotechnology, IICB, Kolkata, India, 17th April 2015

FOREIGN VISITS

- * **EGYPT:** MINERALS TO MATERIALS CONFERENCE - 2008, organized by Central Metallurgical Research and Development Institute (CMRDI), Egypt, 15th- 18th December, 2008.
- * **AUSTRALIA:** ALTA-2010, organized by ALTA Metallurgical Services, Perth, Australia, 24-29th May, 2010.
- * **RUSSIA:** Bilateral Exchange visit Programme under Indo-Russian Collaboration and Oral Paper Presentation at 11th International Congress on Nonferrous Metals 2011(31.08.2011-14.09.2011) in Krasnoyarsk.
- * **CHINA:** 3rd International Conference on Asian Nuclear Prospects (ANUP-2012), organized by Tsinghua University (Beijing), INS, IAEA, CAN and KAERI, 16-19th October, 2012.
- * **CHINA:** XXVIth International Symposium on Environmental Biogeochemistry (ISEB-2013), Wuhan, China, 13-18th October 2013.
- * **CHINA:** 6th International Conference on Hydrometallurgy (ICHM-2014), Beijing, China, 16-19th Oct, 2014.

TRAINING UNDERTAKEN

- * School on Mineral Biotechnology, at IISC, Bangalore in December 2009
- * Change Leaders Workshop, at NML, Jamshedpur in August 2010
- * Training Program on Technology Valorization and Management, at ASCI, Hyderabad in Feb 2011.
- * Career Development Workshop by M/s Groman Consulting S.A., at NML, Jamshedpur in Dec 2011.

STUDENTS GUIDANCE/TRAINING IMPARTED

- * Classes for ACSIR students, New Recruit Scientists and National/International Interns
- * Summer Training: 16 (B.Tech/B.Sc./M.Sc.)
- * Dissertation: 17 (M.Sc.); 02(M.Tech)

PUBLICATIONS

(Journals, Conf, Presentations, Books Authored/Edited, Chapters in Books)

 **Journals**
Published

1. **Abhilash**, S.Singh, K.D.Mehta, V.Kumar, B.D.Pandey, V.M.Pandey, *Dissolution of uranium from silicate-apatite ore by Acidithiobacillus ferrooxidans*, Hydrometallurgy, 2009, 95(1-2), 70-75
2. **Abhilash**, K.D.Mehta, V. Kumar, B.D. Pandey, P.K. Tamrakar, Column Bioleaching of a Low-Grade Silicate Ore of Uranium, Mineral Processing and Extractive Metallurgy Review, 2010, 31(4), 224 – 235
3. **Abhilash**, B.D.Pandey, Role of ferric ions in bioleaching of uranium from a low tenor Indian ore, Canadian Metallurgical Quarterly, 2011, 50(2), 102-112.
4. **Abhilash**, K.Revati, B.D.Pandey, Microbial synthesis of iron based nanomaterials- A Review, Bulletin of Material Science, 2011, 34(2), 1–8.
5. **Abhilash**, K.D.Mehta, V.Kumar, B.D.Pandey, P.K.Tamrakar, Bioleaching - an alternate uranium ore processing technology for India, Energy Procedia, 2011, 7, 158-162.
6. **Abhilash**, R.Venkat Raman, K.D.Mehta, B.D.Pandey, Isolation and biochemical characterization of native marine isolates from Indian ocean nodules, Indian Journal of Geo-Marine Sciences, 2011, 40(5), 648-652.
7. **Abhilash**, B. Dhal, K.D. Mehta, V. Kumar and B.D. Pandey, Bio-processing for metal extraction, recycling and effluent treatment- an overview, The Banaras Metallurgist, 2011, 16, 109-115
8. **Abhilash**, K.D.Mehta, V. Kumar and B.D.Pandey, Efficacy of bacterial adaptation on copper biodissolution from a low grade chalcopyrite ore by *A. ferrooxidans*, Int. Journal of Nonferrous Metallurgy, 2012, 1, 1-7.
9. **Abhilash**, Divya G Nair, Kirtal Hansdah, B. Dhal, K. D. Mehta, B. D. Pandey, Bioremoval of chromium (III) from model tanning effluent by novel microbial isolate, Int. Journal of Metallurgical Engg., 2012, 1(2), 12-16.
10. **Abhilash**, B.D.Pandey, Synthesis of zinc-based nanomaterials: a biological perspective, IET-Nanobiotechnology, 2012, 6(4), 144-148.
11. **Abhilash**, B.D.Pandey, L.Ray, Bioleaching of apatite rich low grade Indian uranium ore, Canadian Metallurgical Quarterly, 2012, 51(4), 390-413.
12. **Abhilash**, S.C.Pal, K.D.Mehta, B.D.Pandey, T.R.Mankhand, Bioprocessing of a low-grade chalcopyrite ore by the isolate of *Acidithiobacillus ferrooxidans*, Int. Journal of Metallurgical Engg., 2012, 1(5), 72-77
13. **Abhilash**, B.D. Pandey, Microbially assisted leaching of uranium – A Review, Mineral Processing and Extractive Metallurgy Review, 2013, 34(2), 81-113.
14. **Abhilash**, B.D.Pandey, Microbial processing of apatite rich low grade Indian uranium ore in bioreactor, Bioresource Technology, 2013, 128, 619–623.
15. **Abhilash**, B.D.Pandey, Bioreactor leaching of uranium from a low grade Indian silicate ore, Biochemical Engineering Journal, 2013, 71, 111-117.
16. **Abhilash**, K.D.Mehta, B.D.Pandey, Bacterial leaching kinetics for copper dissolution from a low grade Indian Chalcopyrite ore, REM: Revista Escola de Minas, 2013, 66(2), 245-250.
17. B.Dhal, **Abhilash**, B.D.Pandey, Process optimization for bio-beneficiation of a chromite concentrate by a Cr(VI) reducing native microbe (*Bacillus* sp.), **International Journal of Mineral Processing**, 2013, 123, 129-136.

