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(*Featured in the list of World's Top 2% Scientists, created by* ***Stanford University, United States*** *and published by* ***Elsevier****, in 2026, 2025, 2024, and 2023*)

Awards/Honors to my students:

1) **Ms. Prashansa Shukla, PhD scholar (Reg. No. 2025RCL06)** bagged **1st Prize** in the **Best Paper Presentation Category** for the paper titled "Bio-oil and biochar from sweet lime (*Citrus limetta*) peel waste in a customized pyrolysis unit: Characterization and application" authored by Prashansa Shukla, Ankita Kumari Singh, Saurav Kandpal, Shabih-Ul Hasan, and Ashish N. Sawarkar, in one of the technical sessions of the **2nd International Conference on Health and Agricultural Biotechnology: Interdisciplinary Trends (HABIT-2026)** organized by the Department of Biotechnology, MNNIT Allahabad during **October 30-November 1, 2026**.

2) **Ms. Ankita Kumari Singh, PhD scholar (Reg. No. 2025RCL03)** bagged **3rd Prize** in the **Best Paper Presentation Category** for the paper titled "Syngas and biochar from municipal sewage sludge via thermochemical conversion: Comparative assessment of sludge samples from two sewage treatment plants" authored by Ankita Kumari Singh, Prashansa Shukla, Rintu Mahapatra, Saurav Kandpal, and Ashish N. Sawarkar, in one of the technical sessions of **the 2nd International Conference on Health and Agricultural Biotechnology: Interdisciplinary Trends (HABIT-2026)** organized by the Department of Biotechnology, MNNIT Allahabad during **October 30-November 1, 2026**.

3) **Mr. Saurav Kandpal, PhD scholar (Reg. No. 2024RCL02)** bagged **3rd Prize** in the **Best Paper Presentation Category** for the paper titled "A novel integrated machine learning approach for accurate estimation of kinetic and thermodynamic parameters for pyrolysis of biomass from feedstock composition" authored by Saurav Kandpal, Rintu Mahapatra, Jyeshtharaj B. Joshi, and Ashish N. Sawarkar, in one of the technical sessions of the **2nd International Conference on Health and Agricultural Biotechnology: Interdisciplinary Trends (HABIT-2026)** organized by the Department of Biotechnology, MNNIT Allahabad during **October 30-November 1, 2026**.

4) **Mr. Saurav Kandpal, PhD scholar (Reg. No. 2024RCL02)** bagged **Best Presentation Award** for the paper titled "*Sewage sludge-derived biochar through pyrolysis in a horizontal tubular furnace: Production, characterization, and potential application as an energy storage material*" authored by Saurav Kandpal and Ashish N. Sawarkar, in **All India Seminar** on **Advanced Materials for Sustainable Development** organized by the **Institution of Engineers (India) [IEI], Prayagraj Local Chapter** in association with **Department of Mechanical Engineering, Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India** during October 31- November 1, 2025.

5) **Dr. Ankita Tagade** bagged the prestigious **National Post Doctoral Fellowship (N-PDF**) (2025) of **Anusandhan National Research Foundation (ANRF)**, Department of Science and Technology, Ministry of Education, Government of India, for post-doctoral research work with Prof. Kaustubha Mohanty, IIT Guwahati.

6) **Mr. Saurav Kandpal, PhD scholar (Reg. No. 2024RCL02)** bagged **Best Paper Presentation Award** for the paper titled "*Machine learning prediction of syngas composition from co-gasification of biomass and petcoke with insights into physics-informed modeling*" authored by Saurav Kandpal and Ashish N. Sawarkar, in **All India Seminar** on **Sustainable Technology**

Solutions for Rural India towards Viksit Bharat organized by the **Institution of Engineers (India) [IEI], Prayagraj Local Chapter** in association with **School of Management Studies, Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India** during July 26-27, 2025.

7) **Mr. Saurav Kandpal, PhD scholar (Reg. No. 2024RCL02)** was adjudged with the **HABIT-2025 Young Researcher Award** for the paper titled "*Hydrogen-rich syngas production through co-gasification of biomass and petcoke in a horizontal tubular furnace and modeling the intricate process through machine learning*" authored by Saurav Kandpal, Mohammad Anas, Suantak Kamsonlian, and Ashish N. Sawarkar, in the session "Interdisciplinary approaches in Health, Food, Agriculture, and Environment" of **International Conference on Health and Agricultural Biotechnology: Interdisciplinary Trends (HABIT-2025)**, organized by **Department of Biotechnology, Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India** during February 28-March 2, 2025.

8) **Mr. Saurav Kandpal [M.Tech. (2023-24)] (Reg. No. 2022CL02)** was awarded with the **Ambuja's Young Researcher's Award [2024]** for doing post-graduate studies in India after GATE Examination for the thesis titled **"*Prediction of Biochar Yield and Higher Heating Value from Biomass Pyrolysis through Machine Learning*"** by the **Indian Institute of Chemical Engineers (IIChE)** during inaugural function of the **77th Annual Session of IIChE, Indian Chemical Engineering Congress (CHEMCON-2024)** held at **Dr. B. R. Ambedkar National Institute of Technology Jalandhar, Punjab, India** during December 27-30, 2024.

