

Curriculum Vitae

DR SACHIN KUMAR

Associate Professor
Department of Biochemical Engineering
Harcourt Butler Technical University,
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Academic Profile

Ph.D. in **Chemical Engineering** specialization in **Biochemical Engineering** from Indian Institute of Technology Roorkee (India)

M.Tech. in **Biochemical Engineering** from Harcourt Butler Technological Institute, Kanpur (India)

B.Tech. in **Biochemical Engineering** from Harcourt Butler Technological Institute, Kanpur (India)

Work Experience

Associate Professor at Harcourt Butler Technical University, Kanpur **Jul 2025 to present**.

Deputy Director/Scientist-C at Sardar Swaran Singh National Institute of Bio-Energy (An Autonomous Institution of Ministry of New and Renewable Energy, Government of India), Kapurthala (India) **Jan 2016 to Jul 2025**.

Visiting Professor at South Dakota School of Mines & Technology, Rapid City, USA **Nov 2016 to Oct 2017**.

Assistant Director/Scientist-B at Sardar Swaran Singh National Institute of Bio-Energy (An Autonomous Institution of Ministry of New and Renewable Energy, Government of India), Kapurthala (India) **Jul 2009 to Dec 2015**.

Senior Research Fellow at Indian Institute of Petroleum, Dehradun (India), **May 2006- Jun 2009**.

Junior Research Fellow at Indian Institute of Petroleum, Dehradun (India), **May 2004- Apr 2006**.

Administrative Roles

Head of Division in the Biochemical Conversion Division, SSS-NIBE, Kapurthala **Sep 2022 to Jun 2025**.

Drawing and Disbursement Officer at SSS-NIBE, Kapurthala **Jun 2022 to Jun 2025**.

Head, Administration at SSS-NIBE, Kapurthala **Jun 2018 to Apr 2024**.

Head, Civil at SSS-NIBE, Kapurthala **Oct 2024 to Jun 2025**.

Services

DPR Preparation (BioCNG/ CBG/ Biogas/ 2G Ethanol Plants)

DPR / Technical-Economic Feasibility Evaluation (BioCNG/ CBG/ Biogas/ 2G Ethanol Plants)

Technical Consultancy (BioCNG/ CBG/ Biogas/ 2G Ethanol Plants)

Projects

On-going projects

1. Advanced microalgal biorefinery approach for recycling of domestic sewage/wastewater for cleaner and greener Himalayan region. (**PI**); Duration: 3years (Mar 2023); Funded by MoEF&CC; Project cost: INR 96.75 Lakhs.
2. Densification of Agro waste and assessment for its application in gasifier. (**Co-PI**); Duration: 2.5 years (Mar 2022); Funded by MNRE; Project cost: 40.45 Lakhs
3. Thermophilic anaerobic consortium enrichment for enhanced biogas/biomethane production (In-house project)

4. Scale-up and techno-economic analysis of biogas plant in thermophilic anaerobic digestion (In-house project)
5. Biogas/ Bio-CNG plant design and standardization (In-house project)
6. Biogas upgradation to BioCNG (In-house project)

Consultancy project

1. Testing of ORS-developed catalysts on Biomethanation process (Different feedstocks). Duration: 6 months (Dec 2024 – May 2025); Funded by Organic Recycling Systems Ltd.; Project Cost: INR 5.58 Lakhs
2. Draft Course/Training Module for Technicians in Biomass Energy Technology. (Co-PI) Duration: 6 months (Jan-Jun 2015); Funded by MNRE; Project Cost: INR 5.00 Lakhs

Completed projects

1. Exploration of lignocellulolytic enzymes producing thermophiles from hot springs of Western Himalayan region for biorefinery applications. (**Mentor**); Under DST Women Scientist Scheme: WOS-B (KIRAN Division). Duration: 3 years (Oct 2021-Sep 2024); Project Cost: INR 32,16,072.
2. Biorefinery approach for generation of platform chemicals and bioethanol from indigenous lignocellulosic agrowaste bioresources (**PI**); Duration: 3 years (Mar 2017-Feb 2020); Funded by DBT in collaboration with Tezpur University, Assam; Project cost: 69.60 Lakhs
3. Biorefining of sugarcane bagasse for production of bioethanol and value-added products (**Coordinator**); Duration: 4.5 years (May 2016-Oct 2020); Funded by DBT under Indo-Brazil bilateral collaboration with IFSC/USP, Brazil; Project cost: INR 129.264 Lakhs
4. Development of NADP⁺ dependent xylitol dehydrogenase in *Kluyveromyces marxianus* (**PI**); Duration: 1 year (Nov 2016-Oct 2017); Funded by DBT and IUSSTF under Bioenergy- Awards for Cutting Edge Research (B-ACER); Project cost: USD 40,000.00
5. Identification of xylose transporters and co-enzyme specificity for xylitol dehydrogenase in *Kluyveromyces marxianus* (**PI**); Duration: 6 weeks (Feb 13 to Mar 24, 2017); Funded by American Society for Microbiology and IUSSTF under the ASM-IUSSTF Indo-US Research Professorship; Project cost: USD 5,000.00
6. Biogas production and utilization for heat and power generation applications using potential alternative feed-stocks. (**PI**) Duration: 2 years (Jul 2014-Jun 2016); Funded by MNRE; Project Cost: INR 38.04 Lakhs
7. Process development for bioethanol production from agricultural residues, Phase-I: Development of process for co-fermentation of hexose and pentose sugars of agricultural residues. (**PI**) Duration: 3.5 years (May 2012-Oct 2015); Funded by MNRE; Project Cost: INR 134.04 Lakhs
8. Biocrude Production: Hydro-cracking of non-edible vegetable oil. (**Co-PI**) Duration: 3 years (Nov 2011-Oct 2014); Funded by MNRE, New Delhi; Project Cost: INR 68.40 Lakhs
9. Integrated Technology Development for Biodiesel Production using Heterogeneous Catalyst. (**Co-PI**) Duration: 2 years (Oct 2010- Sep 2012); Funded by MNRE, New Delhi; Project Cost: INR 88.27 Lakhs

In-house projects

1. Identification and characterization of algal species for power generation
2. Development of yeast strain with enhanced xylose utilization for ethanol production
3. Studies on efficient pretreatments for cellulosic ethanol production from paddy straw
4. Process development for bioethanol production from multi-lignocellulosic feedstocks (paddy straw, maize husk, sugarcane bagasse)
5. Synthesis and characterization of membrane for biogas upgradation

Patents

1. **Sachin Kumar** and Meenu Hans, **Integrated biorefinery for renewable biochemicals**; (Application No.: 202311021226; Dated: 24/03/2023; Country: India). Published in the Patent Office Journal, Issue No. 39/2024; Dated 27/09/2024, Page No. 88065.

2. **Sachin Kumar** and Jagdish Gabhane, **Process for pretreatment of crop residues for enzymatic saccharification**; (Application No.: 202311013508; Dated: 28.02.2023; Country: India). Published in the Patent Office Journal, issue no. 35/2024 dated 30/08/2024, Page No. 77817.
3. **Sachin Kumar**, Meenu Hans, Richa Singh, Nidhi Sahni and Pratibha Dheeran, **Method of producing biogas from lignocellulosic biomass**; (Application No.: 202211024777; Dated: 27.04.2022; Country: India). Published in the Patent Office Journal, issue no. 02/2024 dated 12/01/2024, Page No. 4187.
4. **Sachin Kumar**, Richa Arora, Nilesh K Sharma and Shuvashish Behera, **Simultaneous Saccharification and Co-Fermentation of Paddy Straw for Bioethanol Production**; (Application No.: 202211001560; Dated: 11.01.2022; Country: India). Published in the Patent Office Journal, issue no. 28/2023 dated 14/07/2023., Page No. 49277.
5. DK Adhikari, **Sachin Kumar**, CD Sharma and Deep Chand, **Strain and a novel process for ethanol production from lignocellulosic biomass at high temperature**. (Patent No.: **US 8,268,600** dated **Sep 18, 2012**; Country: **USA**).
6. DK Adhikari, **Sachin Kumar**, CD Sharma and Deep Chand, **Thermophilic ethanol producing yeast strain**. (Patent No. 391026 dated Mar 02, 2022; Country: India).

Publications

In Peer-reviewed SCI Journals:	52
In Peer-reviewed Non-SCI Journals:	05
Book Chapters:	26
Articles in Conference Proceedings:	18
Modules:	02
Books:	06
Conference Proceedings:	06
Souvenir:	02

In Peer-reviewed SCI Journals

1. Sharma A, Chandel AK, **Kumar S** (2025) **Strategies to reduce carbon and water footprints in lignocellulosic biorefineries towards net zero carbon emissions**. Sustainable Energy Technologies and Assessments (Accepted). (IF: 7.0)
2. Kaur G, Basak N, **Kumar S** (2025) **Enrichment of Thermophilic Consortium Using Different Inoculum Sources for Enhanced Biogas Production**. Industrial Biotechnology (In press). (IF 1.3)
3. Sharma NK, Behera S, Arora R, Sharma A, **Kumar S** (2025) **Evolutionary Adaptation to Enhance Xylose Metabolism in Thermotolerant *Kluyveromyces marxianus***. Industrial Biotechnology, 21(3), 197-208. (IF 1.3)
4. Singh R, Hans M, Sani R, Dheeran P, Yadav N, Kaur G, **Kumar S** (2025) **Development of a process for enhanced biogas production from lignocellulosic feedstocks using an efficient thermophilic inoculum and its metagenomic study**. Biocatalysis and Agricultural Biotechnology, 64, 103519. (IF 3.4)
5. Sharma S, **Kumar S** (2024) **Exploration of Thermophilic Lignocellulolytic Enzymes Producing Bacterial Strains from Hot Springs of Western Himalayan Range**. Indian Journal of Microbiology. (In press) <https://doi.org/10.1007/s12088-024-01385-5> (IF 2.1)
6. Hans M, Umrao D, Velusamy M, Kumar D, **Kumar S** (2024) **Biochemical conversion of municipal solid waste to biofuels and bioproducts: a review**. Environmental Science and Pollution Research. (In press) <https://doi.org/10.1007/s11356-024-35667-8> (IF 5.8)
7. Arora R, Singh P, Sarangi PK, **Kumar S** and Chandel AK (2024) **A critical assessment on scalable technologies using high solids loadings in lignocellulose biorefinery: challenges and solutions**. Critical Reviews in Biotechnology 44 (2), 218-235. (IF: 9.062)
8. Dhull P, Mozhiarasi V, Kumar S, Benish Rose PM, Lohchab RK (2024) **Current and prognostic overview of digestate management and processing practices, regulations and standards**. Biocatalysis and Agricultural Biotechnology, 61,103345. (IF 3.4)