18. **Abhilash**, B.D.Pandey, A.K.Singh, Comparative performance of uranium bioleaching from low grade Indian apatite rock in column and bioreactor, *Energy Procedia*, 2013, 39, 20-32.
19. **Abhilash**, Shivendra Sinha, Manish Kumar Sinha, B.D.Pandey, Extraction of lanthanum and cerium from Indian red mud, *Int. J. Min. Proc.*, 2014, 127, 70-73.
20. Bhargav C. Patel, Manish Kumar Sinha, Devayani R. Tipre, **Abhilash**, Shailesh R. Dave, A novel biphasic leaching approach for the recovery of Cu and Zn from polymetallic bulk concentrate, *Bioresource Technology*, 2014, 157, 310-315.
21. N.Srivastava, B.Dhal, **Abhilash**, B.D.Pandey, Bioreduction of hexavalent chromium by *Bacillus cereus* isolated from chromite mine overburden soil, *Advanced Materials Research*, 2014, 828, 81-92.
22. B.Dhal, **Abhilash**, and B.D.Pandey, Microbial removal of trivalent chromium from model tanning bath, *Advanced Materials Research*, 2014, 828, 33-44.
23. A.Ghosh, **Abhilash**, B.D.Pandey, Native microbes in desulphurization of Meghalaya Coal, *Indian Journal of Geo Marine Sciences* (Vol. 44, April 2015)
24. **Abhilash**, A.Ghosh, B.D.Pandey, Bioleaching of low grade granitic chalcopyrite ore by hyperthermophiles: Elucidation of kinetics-mechanism, *Metallurgical Research and Technology*, Vol. 112, 506 (2015); DOI: 10.1051/metal/2015031
25. **Abhilash**, A.Ghosh, B.D.Pandey, S.Sarkar, Microbial variants from iron ore slimes: mineral specificity and pH tolerance, *Indian Journal of Microbiology*, (Oct–Dec 2015) 55(4):430–439.
26. Yu L Gurevich, M I Teremova, G N Bondarenko, S L Kislak, **Abhilash**, Bio-chemical leaching of kaolinite-hematite-boehmite type bauxite ore, *Indian Journal of Chemical Technology*, 2015, 22(5), 248-252.
27. S.Sinha, **Abhilash**, P.Meshram, B.D.Pandey, Metallurgical processes for the recovery and recycling of lanthanum from various resources-a review, *Hydrometallurgy*, 2016, 160, 47-59.
28. Pratima Meshram, **Abhilash**, Jyotsna Kumari, B.D.Pandey, Extraction of Vanadium and Synthesis of Vanadium Pentaoxide from Bayer's Sludge, *Russian Journal of Non-Ferrous Metals*, 2016, Vol. 57, No. 4, pp. 338–346

Accepted

29. M.I. Teremova, E.A. Petrakovskaya, A.S. Romanchenko, F.V. Tuzikov, Yu.L.Gurevich, O.V. Tsibina, E.K. Yakubailik, **Abhilash**, Ferritisation of industrial waste water and microbial synthesis of iron-based magnetic nanomaterials from sediments, *Environmental Progress and Sustainable Energy (AiChE)*, DOI: 10.1002/ep.12368
30. Pratima Meshram, **Abhilash**, B.D.Pandey, T.R.Mankhand, H.Deveci, Comparison of different reductants in leaching of spent lithium ion batteries, *Journal of Metals*, DOI: 10.1007/s11837-016-2032-9
31. Pratima Meshram, **Abhilash**, B.D.Pandey, T.R.Mankhand, H.Deveci, Acid baking of spent lithium ion batteries for selective recovery of major metals: A Two-Step Process, *Journal of Industrial and Engineering Chemistry*, DOI: 10.1016/j.jiec.2016.07.056

● Conferences (National & International)

National

1. **Abhilash**, S.Singh, K.D.Mehta, Vinay Kumar, B.D.Pandey and V.M.Pandey, Microbially catalysed process for uranium dissolution from its ore, In. Proc. MPT-2006, Chennai, Vol.2, pp.717-724
2. **Abhilash**, P.Ravi, Mehta K.D., Kumar V., Pandey B.D. and Tamrakar.P.K., Column Bioleaching for Uranium Dissolution from a Low Grade Indian Silicate Ore, In. Proc. National Seminar on Mineral Biotechnology-2007, Bhubaneswar, pp.83-91.
3. Pal,S.C., Mehta,K.D., **Abhilash**, Kumar,V., Pandey,B.D. and Mankhand.T.R., Copper Biodissolution from a low grade Chalcopyrite ore by unadapted/adapted Acidithiobacillus ferrooxidans, In. Proc. National Seminar on Mineral Biotechnology-2007, Bhubaneswar, pp.110-121.
4. **Abhilash**, Mehta, K.D., Kumar,V. and Pandey, B.D., Biosorption of trivalent chromium from a model tanning solution by adapted Aspergillus niger, In.Proc. National Seminar on Mineral Biotechnology-2007, Bhubaneswar, pp.190-201.
5. **Abhilash**, Mehta K.D., Kumar V., Pandey B.D. and Tamrakar.P.K, Amenability of low-grade uranium towards Column Bioleaching by Acidithiobacillus ferrooxidans, In.Proc. MPT-2007,Mumbai,pp.345-349
6. Pal.S.C,**Abhilash**, Mehta,K.D., Kumar,V., Pandey,B.D.and Markhand,T.R., Copper biodissolution from a low grade Chalcopyrite ore using adapted Acidithiobacillus ferrooxidans, In.Proc. MPT-2007,Mumbai, pp.524-527.
7. Mehta, K.D., **Abhilash**, Verma,V.K., Kumar V. and Pandey, B.D., NML's Efforts in bio-processing of low grade ores of Copper and Uranium- an experimental overview, In. Proc. Non-Ferrous Meet-2007, Raipur, Tech-B-1/1-1/12.
8. S.Anand Ram, **Abhilash**, K.D. Mehta, B.D. Pandey and T.R. Mankhand, Microbial Dissolution of a low grade Indian chalcopyrite ore using mixed culture of mesophiles, Proc. Int. Sem. Min Proc. Tech (MPT-2008), April 22-24 2008, Trivandrum, Ed. P.N.Mohandas, pp.346-350.
9. K.D. Mehta, **Abhilash**, S.Anand Ram, B.D.Pandey and T.R.Mankhand, Improving chalcopyrite biodissolution from low grade Indian copper ore by microbial consortia, Proc. XIIth Int. Conf. Non-Ferrous Minerals and Metals (NFMM-2008), July 4-5 2008, Nagpur, Eds., M.K.B.Nair, C.R.Mishra and C.Ramaswamy, pp. Tech-6-1/1-1/9.