9. Kaur G, Basak N, **Kumar S** (2024) **State-of-the-art techniques to enhance biomethane/biogas production in thermophilic anaerobic digestion.** *Process Safety and Environmental Protection*, 186, 104-117. **(IF 7.8)**
10. Dhull P, **Kumar S**, Yadav N, Lohchab RK (2024) **A comprehensive review on anaerobic digestion with focus on potential feedstocks, limitations associated and recent advances for biogas production.** *Environmental Science and Pollution Research* (In-press). **(IF 5.8)**
11. Dhull P, Lohchab RK, **Kumar S**, Kumari M, Shaloo, Bhankhar AK (2024) **Anaerobic Digestion: Advance Techniques for Enhanced Biomethane/Biogas Production as a Source of Renewable Energy.** *BioEnergy Research* 17, 1228-1249. **(IF: 3.6)**
12. González-Gloria KD, Tomás-Pejó E, Amaya-Delgado L, Rodríguez-Jasso RM, Loredó-Treviño A, Singh A, Hans M, Martín C, **Kumar S**, Ruiz HA (2024) **Biochemical and Biorefinery Platform for Second-Generation Bioethanol: Fermentative Strategies and Microorganisms.** *Fermentation*. 10(7):361. **(IF: 3.6)**
13. Hans M, Pellegrini VO, Filgueiras JG, de Azevedo ER, Guimaraes FE, Chandel AK, Polikarpov I, Chadha BS, **Kumar S** (2023) **Optimization of Dilute Acid Pretreatment for Enhanced Release of Fermentable Sugars from Sugarcane Bagasse and Validation by Biophysical Characterization.** *BioEnergy Research* 16 (1), 416-434. **(IF: 3.6)**
14. Hans M, Lugani Y, Chandel AK, Rai R, **Kumar S** (2023) **Production of first- and second-generation ethanol for use in alcohol-based hand sanitizers and disinfectants in India.** *Biomass Conversion and Biorefinery* 13 (9), 7423-7440. **(IF: 4.987)**
15. Singh R, Hans M, Kumar S, Yadav YK (2023) **Thermophilic Anaerobic Digestion: An Advancement towards Enhanced Biogas Production from Lignocellulosic Biomass.** *Sustainability* 15 (3), 1859. **(IF: 3.889)**
16. Behera, S, Sharma NK and **Kumar S** (2023) **Augmentation of Bio-butanol Production Through Isolation, Screening and Optimization of Growth and Fermentation Parameters Using Response Surface Methodology.** *Sugar Tech* 25 (3), 531-541. **(IF: 1.872)**
17. Garg S, Behera S, Ruiz HA and **Kumar S** (2023) **A Review on Opportunities and Limitations of Membrane Bioreactor Configuration in Biofuel Production.** *Applied Biochemistry and Biotechnology* 195, 5497–5540. **(IF: 3.094)**
18. Hans M, Garg S, Pellegrini VO, Filgueiras JG, de Azevedo ER, Guimaraes FE, Chandel AK, Polikarpov I, Chadha BS, **Kumar S** (2021) **Liquid Ammonia Pretreatment Optimization for Improved Release of Fermentable Sugars from Sugarcane Bagasse.** *Journal of Cleaner Production*, 281, 123922. Doi: 10.1016/j.jclepro.2020.123922. **(IF: 11.072)**
19. Sani AM, Savla N, Pandit S, Mathuriya AS, Gupta PK, Khanna N, Babu RP, **Kumar S** (2021) **Recent advances in bioelectricity generation through the simultaneous valorization of lignocellulosic biomass and wastewater treatment in microbial fuel cell.** *Sustainable Energy Technologies and Assessments*, 48, 101572. Doi: 10.1016/j.seta.2021.101572. **(IF: 7.632)**
20. Arora R, Behera S, Sharma NK, Singh I, Ransore V, Saiyyed R and **Kumar S** (2020) **Bioprospecting Saccharification of Alkali Pretreated Paddy Straw Through Statistically Designed Parameters for Biofuel Production.** *Industrial Biotechnology*, 16(6), 375-385. **(IF: 1.3)**
21. Lugani Y, Rai R, Prabhu A, Maan P, Hans M, Kumar V, **Kumar S**, Chandel A, Sengar R (2020) **Recent advances in bioethanol production from lignocelluloses: a comprehensive review with a focus on enzyme engineering and designer biocatalysts.** *Biofuel Research Journal*, 7(4), 1267-1295. doi: 10.18331/BRJ2020.7.4.5 **(IF: 6.886)**
22. Gabhane J, **Kumar S** and Sarma AK (2020) **Effect of glycerol thermal and hydrothermal pretreatments on lignin degradation and enzymatic hydrolysis in paddy straw.** *Renewable Energy*, 154, 1304-1313. **(IF: 8.634)**
23. Gabhane J, Bhangre VP, Patil PD, Bankar ST, **Kumar S** (2020) **Recent trends in biochar production methods and its application as a soil health conditioner: a review.** *SN Applied Science*, 2, 1307. <https://doi.org/10.1007/s42452-020-3121-5> **(IF: 2.8)**
24. Chandel AK., Garlapati VK, Jeevan Kumar SP, Hans M, Singh AK and **Kumar S** (2020) **The role of renewable chemicals and biofuels in building a bioeconomy.** *Biofuels, Bioproducts & Biorefining*, 14(4), 830-844. DOI: 10.1002/bbb.2104 **(IF: 5.239)**

25. Arora R, Behera S, Sharma NK and **Kumar S** (2019) **Evaluating the pathway for co-fermentation of glucose and xylose for enhanced bioethanol production using flux balance analysis.** *Biotechnology and Bioprocess Engineering*, 24, 924–933. (IF: 1.438)
26. Hans M, **Kumar S**, Chandel AK and Polikarpov I (2019) **A review on bioprocessing of paddy straw to ethanol using simultaneous saccharification and fermentation.** *Process Biochemistry*, 85, 125-134. (IF: 4.885)
27. Hans M and **Kumar S** (2019) **Biohythane production in two-stage anaerobic digestion system.** *International Journal of Hydrogen Energy*, 44(32), 17363-17380. (IF: 7.139)
28. Singh R and **Kumar S** (2019) **A review on biomethane potential of paddy straw and diverse prospects to enhance its biodigestibility.** *Journal of Cleaner Production*, 217, 295-307 (IF: 11.072)
29. Shukla M and **Kumar S** (2018) **Algal growth in photosynthetic algal microbial fuel cell and its subsequent utilization for biofuels.** *Renewable & Sustainable Energy Reviews*, 82, 402-414. (IF: 10.556)
30. Sharma NK, Arora R, Behera S, **Kumar S** and Sani RK (2018) **Xylose transport in yeast for lignocellulosic ethanol production: current status.** *Journal of Bioscience and Biotechnology*, 125, 259-267. (IF: 2.032)
31. Baruah J, Nath BK, Sharma R, **Kumar S**, Deka RC, Baruah DC and Kalita E (2018) **Recent Trends in the Pretreatment of Lignocellulosic Biomass for Value-Added Products.** *Frontiers in Energy Research*. 6, 141. doi: 10.3389/fenrg.2018.00141 (IF: 2.746)
32. Maan P, Kadam A, Kumar A, Kumar S and Dutt D (2018) **Process parameters optimization of *Casuarina equisetifolia* for enhanced production of bleachable grade kraft pulp through RSM.** *BioResources* 13(4), 8802-8813. (IF: 1.334)
33. Sharma NK, Arora R, Behera S and **Kumar S** (2017) **Evolutionary Adaptation of *Kluyveromyces marxianus* NIRE-K3 for Enhanced Xylose Utilization.** *Frontiers in Energy Research*, 5:32. doi: 10.3389/fenrg.2017.00032. (IF: 2.746)
34. Arora R, Behera S, Sharma NK and **Kumar S** (2017) **Augmentation of ethanol production through statistically designed growth and fermentation medium using novel thermotolerant yeast isolates.** *Renewable Energy*, 109, 406-421. (IF: 4.9)
35. Sharma NK, Behera S, Arora R and **Kumar S** (2016) **Enhancement in xylose utilization using *Kluyveromyces marxianus* NIRE-K1 through evolutionary adaptation approach.** *Bioprocess and Biosystems Engineering*, 39, 835-843. (IF: 2.139)
36. Behera S, Sharma NK, Arora R and **Kumar S** (2016) **Effect of evolutionary adaption on xylosidase activity in thermotolerant yeast isolates *Kluyveromyces marxianus* NIRE-K1 and NIRE-K3.** *Applied Biochemistry and Biotechnology*, 179:1143-1154. (IF: 1.8)
37. Behera S, Singh R, Arora R, Sharma NK, Shukla M and **Kumar S** (2015) **Scope of algae as third generation biofuels.** *Frontiers in Bioengineering and Biotechnology* 2:90. doi: 10.3389/fbioe.2014.00090. (IF: 5.122)
38. **Kumar S**, Dheeran P, Singh SP, Mishra IM and Adhikari DK (2015) **Continuous ethanol production from sugarcane bagasse hydrolysate at high temperature with cell recycle and in-situ recovery of ethanol.** *Chemical Engineering Science*, 138, 524-530. (IF: 3.306)
39. Arora R, Behera S, Sharma NK and **Kumar S** (2015) **A new search for thermotolerant yeasts, its characterization and optimization using response surface methodology for ethanol production.** *Frontiers in Microbiology*, 6:889. doi: 10.3389/fmicb.2015.00889 (IF: 4.019)
40. Arora R, Behera S, Sharma NK and **Kumar S** (2015) **Bioprospecting thermostable cellulosomes for efficient biofuel production from lignocellulosic biomass.** *Bioresources and Bioprocessing*, 2:38. doi: 10.1186/s40643-015-0066-4 (IF: 4.485)
41. Arora R, Behera S, **Kumar S** (2015) **Bioprospecting thermophilic / thermotolerant microbes for production of lignocellulosic ethanol: A future perspective.** *Renewable & Sustainable Energy Reviews*, 51, 699-717. (IF: 9.184)
42. **Kumar S**, Dheeran P, Singh SP, Mishra IM and Adhikari DK (2015) **Kinetic studies of two-stage sulphuric acid hydrolysis of sugarcane bagasse.** *Renewable Energy*, 83, 850-858. (IF: 4.9)

43. **Kumar S**, Dheeran P, Singh SP, Mishra IM and Adhikari DK (2015) **Bioprocessing of bagasse hydrolysate for ethanol and xylitol production using thermotolerant yeast**. *Bioprocess and Biosystems Engineering* 38, 39-47. (IF: 2.139)
44. Kothari R, Pandey AK, **Kumar S**, Tyagi VV, Tyagi SK (2014) **Different aspects of dry anaerobic digestion for bio-energy: an overview**. *Renewable & Sustainable Energy Reviews* 39, 174-195. (IF: 9.184)
45. Behera S, Sehgal RA, Nandhagopal N, **Kumar S** (2014) **Importance of chemical pretreatment for bioconversion of lignocellulosic biomass**. *Renewable & Sustainable Energy Reviews* 36, 91-106. (IF: 9.184)
46. Chahal MK, **Kumar S**, Tyagi SK (2013) **Design, development and technological advancement in the biomass cookstoves: A review**. *Renewable & Sustainable Energy Reviews* 26, 265-285. (IF: 9.184)
47. **Kumar S**, Dheeran P, Singh SP, Mishra IM and Adhikari DK (2013) **Kinetic studies of ethanol fermentation using *Kluyveromyces* sp. IPE453**. *Journal of Chemical Technology and Biotechnology* 88(10), 1874-1884. (IF: 2.587)
48. Dheeran P, Nandhagopal N, **Kumar S**, Jaiswal YK and Adhikari DK (2012) **A novel thermostable xylanase of *Paenibacillus macerans* IIPSP3 isolated from termite gut**. *Journal of Industrial Microbiology and Biotechnology* 39(6), 851-860. (IF: 3.103)
49. **Kumar S**, Singh SP, Mishra IM and Adhikari DK (2010) **Feasibility of ethanol production with enhanced sugar concentration in bagasse hydrolysate at high temperature using *Kluyveromyces* sp. IPE453**. *Biofuels* 1(5), 697-704. (IF: 1.13)
50. Dheeran P, **Kumar S**, Jaiswal YK and Adhikari DK (2010) **Characterization of hyperthermostable α -amylase from *Geobacillus* sp. IPTN**. *Applied Microbiology and Biotechnology* 86(6), 1857-1866. (IF: 3.34)
51. **Kumar S**, Singh SP, Mishra IM and Adhikari DK (2009) **Ethanol and xylitol production from glucose and xylose at high temperature by *Kluyveromyces* sp. IPE453**. *Journal of Industrial Microbiology and Biotechnology* 36(12), 1483-1489. (IF: 3.103)
52. **Kumar S**, Singh SP, Mishra IM and Adhikari DK (2009) **Recent advances in production of bioethanol from lignocellulosic biomass**. *Chemical Engineering and Technology* 32(4), 517-526. (IF: 1.6)

In Peer-reviewed Non-SCI Journals

53. Dash I, Barik J, Nayak A, Sahoo M, Dethose A, Jhonson E, **Kumar S** and Jayabalan R (2015) **Comparative studies of ethanol production and cell viability: free cells versus immobilized cells**. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 6(2), 1708-1714.
54. Bhatnagar VS, Sharma NR, **Kumar S** (2015) **Pretreatment of paddy straw for enhanced saccharification**. *Journal of Chemical and Pharmaceutical Research*, 7(3), 914-920.
55. **Kumar S**, Dheeran P, Singh SP, Mishra IM and Adhikari DK (2013) **Cooling system economy for ethanol production by using thermotolerant yeast *Kluyveromyces* sp. IPE453**. *American Journal of Microbiological Research* 1(3), 39-44.
56. **Kumar S**, Singh SP, Mishra IM and Adhikari DK (2011) **Continuous ethanol production by *Kluyveromyces* sp. IPE453 immobilized in bagasse chips in packed bed reactor**. *Journal of Petroleum Technology and Alternative Fuels* 2(1), 1-6.
57. **Kumar S**, Singh SP, Mishra IM and Adhikari DK (2010) **Bioethanol production from lignocellulosic biomass**. *IPPTA Journal* 22(3), 143-150.

Book Chapters

1. Pal M, **Kumar S** (2025) Hydrogen in the chemical industry. In: Bibra M, S Rajesh, Kumar S (Eds.) *Renewable Hydrogen: Opportunities and Challenges in Commercial Success*. Elsevier.
2. Menon R, Raja T, **Kumar S**, Gokhale T (2025) Biorefinery approach to obtain sustainable biofuels and high-value chemicals from microalgae. In: Jaiswal KK, Singh B, Jaiswal AK (Eds.) *Microalgal Biofuels: Sustainable Production, Conversion, and Life Cycle Assessment*. Woodhead Publishing, Cambridge, MA, pp. 109-137.

3. Dhull P, Saini N, Sugandhi, **Kumar S** (2025) Biohythane Production Merging Biohydrogen and Biomethane for a Sustainable Future. In: Bhatia SK, Panesar PS, Gurav R (Eds.) *Microbial Biofuel: A Sustainable Source of Renewable Energy*. CRC Press, Boca Raton.
4. Kaur G, Yadav N, **Kumar S** (2024) A Sustainable Biochemical Approach to Convert Biomass to Bioenergy. In: Shah MP, Kaur P (Eds.) *Biomass Energy for Sustainable Development*. CRC Press, Boca Raton.
5. Kaur G, Umrao D, Dhull P, **Kumar S** (2024) The Role of Anaerobic Biorefinery in the Development of a Sustainable Economy. In: Chandel A (Ed.) *Biorefinery and Industry 4.0: Empowering Sustainability*. Springer, Cham, pp. 195-214.
6. Lugani Y, Brar SK, Kaur Y, Singh BP, Kumar D, **Kumar S** (2024) Sustainable production of advanced biofuel and platform chemicals from woody biomass. In: Deepak Kumar, Sachin Kumar, Karthik Rajendran (Eds.) *Sustainable Biorefining of Woody Biomass to Biofuels and Biochemicals*; Elsevier Woodhead Publishing, pp. 163-194.
7. Rao R, Dhull P, Shilpa, **Kumar S**, (2024) Recent Advances and Challenges in Biobutanol Production. In: Aslam M, Maktedar S, Sarma AK (Eds.) *Green Gasoline: A Green Spark Transportation Fuel*. RSC, London, pp. 109-123.
8. Sahni N, Hans M, **Kumar S** (2023) Fermentative Approaches in Wastewater Treatment for Harnessing Renewable Energy. In: Dheeran P, Kumar S (Eds.) *Extremophiles: Wastewater and Algal Biorefinery*; CRC Press, Boca Raton, pp. 60-79.
9. Sharma S, Sharma V, Chatterjee S, **Kumar S** (2022) Psychrophilic Enzymes Adaptations and Industrial Relevance. In: Dheeran P, Kumar S (Eds.) *Extremophiles: General and Plant Biomass Based Biorefinery*; CRC Press, Boca Raton, pp. 166-182.
10. Arora R, Thakur S, Kaur S, **Kumar S** (2022) Bioprocessing of Agricultural Residues for Biofuel Production Current Scenario. In: Dheeran P, Kumar S (Eds.) *Extremophiles: General and Plant Biomass Based Biorefinery*; CRC Press, Boca Raton, pp. 239-255.
11. Hans M, Yadav N, **Kumar S**, Chandel AK (2022) Market, Global Demand and Consumption Trend of Xylitol. In: de Almeida Felipe MdG, Chandel AK (Eds.) *Current Advances in Biotechnological Production of Xylitol*. Springer, Cham, pp. 239-251.
12. Lugani Y, Sooch BS, **Kumar S** (2021) Prebiotics, Probiotics and Synbiotics: A New Integrated Approach in Functional Foods. In: *Bioactive Compounds in Fermented Foods* (Eds.) Rai AK, Anu Appaiah KA; CRC Press, Boca Raton, pp. 166-182.
13. Lugani Y, Sooch BS, Singh P, **Kumar S** (2021) Nanobiotechnology applications in food sector and future innovations. In: Ray RC (Ed.) *Microbial Biotechnology in Food and Health*. Academic Press, London, pp. 197-225.
14. Singh R, Hans M, **Kumar S**, Yadav YK (2020) Potential Feedstock for Sustainable Biogas Production and its Supply Chain Management. In: Balagurusamy N., Chandel A.K. (Eds.) *Biogas Production*. Springer, Cham, pp. 147-155.
15. Bhardwaj S, **Kumar S**, Arora R (2020) Bioprospecting of Microorganisms for Biofuel Production. In: Yadav AN, Rastegari AA, Yadav N, Gaur R (Eds.) *Biofuels Production – Sustainability and Advances in Microbial Bioresources. Biofuel and Biorefinery Technologies*, vol 11. Springer, Cham.
16. Lugani Y, Sooch BS, Dheeran V, **Kumar S** (2020) Microbial Production of Xylitol: A Cost-Effective Approach. In: Thatoi H, Mohapatra PKD, Mohapatra S, Mondal KC (Eds.) *Microbial Fermentation and Enzyme Technology*. CRC Press, Boca Raton, pp. 227-256.
17. Sharma NK, Bibra M, **Kumar S**, (2019) **Genetic and Metabolic Engineering of Microbes for Efficient Lignocellulosic Ethanol**. In: Kumar A, Garg S (Eds.) *Advances in Bio-fuel Production*, Nova Science Publishers, Inc., New York, pp. 79-136.
18. Lugani Y, Sooch BS, **Kumar S** (2019) **Biochemical Strategies for Enhanced Biofuel Production**. In: Rastegari AA, Yadav AN Gupta A (Eds.) *Prospects of Renewable Bioprocessing in Future Energy Systems*, Springer Nature, Switzerland AG, pp. 51-87.
19. Arora R, Sharma NK, **Kumar S**, Sani RK, (2019) **Lignocellulosic Ethanol: Feedstocks and Bioprocessing**. In: Ray RC, Ramachandran S (Eds.) *Bioethanol Production from Food Crops: Sustainable Sources, Interventions and Challenges*, Academic Press, London, pp. 165-185.
20. Behera S, Koushalya S, **Kumar S**, Jafar Ali BM, (2019) **Potential and Prospects of Biobutanol Production from Agricultural Residues**. In: Singh LK, Chaudary G (Eds.) *Advances in*

Biofeedstocks and Biofuels, Volume 3: Liquid Biofuel Production, Scrivener Publishing LLC, Beverly, USA, pp. 285-318.

21. Rao R, Sani RK and **Kumar S**, (2018) **Hydrogen production from lignocellulosic feedstocks using extremophiles**. In: Sani RK, Rathinam K (Eds.) Extremophilic Bioprocessing of Lignocellulosic Feedstocks to Biofuels, Value-Added Products, and Usable Power, Springer-Verlag Berlin Heidelberg, pp. 79-96.
22. Arora R, Sharma NK and **Kumar S** (2018) **Valorization of By-Products Following the Biorefinery Concept: Commercial Aspects of By-Products of Lignocellulosic Biomass**. In: Chandel AK, Silveira MH (Eds.) Advances in Sugarcane Biorefinery, Elsevier, pp. 163-178.
23. Behera S, Sharma NK, **Kumar S** (2018) **Prospects of solvent tolerance in butanol fermenting bacteria**. In: **Kumar S**, Sani RK (Eds.) Biorefining of Biomass to Biofuels: Opportunities and Perception, Biofuel and Biorefinery Technologies Series, Springer International Publishing, pp. 249-264.
24. Shukla M, **Kumar S** (2018) **Algal biorefineries for biofuels and other value-added products**. In: **Kumar S**, Sani RK (Eds.) Biorefining of Biomass to Biofuels: Opportunities and Perception, Biofuel and Biorefinery Technologies Series, Springer International Publishing, pp. 305-341.
25. Punia R, Marler R, **Kumar S** and Tyagi SK (2017) **Potential of bioelectricity production in India through thermochemical conversion of lignocellulosic biomass**. In: Chandel AK, Sukumaran RK (Eds.) Sustainable Biofuels Development in India, Springer International Publishing, pp. 189-206.
26. Narayanaswamy N, Dheeran P, Verma S and **Kumar S** (2013) **Biological pretreatment of lignocellulosic biomass for enzymatic saccharification**. In: Fang Z (Ed.) Pretreatment Techniques for Biofuels and Biorefineries. Green Energy and Technology. Springer-Verlag Berlin Heidelberg, pp. 3-34.