10. B.Dhal, **Abhilash**, K.D. Mehta, and B.D.Pandey, Biological remediation of trivalent chromium from effluents, In. Proc. XIIIth Int. Conf. Non-Ferrous Minerals and Metals (ICNFMM-2009), Eds., C.R.Mishra and S.Majumdar, July 10-11, 2009, Bhubaneswar, pp.Tech-4/1-4/9.
11. Nivedita Singh, **Abhilash**, K.D.Mehta and B.D.Pandey, Kaolinite based microbial composite in Cr(III) sorption from waste waters, In. Proc. Nat. Sem. on Environmental Management in Metallurgical Industries, Varanasi, 15-16th March 2010,Eds. R.C.Gupta, pp.61-68.
12. **Abhilash**, B.Dhal, K.D.Mehta, V.Kumar, B.D.Pandey, Bio-Processing For Metal Extraction, Recycling And Effluent Treatment- An Overview, In. Proc. International Conference on Non-ferrous Metals 2010, Varanasi, India, Eds: T. R. Mankhand, N. K. Mukhopadhyay, C. R. Mishra, Tech-6/1 - Tech6/8.
13. **Abhilash**, K.D.Mehta, V.Kumar, B.D.Pandey and P.K.Tamrakar, Bioleaching - An Alternate Uranium Ore Processing Technology For India, In. Proceedings of ANUP 2010 – 2nd International Conference on ASIAN NUCLEAR PROSPECTS 2010 Chennai, India – 11-13 October 2010 Eds. K.G.Kutty, P.V.Rao, Baldev Raj, pp.232-235.
14. **Abhilash**, B.D.Pandey, L.Ray, Kinetics and mechanism of uranium bioleaching from a low grade indian ore, In. Proc. Int.Sem. Min.Proc.Tech. (MPT-2010), Eds.R.Singh, A.Das, P.K.Banerjee, K.K.Bhattacharya, N.G.Goswami, December 2010, pp.969-975.
15. **Abhilash**, B.D.Pandey, A.K.Singh, Bioreactor leaching of Turamdih uranium ore, In. Proc. 16th Int. Conf. Nonferrous Metals-2012, New Delhi, India, (Eds.) Abhilash, T.R.Mankhand and P.Lange. pp. Tech-4/1 to Tech4/7

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2. Editor for **“Lecture compendium on mineral processing and non-ferrous extractive metallurgy”**, NML-CSIR
3. Author for **“Chromium(III) biosorption by fungus”**, Lambert Academic Publishing House, GmbH (ISBN 978-3-8443-8975-3)
4. Editor for book entitled **“Harnessing of nonferrous minerals, metals and wastes”**, (Co-edited by B.D.Pandey, T.R.Mankhand), Trans Tech Publishers, Switzerland
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3. A microbial process for bioleaching of zinc tailings and biosynthesis of zinc oxide nanopowders
4. Process for microbial upgradation of iron ore slimes (Jointly with TATA STEEL)
5. A hydrometallurgical process for extraction of metal values from spent lithium ion EV batteries (Jointly with Renault Nissan Tech Business Centre, India)
6. A biochemical method for selective extraction of metal values from spent lithium ion EV batteries (Jointly with Renault Nissan Tech Business Centre, India)
7. An improved process for synthesis of ultrapure copper powder from spent lithium ion batteries
8. An improved microbial process for dephosphorisation of LD slag (Jointly with TATA STEEL)
9. A novel pre-treatment-cum-leaching process for selective extraction and separation of La, Ce and Sc from red mud as oxides (Jointly with NALCO)
10. A process for selective extraction of lanthanum, cerium and neodymium from blast furnace slag as oxalates/oxides (Jointly with TATA STEEL)

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