Articles in Conference Proceedings

1. Sharma NK, Behera S, Arora R, **Kumar S** (2016) **An evolutionary adaptation of Kluyveromyces marxianus NIRE-K3 for enhanced xylose utilization**. Proceedings of the International Conference on Sustainable Energy and Environmental Challenges (SEEC-2017) 26 – 28 February, 2017, Mohali, India pp. 293-297.
2. Mahajan R, Kaur H, Rao R, **Kumar S** (2016) **Pre-treatment of paddy straw to improve biogas yield**. In: **Kumar S**, Khanal SK and Yadav YK (Eds.) Conference Proceedings on the First International Conference on Recent Advances in Bioenergy Research. Springer Proceedings in Energy. Springer India, pp. 43-61.
3. Sharma NK, Behera S, Arora R, **Kumar S** (2016) **Potential role of xylose transporters in industrial yeast for bioethanol production: a perspective review**. In: **Kumar S**, Khanal SK and Yadav YK (Eds.) Conference Proceedings on the First International Conference on Recent Advances in Bioenergy Research. Springer Proceedings in Energy. Springer India, pp. 81-93.
4. Arora R, Behera S, Sharma NK, Singh R, Yadav YK, **Kumar S** (2014) **Biochemical Conversion of Rice Straw (*Oryza sativa* L.) to Bioethanol using Thermotolerant isolate *K. marxianus* NIRE-K3**. In: Sharma NR et al. (Eds.) Conference Proceedings on Exploring Basic & Applied Sciences for Next Generation Frontiers; Published by Elsevier, pp. 143-146.
5. Shukla M, Mahajan R, **Kumar S** (2014) **Biomass Based Biorefineries: A Promising Concept for Economical Production of Biofuels**. Symposium Proceedings on Recent Advances in Biotechnology for Food and Fuel; Published by TERI IHC, New Delhi, pp. 84-100.
6. Punia R and **Kumar S** (2014) **Thermogravimetric characterization of wood stalks as gasification and pyrolysis feedstock**. In: **Kumar S**, Sarma AK, Tyagi SK and Yadav YK (Eds.) Recent Advances in Bioenergy Research. Vol. III, SSS-NIRE, Kapurthala, pp. 2-12.
7. Arora R, Behera S and **Kumar S** (2014) **Comparative study of fermentation efficiency for bioethanol production by isolates**. In: **Kumar S**, Sarma AK, Tyagi SK and Yadav YK (Eds.) Recent Advances in Bioenergy Research. Vol. III, SSS-NIRE, Kapurthala, pp. 149-155.
8. Behera S, Arora R, Sharma NK and **Kumar S** (2014) **Fermentation of glucose and xylose sugar for the production of ethanol and xylitol by the newly isolated NIRE-GX1 yeast**. In: **Kumar S**, Sarma AK, Tyagi SK and Yadav YK (Eds.) Recent Advances in Bioenergy Research. Vol. III, SSS-NIRE, Kapurthala, pp. 175-182.

9. Singh R, Behera S, Yadav YK and **Kumar S** (2014) **Potential of wheat straw for biogas production using thermophiles**. In: **Kumar S**, Sarma AK, Tyagi SK and Yadav YK (Eds.) Recent Advances in Bioenergy Research. Vol. III, SSS-NIRE, Kapurthala, pp. 242-249.
10. Sharma NK, Behera S and **Kumar S** (2014) **Genetic modifications in yeast for simultaneous utilization of glucose and xylose**. In: **Kumar S**, Sarma AK, Tyagi SK and Yadav YK (Eds.) Recent Advances in Bioenergy Research. Vol. III, SSS-NIRE, Kapurthala, pp. 194-207.
11. Behera S, Sehgal RA, **Kumar S** (2013) **Bioprospecting the Cellulases and Xylanases Thermozyymes for the Production of Biofuels**. AIChE 2013 Annual Meeting.
12. Sharma I, Bansal A, **Kumar S** (2013) **Inferences in saccharification of lingocellulosic biomass for biofuel production**. In: **Kumar S** and Tyagi SK (Eds.) Recent Advances in Bioenergy Research. Vol. II, SSS-NIRE, Kapurthala, pp. 114-143.
13. **Kumar S**, Dheeran P and Adhikari DK (2013) **Thermophiles: smart bugs for ethanol production from agricultural residues**. In: **Kumar S** and Sarma AK (Eds.) Recent Advances in Bioenergy Research. Vol. I, SSS-NIRE, Kapurthala, pp. 249-257.
14. **Kumar S**, Singh SP, Mishra IM and Adhikari DK (2011) **Kinetics of acid hydrolysis of sugarcane bagasse**. International Congress on Energy 2011, AIChE Annual Meeting: Vol. 1, 590-601.
15. **Kumar S**, Dheeran P and Adhikari DK (2009) **Bioethanol production from biomass at high temperature**. Biofuels India: Sustainable Fuel for the Energy and Transport Sector, Published by Winrock International India, 7 (1), 9-12.
16. **Kumar S**, Dheeran P and Adhikari DK, (2009) **Bioethanol Production from Sugarcane at High Temperature**. International Conference on Emerging Technologies in Environmental Science and Engineering, Aligarh Muslim University, Aligarh (India) October 26-28, 2009, pp. 1536-1541.
17. Dheeran P, **Kumar S** and Adhikari DK, (2009) **Hyperthermostable amylase and its application in biofuel production**. International Conference on Emerging Technologies in Environmental Science and Engineering, Aligarh Muslim University, Aligarh (India) October 26-28, 2009, pp. 1178-1185.
18. **Kumar S**, Mishra IM and Adhikari DK (2008) **Bioethanol production from bagasse with cell recycle at high temperature**. J. Biotechnol. **136**, S459. Biotechnology for the Sustainability of Human Society - IBS 2008 Abstracts, 13th International Biotechnology Symposium and Exhibition.

Articles in News Letters/ Magazine

1. Apurav Sharma, Sanjeev Mishra, **Sachin Kumar** (Feb 2025) **Biofuels for Sustainable Energy and Environment: Reducing CO₂ emissions in India**. Petroleum Planning & Analysis Cell, Ministry of Petroleum & Natural Gas, Govt. of India, PPAC Journal Edition 3, 37-40.
2. G. Sridhar, Vandit Vijay, **Sachin Kumar**, Banafsha (Sep 2024) **Can Bioenergy Adoption End Stubble Burning Practise?** AgroSpectrum; 5(07), 26-27.
3. **Sachin Kumar**, Gaganpreet Kaur (2023) **Circular Bio-economy and Sustainable Development of the Communities**. Shashwat; 10(10), 105-107.
4. Hans M, **Kumar S** (2022) **Biogas and its value chain for waste management: Feedstock logistics**. Biogas Magazine, Edition 22, 22-25.
5. **Kumar S** (2020) **Thermophilic anaerobic digestion: The way towards sustainable utilization of lignocellulosic biomass for biogas production**. Biogas Magazine, Edition 14, 20-23.
6. Rao R, Yadav YK and **Kumar S** (2015) **Production of biological hydrogen in India: potential source for the future**. Akshay Urja, 9(2), 16-21.
7. **Kumar S**, Dheeran P and Adhikari DK (2009) **Bioethanol production from biomass at high temperature**. Akshay Urja, 2(6), 17-21 (on request).

Modules

1. Ethanol as a source of energy (Environmental Sciences). Pathshala: A Gateway to All Postgraduate Courses; MHRD, Govt. of India.
2. Urban waste to resource recovery and recycling for energy (Environmental Sciences). Pathshala: A Gateway to All Postgraduate Courses; MHRD, Govt. of India.

Books/ Conference Proceedings

1. **Kumar S**, Sundaramurthy S, Kumar D, Chandel AK (Eds.) (2024). Clean Energy Transition-via-Biomass Resource Utilization. Springer Nature Singapore Pte Ltd. (eBook ISBN 978-981-97-6321-4; Hardcover ISBN 978-981-97-6320-7).
2. Kumar D, **Kumar S**, Rajendran K (Eds.) (2024). Sustainable Biorefining of Woody Biomass to Biofuels and Biochemicals. Elsevier Woodhead Publishing, Cambridge (ISBN 978-0-323-91187-0).
3. Gakkhar N, **Kumar S**, Sarma AK, Graham NT (Eds.) (2023) Recent Advances in Bio-Energy Research: Select Proceedings of the 3rd International Conference, ICRA BR 2022. Springer Proceedings in Energy. Springer Nature Singapore (eBook ISBN 978-981-99-5758-3; Hardcover ISBN 978-981-99-5757-6).
4. Dheeran P, **Kumar S** (Eds.) (2023) Extremophiles: Wastewater and Algal Biorefinery; CRC Press, Boca Raton (eBook ISBN 978-1-003-33522-1; Hardcover ISBN 978-1-032-37080-4).
5. Dheeran P, **Kumar S** (Eds.) (2022) Extremophiles: General and Plant Biomass Based Biorefinery; CRC Press, Boca Raton (eBook ISBN 9781003014188; Hardcover ISBN 978-0367856526).
6. **Kumar S**, Dheeran P, Taherzadeh M, Khanal SK (Eds.) (2018) Fungal Biorefineries (Fungal Biology Series); Springer International Publishing (eBook ISBN 978-3-319-90379-8; Hardcover ISBN 978-3-319-90378-1).
7. **Kumar S**, Sani RK (Eds.) (2018) Biorefining of Biomass to Biofuels: Opportunities and Perception (Biofuel and Biorefinery Technologies Series); Springer International Publishing. (eBook ISBN 978-3-319-67678-4; Hardcover ISBN 978-3-319-67677-7).
8. **Kumar S**, Sani RK, Yadav YK (Eds.) (2018) Conference Proceedings of the Second International Conference on Recent Advances in Bioenergy Research. Springer Proceedings in Energy. Springer Nature Singapore (eBook ISBN 978-981-10-6107-3; Hardcover ISBN 978-981-10-6106-6).
9. **Kumar S**, Khanal SK, Yadav YK (Eds.) (2016) Conference Proceedings of the First International Conference on Recent Advances in Bioenergy Research. Springer Proceedings in Energy. Springer India (eBook ISBN 978-81-322-2773-1; Hardcover ISBN 978-81-322-2771-7).
10. **Kumar S** (2016) Souvenir, 2nd International Conference on Recent Advances in Bio-energy Research (ICRA BR-2016) (ISBN 978-93-84935-73-3).
11. **Kumar S** (2015) Souvenir, First International Conference on Recent Advances in Bio-energy Research (ICRA BR-2015) (ISBN 978-93-84869-39-7).
12. **Kumar S**, Sarma AK, Tyagi SK and Yadav YK (2014) Recent Advances in Bioenergy Research. Vol. III, SSS-NIRE, Kapurthala (eBook ISBN 978-81-927097-2-7).
13. **Kumar S** and Tyagi SK (2013) Recent Advances in Bioenergy Research. Vol. II, SSS-NIRE, Kapurthala (eBook ISBN 978-81-927097-1-0).
14. **Kumar S** and Sarma AK (2013) Recent Advances in Bioenergy Research. Vol. I, SSS-NIRE, Kapurthala (eBook ISBN 978-81-927097-0-3).

Culture & Gene Deposition

1. Kumar S and Sharma S, ***Bacillus smithii* strain NIBE10 16S ribosomal RNA gene, partial sequence.** GenBank: OP962444.1; submitted on Dec 07, 2022.
2. Kumar S and Sharma S, ***Bacillus licheniformis* strain NIBE11 16S ribosomal RNA gene, partial sequence.** GenBank: OP962456.1; submitted on Dec 07, 2022.
3. Kumar S and Sharma S, ***Bacillus licheniformis* strain NIBE13 16S ribosomal RNA gene, partial sequence.** GenBank: OP962457.1; submitted on Dec 07, 2022.
4. Kumar S and Sharma S, ***Bacillus licheniformis* strain NIBE23 16S ribosomal RNA gene, partial sequence.** GenBank: OP962458.1; submitted on Dec 07, 2022.
5. Kumar S, Singh R, Hans M and Dheeran P, **Uncultured bacterium clone NIBE-TAD-B2 16S ribosomal RNA gene, partial sequence.** GeneBank: MH259912.1; submitted on Apr 27, 2018.
6. Behera S and Kumar S, ***Clostridium sporogenes* strain NIBE-V1 16S ribosomal RNA gene, partial sequence.** GeneBank: MH229531.1; submitted on Apr 19, 2018.
7. Behera S and Kumar S, ***Clostridium pasteurianum* strain NIBE-A1 16S ribosomal RNA gene, partial sequence.** GeneBank: MH229856.1; submitted on Apr 19, 2018.
8. Kumar S, Arora R, Behera S and Sharma NK, ***Kluyveromyces marxianus* strain NIRE-K3 18S ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence.** GeneBank: KP405925.1; submitted on Jan 06, 2015.
9. Kumar S, Arora R, Behera S and Sharma NK, ***Kluyveromyces marxianus* strain NIRE-K3 18S ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence.** GeneBank: KP405926.1; submitted on Jan 06, 2015.
10. Kumar S, Arora R and Behera S, Deposited ***Kluyveromyces marxianus* NIRE-K1** in MTCC under Budapest Treaty, Deposition no.: MTCC 5933, Nov 2014.
11. Kumar S, Arora R and Behera S, Deposited ***Kluyveromyces marxianus* NIRE-K3** in MTCC under Budapest Treaty, Deposition no.: MTCC 5934, Nov 2014.
12. Dheeran P, Narayanswamy N., Kumar S and Adhikari DK, ***Paenibacillus macerans* strain IIPSP3 16S ribosomal RNA gene, partial sequence.** GeneBank: HM246634.1; submitted on May 20, 2010.

Students Supervised

- | | |
|----------------------------|--|
| 1. Ph.D. | 4 nos. (Completed); 5 no. (In progress); |
| 2. WOS-B | 1 no. |
| 3. Postdoctoral Fellow/ RA | 9 nos. (Completed) |
| 4. Senior Research Fellow | 8 nos. (Completed) |
| 5. Junior Research Fellow | 5 nos. (Completed) |
| 6. Masters Projects | 22 nos. (Completed) |
| 7. Bachelors Projects | 7 nos. (Completed) |

Presentations

International conferences

1. Arora R, Sharma NK, Kumar S, **Alkaline Pretreatment of Paddy Straw Through Statistically Designed Parameters for Biofuel Production.** SIMB Annual Meeting 2017, Denver, USA, Jul 30-Aug 03, 2017.
2. Kumar S, **Challenges in Bioethanol Production from Lignocellulosic Biomass.** World Congress on Biotechnology, May 4-6, 2012 organized by Bright International Conferences & Events, Hyderabad (India).
3. Kumar S, Dheeran P and Adhikari DK, **Bioethanol Production from Sugarcane at High Temperature.** International Conference on Emerging Technologies in Environmental Science and

Engineering, Oct 26-28, 2009 in Department of Civil Engineering, Aligarh Muslim University, Aligarh (India).

4. **Kumar S**, Mishra IM and Adhikari DK, **Bioethanol Production from Sugarcane Bagasse at High Temperature**. CHEMCON-2008, Dec 27-30, 2008 in Punjab University, Chandigarh (India).
5. **Kumar S** and Adhikari DK, **Thermoethanologens: Creating future fuel from agro waste**. International Conference on Biotechnology for Sustainable Development BSD-2008, Jan 7-9, 2008 at NCL, Pune (India).
6. **Kumar S** and Adhikari DK, **Fuel ethanol from biomass by acid hydrolysis and thermophilic ethanologens**. CHEMCON- 2006, Dec 27-30, 2006 at GNFC, Bharuch (India).

National Conferences

7. **Kumar S**, **Ethanol Production from Syn-gas**. Recent Advances in Bio-energy Research, Nov 25-26, 2011 at SSS National Institute of Renewable Energy, Kapurthala (India).
8. **Kumar S**, Dheeran P, Sinha A and Adhikari DK, **Biofuel production from biomass by using thermophiles**. 2nd Uttarakhand State Science Congress, Nov 15-17, 2007 at Kumaun University, Nainital (India).
9. **Kumar S** and Adhikari DK, **New trends in ethanol production**. New Horizons in Applied Biosciences and Entrepreneurship Development, May 7-8, 2005 at IIP, Dehradun (India).

Guest/Invited Lecture (Total: 98)

1. Delivered an invited talk on '**R&D Advancement in Biogas Technology for Sustainable Development**' on Jul 25, 2025 in a national Conference on 'Driving the Future with Biotechnology: Economy, Environment, and Employment – BIOE3' organized by PSGR Krishnammal College for Women, Coimbatore, India during Jul 24-25, 2025.
2. Delivered an expert lecture in a Five-Day Hybrid Faculty Development Programme (FDP) on "Sustainable Hydrogen Production and Integration of Hydrogen Technologies" organized by the Sustainable Energy Technology Laboratory, Department of Mechanical Engineering, PDPM IIITDM Jabalpur on May 14, 2025.
3. Delivered an expert lecture in an online workshop on "Waste to Energy" in the Department of Biotechnology, Jaypee Institute of Information Technology, Noida, India on April 09, 2025.
4. Delivered an invited talk on 'Development of Thermotolerant Yeast for Simultaneous Saccharification and Co-Fermentation of Polysaccharides Present in Lignocelluloses for the Production of Bioethanol' on Mar 25, 2025 in an International Conference on 'Current Perspectives on Extremophiles and Biomolecules' organized by Sarojini Naidu Government Girls' Postgraduate College, Bhopal, India during Mar 24-26, 2025.
5. Delivered an expert lecture in a workshop on Prototype/ Process Design and Development in the Department of Biotechnology, Kanya Maha Vidyalaya, Jalandhar on March 04, 2025.
6. Expert Panel Speaker for Candid Biofuels Talks on 'Case Study of CBG plant in India' in a podcast session organized by GrowDiesel Ventures Ltd. on Dec 12, 2024.
7. Expert Panelist in a Webinar on 'Bioenergy Sector in Bharat: Challenges & Opportunities an Interaction with Stakeholders' organized by Biomass Global Associates Forum under the aegis of the Indian Federation of Green Energy (IFGE) on Nov 25, 2024.
8. Delivered an invited talk in a hybrid workshop on "Green Hydrogen a Sustainable Future Fuel" on Oct 23, 2024 organized by Energy Centre, Maulana Azad National Institute of Technology Bhopal, India, during 21st - 25th Oct, 2024.
9. Delivered an invited talk on 'Design, Construction, Installation and Operation of Biogas (Biomethane) Plant — Code of Practice' in the Bio-Energy Conference on "Cultivating a fertile future: Biogas & Biofertilizer policy" on Oct 05, 2024 organized by Indian Biogas Association (IBA) at REI Expo, Greater Noida, from October 3 to 5, 2024.
10. Chaired and moderated the Panel discussion on 'Challenges & sustainability solutions in CBG: Feedstock to products' on Sep 27, 2024 in the 7th International Oil & Gas Chemistry, Chemicals & Additives Conference (IOGCA 2024) organized on 26 – 27 September 2024 at New Delhi.

11. Expert Panelist in a Session on Potential in Biomass Sector – 2.0 Feedstock, Supply Chain Management and Energy Market on Sep 03, 2024 during the International Conference on Bioenergy: Unleashing Bioenergy Potential in India held from 2-4 September 2024 at Yashobhoomi, Dwarka, New Delhi organized by Indian Federation of Green Energy (IFGE).
12. Delivered an invited talk on Aug 06, 2024 on 'Second generation bioethanol production from lignocellulosic biomass' in a Faculty Development Program on "Fungal Biotechnology: Emerging Trends and Applications" during 05th - 09th August 2024 organized by Department of Biotechnology, National Institute of Technology Warangal, India in Association with the Centre for Training and Learning of NIT Warangal.
13. Delivered an invited talk on 'Second generation bioethanol production from lignocellulosic biomass' in a SERB-DST Sponsored High-end Workshop and Training on 'Second Generation Bioethanol Production from Lignocellulosic Biomass' organized by the Department of Microbiology, Central University of Haryana, Mahendragarh on Mar 16, 2024.
14. Delivered an invited talk in an International Workshop on "MSW treatment options and challenges towards Circular Economy" jointly organized by IIT Madras and Leibniz University Hannover at IIT Madras during Mar 4-5, 2024.
15. Deliver a keynote speech at 'International Conference on Sustainable Development in Chemical and Environmental Engineering (SDCEE-2024)' during Feb 22-24, 2024 organized by the Department of Chemical Engineering, Thapar Institute of Engineering & Technology, Patiala.
16. Delivered an online invited talk in "International Conference on Advancement in Natural Sciences: Vedic to Modern Era" during February 22-24, 2024 organized by Shri Ramswaroop Memorial University, Lucknow.
17. Delivered an expert Lecture in an offline ATAL-AICTE FDP - "Clean Energy Technologies for Sustainable Development" organized by SoEEM, Rajiv Gandhi Proudhyogiki Vishwavidyalaya (RGPV), Bhopal on Feb 12, 2024.
18. Delivered an invited talk 'Crafting Compelling Proposals for Scientific Research Funding' in a Professional Development Program organized by Lovely Professional University, Phagwara on Feb 03, 2024.
19. Delivered an invited talk in the short-term course on 'Renewable Energy Pathway and Technology' on Dec 16, 2023 organized by the Centre for Energy and Environment, Dr. B.R. Ambedkar National Institute of Technology, Jalandhar during Dec 14-18, 2023.
20. Delivered an invited talk on 'Biorefining of lignocellulosic biomass for 2G ethanol and other renewable chemicals' during the International Conference on 'Technologies and Innovations for Sustainable Development (TISD-2023)' organized by Motilal Nehru National Institute of Technology (MNNIT) Allahabad, Prayagraj during Oct 27-29, 2023.
21. Delivered a Foundation Day Lecture on 'Biogas Technology' on Sep 26, 2023 on the occasion of CSIR Foundation Day at CMERI CoEFM, Ludhiana organized by CSIR-CMERI Centre of Excellence for Farm Machinery, Ludhiana.
22. Delivered an online expert lecture on 'Enhanced biohydrogen production from organic waste following the sequential dark and photo fermentation' in a Webinar on 'H2 Energy from Renewable Resources and Circular Economy' organized by the CSIR-NIIST, Thiruananthpuram on Jul 24, 2023 under CSIR-Skill Development Programme.
23. Delivered an invited talk on 'Development of Thermophilic Consortium for Efficient Anaerobic Digestion of Potential Feedstocks' on Jul 18, 2023 during two days International Conference on 'Future of Energy with Science and Technology' (FEST 2023) organized by the Institute of Technological Excellence, New Delhi in the University of Delhi Conference Centre, Delhi.
24. Delivered an online expert lecture on Biorefinery of Lignocellulosic biomass for the sustainable production of biofuels and biochemicals' on Jun 08, 2023 in a Short-Term Course (STC) on 'Biotechnological Approaches for Bioprospecting and Waste Valorization' organized by the Department of Biotechnology, Dr. B.R. Ambedkar National Institute of Technology, Jalandhar during Jun 07-11, 2023.
25. Delivered an online expert lecture on 'Biorefinery of Lignocellulosic biomass for the sustainable production of biofuels and biochemicals' on May 23, 2023 in a Faculty Development Programme

- (FDP) on 'Sustainable Bio-polymers for Energy and Environment Applications' organized by the Department of Chemical Engineering, Dr. B.R. Ambedkar National Institute of Technology, Jalandhar during May 22-26, 2023.
26. Delivered an expert lecture on "**Design, Construction, Installation and Operation of Biogas (Biomethane) Plant — Code of Practice**" on May 12, 2023 in a Workshop on Bioenergy for Sustainable Development: Case Studies and Best Practices organized by MNRE at Atal Akshay Urja Bhavan (AAUB), New Delhi.
 27. Delivered an expert lecture on '**R&D Advancement in Biogas Technology and Biogas Standards in India**' on Apr 11, 2023 during a Residential Training on "Compressed Biogas (CBG): Potential, Technology, Policy, Operation, and Economics" at the Anil Agarwal Environment Training Institute, Nimli, Rajasthan organized by the Centre for Science and Environment, New Delhi.
 28. Delivered an online presentation during Manak Manthan on Indian Standard IS 9478 : 2023 Design, Construction, Installation and Operation of Biogas (Biomethane) Plant - Code of Practice organized by BIS, New Delhi on Mar 22, 2023.
 29. Delivered an expert lecture on '**Enhanced biohydrogen production from organic waste following the sequential dark and photo fermentation**' in an 'Indo-French Workshop on Clean and Sustainable Energy Technologies (INFINITE)' organized by CSIR - Central Institute of Mining and Fuel Research, Dhanbad at CSIR - National Physical Laboratory (NPL), New Delhi during February 21-24, 2023.
 30. Delivered an expert lecture on 'Lignocellulosic biorefinery for biofuels and biochemicals' in a one-day workshop on 'Biofuels from Lignocellulosic Waste' on Jan 11, 2023 at Punjab Agricultural University, Ludhiana.
 31. Delivered an online expert lecture on '**Challenges associated with bioethanol production and Their Solutions**' on Jan 18, 2023 in Three days Online Training Programme on "Second generation Bioethanol Production", under the aegis of IDP-NAHEP organized by the Department of Renewable & Bioenergy Engineering, College of Agricultural Engineering & Technology, CCS HAU, Hisar.
 32. Delivered an online expert lecture on '**Introduction to Biofuels & Bioenergy and Their Production Routes**' on Jan 16, 2023 in Three days Online Training Programme on "Second generation Bioethanol Production", under the aegis of IDP-NAHEP organized by the Department of Renewable & Bioenergy Engineering, College of Agricultural Engineering & Technology, CCS HAU, Hisar.
 33. Delivered an online expert lecture on '**Challenges associated with bioethanol production and Their Solutions**' on Jan 04, 2023 in Three days Online Training Programme on "Second generation Bioethanol Production", under the aegis of IDP-NAHEP organized by the Department of Renewable & Bioenergy Engineering, College of Agricultural Engineering & Technology, CCS HAU, Hisar.
 34. Delivered an online expert lecture on '**Introduction to Biofuels & Bioenergy and Their Production Routes**' on Jan 02, 2023 in Three days Online Training Programme on "Second generation Bioethanol Production", under the aegis of IDP-NAHEP organized by the Department of Renewable & Bioenergy Engineering, College of Agricultural Engineering & Technology, CCS HAU, Hisar.
 35. Delivered an online lecture on Dec 19, 2022 in a-week long Faculty Development Program on 'Microbes: Potential to Bail out the Energy Crisis' organized by the Department of Biochemical Engineering, School of Chemical Technology, Harcourt Butler Technical University, Kanpur.
 36. Delivered an online lecture on '**Development of standards for biogas plants**' on Dec 14, 2022 in a webinar on 'Development of Indian Standards on Small, Medium and Large Scale Plants' organized by BIS, New Delhi.
 37. Delivered a plenary lecture on '2G ethanol from Agricultural Residues' on Nov 30, 2022 during two days International Conference on 'Future of Energy with Science and Technology' organized by the Institute of Technological Excellence, New Delhi at Crowne Plaza, New Delhi.
 38. Presented **the developed standards for biogas plants** on Nov 18, 2022 in a seminar on National Bioenergy Programme organized by MNRE, New Delhi in partnership with UNIDO.

39. Delivered a Foundation Day Lecture on 'Integrated Biorefinery for value-added Products' on Sep 26, 2022 on the occasion of CSIR Foundation Day at CMERI CoEFM, Ludhiana organized by CSIR-CMERI Centre of Excellence for Farm Machinery, Ludhiana.
40. Delivered an online expert lecture on 'Waste valorization for sustainable energy production and clean environment' on Aug 26, 2022 in two-day workshop on 'Sustainable Development through Renewable Energy under the Diamond Jubilee Year Celebration' organized by the Department of Mechanical Engineering, NIT, Kurukshetra.
41. Delivered a talk on '**R&D Advancement in Biogas Technology**' on Jul 07, 2022 in a stakeholder workshop on **Technology Needs Assessment – Energy Sector with a focus on Biogas and the development of Biogas Grid System in Punjab** jointly organized by Technology, Information, Forecasting and Assessment Council (TIFAC) in association with the Indian Biogas Association (IBA) and Punjab Energy Development Agency (PEDA) at PEDA, Chandigarh.
42. Delivered an expert lecture on 'Biorefining of lignocellulosic biomass for biofuels and value-added products' on Jun 15, 2022 during Faculty Development Program (FDP) on 'Applications of Computing Techniques in Sustainable Energy Systems - (ACTSES)' organized by the Department of Electrical Engineering, IK Gujral Punjab Technical University, Kapurthala.
43. Delivered an online expert lecture on 'Biorefining of lignocellulosic biomass for biofuels and biochemicals' on Jun 14, 2022 during Faculty Development Program (FDP) on 'Green Technology and Approaches for Waste Valorization' organized by the Department of Life Sciences, Sharda University, Greater Noida.
44. Delivered an expert lecture on Jun 09, 2022 during Faculty Development Program (FDP) on 'Advancements in the Methodologies for the development of Synthetic Materials' organized by the Department of Chemical Sciences, IK Gujral Punjab Technical University, Kapurthala.
45. Delivered an online lecture on May 05, 2022 in a National Webinar on 'Latest Developments in Biogas Plants and the practice followed in Rural & Urban India' organized by Bureau of Indian Standards, New Delhi.
46. Delivered an online expert lecture on Mar 15, 2022 in AICTE-RGPV Teachers Training Programme in the area of Novel Technological Approaches for Waste to Energy organized by School of Energy & Environment Management, UTD, RGPV, Bhopal.
47. Delivered an online expert lecture on Mar 14, 2022 during Faculty Development Program in the area of Industrial Microbiology and Fermentation Technology organized by the Department of Microbiology, Panjab University, Chandigarh.
48. Delivered an online lecture on 'Biorefining of lignocellulosic biomass for biofuels and biochemicals' on Mar 10, 2022 in a series of expert lectures in the field of Renewable Energy for the benefit of under privileged students organized by the Department of Renewable Energy Engineering, PAU, Ludhiana.
49. Delivered a keynote speech on 'Development of integrated lignocellulosic biorefinery' on Feb 24, 2022 during two-days International Conference (Virtual) on BioTrendz Advancement & Challenges in Science and Technology organized by Noida Institute of Engineering & Technology (NIET), Greater Noida.
50. Delivered an online lecture on 'Scope of Biogas based Rural Entrepreneurship Development in India' on Feb 12, 2022 in an Expert Lecture Series on 'Entrepreneurship Development in India' organized by Dr. Panjabrao Deshmukh Krishi Vidyapeed, Akola.
51. Delivered an online lecture on 'Bioenergy Generation from Lignocellulosic Biomass' on Feb 4 2022 in a workshop "Renewable Energy: Materials and Devices" jointly organized by IKG Punjab Technical University Amritsar Campus and NITTTR, Chandigarh.
52. Delivered an online lecture on 'Bioethanol' on Dec 7, 2021 during AICTE sponsored course on 'Alternative Fuel' organized by Goa College of Engineering, Goa.
53. Delivered an online lecture on 'Bioprocessing of lignocelluloses to value-added products' in a webinar on 'Utilization of Agroforestry residues for Production of Biofuels' organized by Harcourt Butler Technical University on Nov 20, 2021 on the occasion of its Centenary year of Establishment.
54. Delivered an online lecture on 'Government policies on solid biofuels, and lab testing and standardization' in a Seminar on 'Standardization of Solid Biofuels - Briquettes/Pellets' organized

- by Bureau of Indian Standards (BIS) in association with CSIR – Central Institute of Mining and Fuel Research, Dhanbad (CSIR-CIMFR Dhanbad) on Nov 11, 2021.
55. Delivered an online lecture in a symposium titled “Waste Management and Innovation for valorisation: Sustainable World for Future”, organized by the Centre for Biotechnology and Biochemical Engineering, AIB, Amity University Noida to be held online on 26-27th October 2021.
 56. Participated as a panelist in a Panel Discussion on 'Harnessing Opportunity of Green Energy in era of Climate Change' virtually on Sep 24, 2021 organized by Amity School of Earth and Environmental Sciences (ASEES), Amity University Haryana.
 57. Delivered an online lecture on ‘Bioprocessing of lignocelluloses to value-added products’ in a webinar on ‘Frontiers in Bioprocess Technology’ organized by Harcourt Butler Technical University on Sep 22, 2021 on the occasion of its Centenary year of Establishment.
 58. Delivered an Invited Talk on ‘Production of Biofuels from Food Industry Waste’ in an online AICTE Training and Learning Faculty Development Programme organized by the National Institute of Food Technology Entrepreneurship and Management, Sonipat on Sep 17, 2021.
 59. Delivered a Lecture during an online Faculty Development Programme on "Modern Innovations and Development in the Renewable Energy Technology" on Jul 16, 2021 organized by Centre of Excellence in Renewable Energy Technology, Lucknow University, Lucknow.
 60. Delivered a Lecture during an International Webinar on 'Recent Innovations in Chemical Sciences (IWRICS-2020)' on Dec 5, 2020 organized by the Department of Chemistry, Karnataka University's Karnataka Science College, Dharwad, India.
 61. Delivered an Expert Lecture during the Online Seminar on “Cost Effective and Innovative Green Energy Initiatives for Futuristic Agriculture” on Nov 11, 2020 organized by Centre for Agricultural Market Intelligence, International Agribusiness Management Institute, Anand Agricultural University, Anand.
 62. Delivered a Lecture during Faculty Development Programme [AICTE Training and Learning (ATAL) FDP] on Bioenergy—a sustainable energy source to fuel the future (BSESFF-2020) on Oct 06, 2020 organized by Department of Biological Sciences and Engineering, Netaji Subhas University of Technology, New Delhi.
 63. Delivered a Lecture during online short term course on "Valorization of lignocellulosic biomass towards sustainable fuels, chemicals and materials" on Sep 19, 2020 organized by the Centre for Energy and Environment, Dr. BR Ambedkar National Institute of Technology, Jalandhar.
 64. Delivered an Expert Talk on ‘Innovation in utilization of lignocellulosic biomass for bioCNG’ during Renewable Energy India E-expo on Sep 02, 2020 organized by Indian Biogas Association (IBA).
 65. Delivered a Lecture at Webinar in the Department of Chemical and Petroleum Engineering, Lovely Professional University, Phagwara, Punjab is organizing a webinar for their Chemical Engineering Students of B.Tech. 2nd, 3rd, and Final Year on Jul 23, 2020.
 66. Delivered an expert talk on Jun 29, 2020 during 1 Week e-FDP cum Workshop on ‘Waste-to-Bioenergy’ organized by Sharda University, Greater Noida and Maharashtra Institute of Technology, Aurangabad, 1 Week e-FDP cum Workshop during 28th June- 4th July 2020.
 67. Delivered an online Guest Lecture at Amity Institute of Biotechnology, Amity University, Uttar Pradesh, Noida on Jun 27, 2020.
 68. Delivered a talk as Guest Speaker on Jun 10, 2020 in a Short Term Course (STC) on the theme “Trends and Prospects in Biorefinery” conducted by the Department of Biotechnology, Dr. B.R. Ambedkar National Institute of Technology, Jalandhar during 10th June to 14th June 2020 as an online webinar.
 69. Delivered an expert lecture through online webinar session on June 5, 2020 organized by the Department of Agricultural Engineering, Maharashtra Institute of Technology, Aurangabad on the occasion of 'World Environment Day 2020'.
 70. Delivered an interactive talk as resource person at Doaba College, Jalandhar on May 27, 2020 during a DBT, MoST, Govt. of India sponsored online foundation programme entitled 'Vigyan Setu: Bridging Classical Biology and Biotechnology' conducted during May 7-30, 2020 for pre-collegiate students.
 71. Delivered a lecture on ‘Bioprocessing of lignocellulosic biomass to biofuels’ at Dr. BR Ambedkar National Institute of Technology, Jalandhar on Feb 23, 2020 TQIP-III sponsored Short Term Course

- " Emerging Technologies for Next-Generation Bio-fuels and Bio-products (ETNGBB-2020)" conducted during Feb 21-25, 2020.
72. Delivered a lecture on 'Bioprocessing of biomass to biofuels and other value-added products' at Harcourt Butler Technical University on Feb 11, 2020 during Faculty Development Programme in the Biochemical Engineering Department, School of Chemical Technology, HBTI, Kanpur on 'Expanding Horizon of Bioprocesses' under the aegis of TEQIP-III conducted during Feb 10-15, 2020.
 73. Delivered a lecture on 'MNRE's scheme on Waste to Energy, and Lab Policy for Testing, Standardization and Certification' during a Workshop on "Need for Indian Standards on Solid Biofuels" on Jan 27, 2020 Organized by Bureau of Indian Standards (BIS) in association with CSIR – Central Institute of Mining and Fuel Research, Dhanbad at CSIR-CIMFR, Dhanbad, India.
 74. Delivered an invited talk on '**Bioprocessing of Sugarcane Bagasse for Bioethanol Production via SSCF using Thermotolerant Yeast *Kluyveromyces marxianus* NIRE-K3.2**' at National Conference, Innovations in Bioprocess Technology (IBT-2019) held at CIAB, Mohali, India during Dec 11-13, 2019.
 75. Delivered an invited talk on '**Bioethanol production from sugarcane bagasse using developed thermotolerant yeast for enhanced xylose utilization**' at AMI-2019 Annual Conference and International Symposium on "Microbial Technologies in Sustainable Development of Energy, Environment, Agriculture and Health" held at Central University of Haryana, India during Nov 15-18, 2019.
 76. Delivered an invited talk in the National Symposium on Waste Management for Generation of Bioenergy in the Department of Microbiology, Panjab University, Chandigarh on Mar 28, 2019.
 77. Delivered an invited talk on Nov 24, 2018 on '**Development of thermotolerant yeast for enhanced xylose fermentation**' in the International Conference on Biotechnological Research and Innovation for Sustainable Development (BioSD-2018) at CSIR-Indian Institute of Chemical Technology, Hyderabad, Nov 22-25, 2018.
 78. Delivered an expert lecture on "Biorefining of lignocellulosic biomass" in the Department of Biotechnology, Hans Raj Maha Vidyalaya, Jalandhar on Nov 03, 2018.
 79. Delivered an expert lecture in Training Programme on 'Paddy Straw Management Techniques' organized by Krishi Vigyan Kendra, Kapurthala on Sep 06, 2018.
 80. Delivered an expert lecture in two-day National Seminar on Management of paddy straw for bio CNG, manure, employment and Swash Bharat, on 16-17 May 2018 at CRRID, Chandigarh.
 81. Delivered an expert lecture in Faculty Development Programme on 'Environmental Pollution and Control Techniques' at Beant College of Engineering & Technology, Gurdaspur, India on Jan 08, 2018.
 82. Delivered an invited talk on Jul 31, 2017 on '**Bioprocessing of paddy straw to bioethanol in SSF using thermotolerant *K. marxianus* NIRE-K3**' at SIMB Annual Meeting 2017, Denver, USA, Jul 30-Aug 03, 2017.
 83. Delivered an invited talk on May 14, 2017 on '**Thermophilic anaerobic digestion of lignocelluloses for biogas generation**' in a Conference on Science at the Sanford Underground Research Facility (SURF) at South Dakota School of Mines and Technology, Rapid City, USA, May 13-15, 2017.
 84. Delivered an invited seminar lecture at the South Dakota School of Mines and Technology, Rapid City, USA on Feb 21, 2017.
 85. Delivered a plenary speech on '**Biochemical conversion for lignocelluloses based biofuels and value added products**' in an International Conference on 'Science, Engineering & Technical Innovations' organized by CT Group of Institutions during Jun 03-04, 2016.
 86. Delivered a keynote speech on '**Biorefining of lignocelluloses for biofuels and value added products**' in a National Conference on 'Bioresources as a key to value added products' organized by Department of Biotechnology, Institute of Engineering & Technology, Mangalayatan University, Aligarh during Apr 29-30, 2016.
 87. Delivered an invited lecture on Apr 12, 2016 on '**Simultaneous saccharification and fermentation of paddy straw at high solid loading by a novel thermotolerant isolate *K. marxianus* NIRE-K3 for bioethanol production**' in TEQIP-II sponsored National Conference on

'Application of Biotechnology in Industry and Society' organized by Department of Biotechnology, Dr B.R. Ambedkar National Institute of Technology, Jalandhar, Apr 12-14, 2016.

88. Delivered an invited talk on '**Biogas production from lignocelluloses using thermophilic consortium**' in National Conference on Biogas at Hotel Holiday Inn, Mayur Vihar Phase-I, New Delhi on Dec 17, 2015 organized by Resonance Energy in conjunction with Goverdhan Gas.
89. Delivered a Lecture in TEQIP-II sponsored Short Term Training Course on 'Advances in Industrial Biotechnology' organized by Department of Biotechnology, Dr B.R. Ambedkar National Institute of Technology, Jalandhar on Dec 3, 2015.
90. Delivered an invited talk in the Department of Biotechnology, Doaba College, Jalandhar, India under the DBT Star College Scheme on Oct 14, 2015.
91. Delivered an invited talk on '**Biogas production from lignocelluloses using thermophilic consortium: perception and possibility**' in the National Biogas Convention – 2015 on Current and Emerging Trends in Indian Biogas and Bio-fertilizer Development (CETIBBD-2015) during Sep 15-17, 2015 at IITD organized by the Centre for Rural Development and Technology, Indian Institute of Technology Delhi, India.
92. Delivered an invited talk on Nov 20, 2014 on '**Biochemical Conversion Technologies for the production of biofuels**' in the Symposium on Recent Advances in Biotechnology for Food and Fuel at The Energy and Resource Institute (TERI), New Delhi, Nov 19-20, 2014.
93. Delivered a plenary address on '**Bioenergy: current status and future perception in India**' at the 2nd U6 Consortium International Conference in the Cape Peninsula University of Technology, Cape Town, South Africa during Sep 6-10, 2014.
94. Delivered a Lecture in Short Term Training Programme on 'Recent Advances in Energy Technology' under TEQIP-II organized by Department of Chemical Engineering, Dr B.R. Ambedkar National Institute of Technology, Jalandhar on Jun 3, 2014.
95. Delivered a Lecture in TEQIP sponsored Short Term Training Programme on 'Bioenergy Technologies for Power & Environmental Applications' in the Department of Mechanical Engineering, SLIET, Longowal on Dec 19, 2013.
96. Delivered a Lecture in TEQIP sponsored Short Term Course 'Energy and Environment Management' organized by Department of Chemical Engineering, Dr B.R. Ambedkar National Institute of Technology, Jalandhar, Oct 21, 2013.
97. Delivered a Lecture at IITT college of Engineering, Pojewal, Punjab (India), Mar 23, 2012.
98. Delivered an invited talk on '**Bioethanol production from multi-feed-stocks using thermophilic yeast**' during IIP Golden Jubilee Symposium on Biotechnology- A Road Map Towards Sustainable Energy, Dec 10-12, 2009 at Indian Institute of Petroleum, Dehradun (India).

Awards

1. Selected as Bioenergy-Awards for Cutting Edge Research (B-ACER) Fellow 2016 by the Department of Biotechnology, Govt. of India and the Indo-U.S. Science and Technology Forum (IUSSTF).
2. Recipient of 2016 ASM-IUSSTF Indo-US Research Professorship by the American Society for Microbiology (ASM) and the Indo-US Science and Technology Forum (IUSSTF).
3. Best Paper Award to Advisee in poster presentation for the paper entitled "Biogas upgrading and carbon dioxide sequestration using microalgae" presented in ICRABR-2016 during Mar 25-27, 2016, at SSS-NIBE, Kapurthala, India.
4. First Prize to Advisee in oral presentation for the paper entitled, "Biochemical Conversion of Rice Straw (*Oryza sativa* L.) to Bioethanol using Thermotolerant isolate *K. marxianus* NIRE-K3" presented in EBAS-2014 during Nov 14-15, at LPU, Jalandhar, India.
5. Best Paper Award to Advisee to the research paper entitled 'Evaluation of ethanol production by yeast strains isolated from soil samples' in the World Renewable Energy Technology Congress (WRETC-2013) during Sep 25-27, 2013, New Delhi (India).
6. The most coveted Institutional and Globally reputed Presentation of '**Bharat Jyoti Award**' along with '**Certificate of Excellence**' for outstanding contribution in R&D presented by India International Friendship Society on May 4, 2012.

7. CSIR- **Senior Research Fellowship (GATE)** May 2006 to Apr 2009
8. CSIR- **Junior Research Fellowship (GATE)** May 2004 to Apr 2006

Honours

1. Expert Member, Committee of Experts on Compressed Biogas (CBG) Projects constituted by the Governor of Punjab, vide notification no. POWER-ENRG018/16/2024-ENERGY/896 dated 19.03.2025.
2. Chaired the technical session in CHEMCON-2024, Dec 27-30, 2024 at National Institute of Technology, Jalandhar (India).
3. Member, Board of Studies of the Centre for Energy & Environment, Dr. B.R. Ambedkar National Institute of Technology, Jalandhar (May 2023).
4. Expert Panelist in Panel Discussion during “**R&D Conclave on Renewable Energy**” on Apr 12, 2023 organized by the Ministry of New and Renewable Energy in association with the Shakti Foundation and RTI International.
5. Member of Expert Panel of BIS for development of Design, Construction, Installation and Operation of Biogas (Biomethane) Plant – Code of Practice in India.
6. Chaired a session during an International Conference on Recent Advances in Biotechnology (icRAB-2022) Organized by the Department of Biotechnology and Department of Chemical Engineering, Dr B R Ambedkar National Institute of Technology Jalandhar in association with Science Technology & Innovation Hub (STI Hub) on Dec 03, 2022.
7. National advisory committee member in an International Conference on Recent Advances in Biotechnology (icRAB-2022) Organized by the Department of Biotechnology and Department of Chemical Engineering, Dr B R Ambedkar National Institute of Technology Jalandhar in association with Science Technology & Innovation Hub (STI Hub) during Dec 02-04, 2022.
8. Chaired the session in National Seminar on Increasing Participation of Women in Science and Technology organized by Hans Raj Mahila Maha Vidyalaya, Jalandhar in collaboration with National Commission for Women, GOI on Mar 16, 2019.
9. Scientific Committee member of International Conference on Renewable Energy (ICREN 2019) to be held in UNESCO Paris Apr 24-26, 2019.
10. Jury Member in INNO-TECH-2019 organized by Pushpa Gujral Science City Kapurthala, India Mar 18-19, 2019.
11. Chaired the technical session in CHEMCON-2018, Dec 27-30, 2018 at National Institute of Technology, Jalandhar (India).
12. Scientific Committee member of International Conference on Renewable Energy (ICREN 2018) held in Barcelona Apr 25-27, 2018.
13. Technical Committee Member of 2nd International Conference on Sustainable and Renewable Energy Engineering (ICSREE 2017) to be held during May 10-12, 2017 in Hiroshima, Japan.
14. Technical Committee Member of 2nd International Conference on Green Energy and Applications (ICGEA 2017) in Nanyang Technological University, Singapore during Mar 25-27, 2017.
15. Chaired the technical session during an International Conference on ‘Science, Engineering & Technical Innovations’ organized by CT Group of Institutions during Jun 03-04, 2016.
16. Chaired the technical session during National Conference on ‘Bioresources as a key to value added products’ organized by Department of Biotechnology, Institute of Engineering & Technology, Mangalayatan University, Aligarh during Apr 29-30, 2016.
17. Chaired the technical session during National Conference on ‘Advances in Chemical and Environmental Engineering’ organized by Department of Chemical Engineering, Dr B.R. Ambedkar National Institute of Technology, Jalandhar during Apr 22-23, 2016.
18. Chaired the technical session during TEQIP-II sponsored National Conference on ‘Application of Biotechnology in Industry and Society’ organized by Department of Biotechnology, Dr B.R. Ambedkar National Institute of Technology, Jalandhar during Apr 12-14, 2016.
19. Judged the poster and model competition in Inter College Science Fair SCICARNIVAL-2016 at Hans Raj Mahila Maha Vidyalaya, Jalandhar on Feb 05, 2016.

20. Member, National Advisory Committee of 3rd International conference on “Bioenergy, Environment and Sustainable Technologies (BEST 2017)” during Jan 22-25 2017 at Arunai Engineering College, Tiruvannamalai.
21. Technical Committee member, International Conference on Sustainable and Renewable Energy Engineering (ICSREE 2016) in Seoul, South Korea during May 5-7, 2016.
22. Biography included in Marquis Who’s Who in 12th Edition of Science and Engineering 2016-2017.
23. Member of Advisory Board in National Conference on Bioresources as a key to value added Product to be held during Apr 29-30, 2016 at Mangalayatan University, Aligarh, India.
24. Technical Committee Member for International Conference on ‘Biofuels and Bio-energy: International Conference and Exhibition’ during Feb 23-25, 2016 jointly organized by MANIT, Bhopal with WEENTECH, Coventry University campus, UK.
25. Scientific Committee member for ‘International Conference on Energy, Environment and Climate Change (ICEECC 2015)’ on Jul 8-9, 2015 in the University of Mauritius, Mauritius.
26. Biography included in Marquis Who’s Who in the World- 32nd Edition 2014.
27. Biography included in Marquis Who’s Who in the World- 31st Edition 2013.
28. Chaired the technical session ‘Renewable Energy’ in CHEMCON-2012, Dec 27-30, 2012 at National Institute of Technology, Jalandhar (India).

Foreign Visits

- Visited North Carolina and California, United States of America: 2024 Experience Sharing Study Trip to the US, hosted by USAID/India, Facilitated by USAID South Asia Regional Energy Partnership (SAREP) Program during Aug 24-31, 2024.
- Visited South Dakota School of Mines and Technology, United States of America to availed two fellowships for a year during Nov 2016-Oct 2017.
- Visited Cape Peninsula University of Technology, Cape Town, South Africa to deliver a plenary address at the 2nd U6 Consortium International Conference during Sep 6-12, 2014.
- Visited Kampala, Uganda for Exposure-cum-study tour to Uganda in the CDM Program of Activities (PoA) under Indo-German Bilateral Development Cooperation Program during Jul 20-26, 2014.

Associateship/Membership of Professional Societies

1. Associate Editor, Biotechnology for Biofuels and bioproducts
2. Member (2017) of **Society for Industrial Microbiology and Biotechnology** (5057370)
3. Founder Secretary, Bio-Energy Alliance
4. Editor, Journal of Biofuels and Bioenergy
5. Associate Editor, Frontiers in Energy Research
6. Associate Editor, Frontiers in Bioengineering and Biotechnology
7. Associate Editor, Frontiers in Marine Science
8. Life Member of **The Indian Science Congress Association** (L22542)
9. Editorial Board Member of American Journal of Energy Research
10. Life member of **Biotech Research Society of India** (LM 502)
11. Life member of **Indian Institute of Chemical Engineers** (LM 35050)

Conferences/ Training Programs Organized

1. One-week National Hands-on Training Program on 'Biogas Technology and its Implementation', Oct 21-25, 2024 at SSS-National Institute of Bio-Energy, Kapurthala in collaboration with Indian Biogas Association in hybrid mode.
2. One-day Workshop on Idea, Research, Innovation, Intellectual Property Rights and Technology Transfer, Apr 30, 2024 at SSS-National Institute of Bio-Energy, Kapurthala with the support of Punjab State Council for Science & Technology.

3. Workshop cum Awareness Programme. Apr 09-10, 2024, in collaboration with National Institute of Technology Hamirpur (NITH) & Jal Shakti Vibhag, Hamirpur under the project funded by National Mission on Himalayan Studies (NMHS).
4. One-week National Hands-on Training Program on 'Biogas Technology and its Implementation', Feb 19-23, 2024 at SSS-National Institute of Bio-Energy, Kapurthala in collaboration with Indian Biogas Association.
5. 4th International Conference on 'Recent Advances in Bio-energy Research' (ICRABR-2023), Oct 09-12, 2023 at SSS-National Institute of Bio-Energy, Kapurthala.
6. One-week National Hands-on Training Program on '**Biogas Technology and its Implementation**', Oct 17-21, 2022 at SSS-National Institute of Bio-Energy, Kapurthala.
7. 3rd International Conference on 'Recent Advances in Bio-energy Research' (ICRABR-2022), Mar 09-11, 2022 in virtual mode at SSS-National Institute of Bio-Energy, Kapurthala.
8. Two-day Virtual Training Program on '**Biogas Technology and its Implementation**', Nov 25-26, 2021 at SSS-National Institute of Bio-Energy, Kapurthala in collaboration with India Biogas Association.
9. One-day Bilateral Exchange Programme between India and Germany on '**Rice Straw Biogas Technology and its Implementation**', May 05, 2021 in a virtual mode.
10. Three-day Classroom/ Virtual Training Program on '**Biogas Technology and its Implementation**', Mar 24-26, 2021 at SSS-National Institute of Bio-Energy, Kapurthala in collaboration with India Biogas Association.
11. One-week National Training Program on '**Renewable Energy: special focus on Bioenergy**', Mar 2-6, 2020 at SSS-National Institute of Bio-Energy, Kapurthala.
12. Four-day National Training Program on '**Bioenergy: Technology, Demonstration and its Implementation**', Nov 5-8, 2019 at SSS-National Institute of Bio-Energy, Kapurthala.
13. Three days Training Program on '**Bioenergy: Technology, Demonstration and its Implementation**', Feb 27- Mar 01, 2019 at SSS-National Institute of Bio-Energy, Kapurthala
14. Three days Training Program on '**Biogas Technology and its Implementation**', Mar 7-9, 2018 at SSS-National Institute of Bio-Energy, Kapurthala.
15. One week Training Program on '**Hands on Analytical and Molecular Techniques: Extremophilic and Microbial Processes for Biofuels**', Aug 01-05, 2016 at SSS-National Institute of Bio-Energy, Kapurthala.
16. One week Training Program on '**Hands on Analytical and Molecular Techniques: Biochemical based Biorefineries for Advanced Biofuels and Value-added Products**', Mar 14-18, 2016 at SSS-National Institute of Bio-Energy, Kapurthala.
17. 2nd International Conference on '**Recent Advances in Bio-energy Research**' (ICRABR-2016), Feb 25-17, 2016 at SSS-National Institute of Bio-Energy, Kapurthala.
18. First International Conference on '**Recent Advances in Bio-energy Research**' (ICRABR-2015), Mar 14-17, 2015 at SSS-National Institute of Renewable Energy, Kapurthala.
19. One week Training Program on '**Hands on Analytical and Molecular Techniques: Biomass based Biorefineries: An Emerging Incentive for Advanced Biofuels and Value-added Products**', Feb 23-27, 2015 at SSS-National Institute of Renewable Energy, Kapurthala.
20. Training Program on '**Hands on Analytical and Molecular Techniques: Biochemical Conversion Technologies for Advanced Biofuels**', Mar 10-12, 2014 at SSS-National Institute of Renewable Energy, Kapurthala.
21. 3rd National Conference on '**Recent Advances in Bio-energy Research**', Nov 22-24, 2013 at SSS-National Institute of Renewable Energy, Kapurthala.
22. Training Program on '**Hands on Analytical and Molecular Techniques: Biochemical Conversion Technologies for Advanced Biofuel**', Feb 19-20, 2013 at SSS-National Institute of Renewable Energy, Kapurthala.
23. 2nd National Conference on '**Recent Advances in Bio-energy Research**', Dec 7-8, 2012 at SSS-National Institute of Renewable Energy, Kapurthala.
24. National Training Program on '**Bio-energy Technology**', Mar 16-17, 2012 at SSS-National Institute of Renewable Energy, Kapurthala.

25. 1st National Conference on '**Recent Advances in Bio-energy Research**', Nov 25-26, 2011 at SSS-National Institute of Renewable Energy, Kapurthala.

Training/Workshop Attended

1. Three-day Residential Training on "Compressed Biogas (CBG): Potential, Technology, Policy, Operation, and Economics" at the Anil Agarwal Environment Training Institute, Nimli, Rajasthan during Apr 11-13, 2023 organized by the Centre for Science and Environment, New Delhi.
2. Five days e- training program on Emotional Intelligence at Workplace for Scientists/Technologists sponsored by DST, GoI during Feb 15-19, 2021 organized by Centre for Organization Development.
3. Four days training programme on 'Laboratory Quality Management System & Internal Audit as per IS/ISO/IEC 17025:2017' during Mar 17-20, 2020 at National Institute of Training for Standardization (Bureau of Indian Standards), Noida.
4. Workshop-cum-course on 'Technoeconomic and Life-Cycle Assessment as Tools for Sustainability Analysis' during Aug 6-10, 2018 at CSIR-Indian Institute of Toxicology Research (CSIR-IITR), Lucknow.
5. Update Course on Biogas Energies online course conducted by CI Biogas Renewable Energy, Brazil during Aug 01-Nov 02, 2016.
6. Training Programme on 'Patent filing, processing and drafting' at Rajiv Gandhi National Institute of Intellectual Property Management, Nagpur during Nov 2-4, 2015.
7. Workshop on SuperPro & SchedulePro at IIT Delhi during Feb 12-13, 2015 organized by INTELLIGEN, INC., USA.
8. Three days workshop on "**Genomics: Database and Web Technologies**" at Biotech Park, Lucknow, May 18-20, 2006, sponsored by DBT, Govt. of India, New Delhi.
9. Three days workshop on "**Use of Radioisotopes in Biology**" at DIBNS, Dehradun, Nov 25-27, 2005, organized by Board of Radiation and Isotope Technology, Govt. of India, DAE, Mumbai.
10. **Entrepreneurship Awareness Camp** at STEP, HBTI, Kanpur, Dec 11-13, 2002, sponsored by Department of Science and Technology, Govt. of India, New Delhi.
11. Six weeks **Summer Training in B.Tech.** at Mohan Meakin, Ghaziabad in Brewery, Central laboratory and Corn flakes division, May 20-Jun 30, 2002.

Technical Skills

Bioreactor design and Scale-up; Handling of Bioreactor, HPLC, GC, Spectrophotometer, SDS-PAGE, Protein purification by Fast Protein Liquid Chromatography, Cloning, PCR, RT-PCR, Ultrafiltration; Isolation of chromosomal and plasmid DNA.

Area of Interest

Biorefinery, Biofuels, Industrial Biotechnology, Bioprocess Engineering, Enzyme Technology, Metagenomics, Molecular Biology, Biogas, Algal Biomass, Algal Fuel Cell.

Date: Jul 30, 2025

Place: Kanpur (India)

(SACHIN KUMAR)