9) **Mr. Saurav Kandpal [M.Tech. (2023-24)] (Reg. No. 2022CL02)** was adjudged with the **Best M.Tech. Thesis Award** for the thesis titled "***Prediction of Biochar Yield and Higher Heating Value from Biomass Pyrolysis through Machine Learning***" during the *4th International Symposium on Analytical and Applied Pyrolysis* **(PYROASIA 2024)**, a flagship annual event of **Pyro Asia Forum**, organized by **IIT Guwahati, India** and **Frontier Laboratories, Japan**, held during November 28-29, 2024 at IIT Guwahati.

10) **Ms. Ankita Tagade, PhD scholar (Reg. No. 2020RCL05)** bagged **Best Paper Award** for the paper titled "*An in-depth analysis of biochar synthesis via slow pyrolysis of banana agro-residue: characterization and emerging applications*" authored by Ankita Tagade, Saurav Kandpal, and Ashish N. Sawarkar, in one of the technical sessions of the **National Conference on Recent Trends in Biotechnology Research–HAPTEN2024** organized by Department of Biotechnology, **Arunai Engineering College, Affiliated to Anna University, Tiruvannamalai, Tamilnadu, India** in association with *BRSI* held on March 22, 2024.

11) **Mr. Saurav Kandpal, [M.Tech. (2023-24)] (Reg. No. 2022CL02)** bagged **Best Paper Award** for the paper titled "*Novel rotary kiln reactor for biochar production through biomass pyrolysis and its application in microbial fuel cells*" authored by Saurav Kandpal, Ankita Tagade, and Ashish N. Sawarkar, in one of the technical sessions of ***1st International Conference on Advancement in Energy*** **(ऊर्जाSangam-2023)** organized by the **Department of Mechanical Engineering, Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India** during December 18-20, 2023.

12) **Ms. Ankita Tagade, PhD scholar (Reg. No. 2020RCL05)** bagged **Best Paper Award** for the paper titled "*A comprehensive evaluation on the synthesis and characterization of biochar derived from slow pyrolysis of sorghum millet straw for its prospective applications*" authored by Ankita Tagade and Ashish N. Sawarkar, in the National Conference on "Sustainable Technologies in Chemical-Biological Systems" (STCBS-2023) held at **Arunai Engineering College, Affiliated to Anna University, Tiruvannamalai, Tamilnadu, India in association with BRSI, IIChE and ISTE** during April 5-6, 2023.

13) **Ms. Lakshmi Rajpoot [M.Tech. (2021-22)] (Reg. No. 2020CL06)** was adjudged with **Ambuja's Young Researcher's Award [2022]** for doing post-graduate studies in India after GATE Examination for the thesis titled "*Pyrolysis of Flaxseed De-oiled Cake: Physico-chemical*

Characterization, Kinetics, and Thermodynamic analysis" by **Indian Institute of Chemical Engineers (IIChE), Kolkata**.

14) **Ms. Ankita Tagade, PhD scholar (Reg. No. 2020RCL05)**, bagged **First Prize** in *Poster presentation* for the poster titled "*Millets: a "wonder crop" for food security, health and a plausible solution for sustainable future*" in the workshop on "Introduction of millets in day-to-day life for a healthy well being" organized by **Central Library, Motilal Nehru National Institute of Technology Allahabad, Prayagraj** on November 30, 2022.

15) **Mr. Zavin Gajera (Reg. No. 2018CL06)** [M.Tech. Chemical Engineering (2019-20)] received **ISTE-IPCL National Award for Best M.Tech. Thesis in Chemical Engineering (First Prize)** for the thesis titled "*Studies on Co-gasification of Petcoke and Biomass*".

16) **Mr. Nikhil Kirti (Reg. No. 2019CL05)** [M.Tech. Chemical Engineering (2020-21)] received **ISTE-IPCL National Award for Best M.Tech. Thesis in Chemical Engineering** (**Second Prize**) for the thesis titled "*Kinetic and Thermodynamic Analysis of Pyrolysis of Pigeon Pea (Cajanus cajan) Stalk*".

17) **Mr. Ramprakash Nagar (Reg. No. 20189042)** (Final year B.Tech. Chemical Engineering (2021-22)) was adjudged with the **First Runner-up Presenter** award for the paper titled "*Bioenergy potential of sugarcane leaves via pyrolysis: Characterization, kinetics, and reaction mechanism*" authored by *Ramprakash Nagar, Avadhesh Sehra,* and *Ashish N. Sawarkar*, in one of the technical sessions (Biomass Utilization and Bioenergy (Part-1)) of the ***International Conference on Technological Interventions for Sustainability*** **(CHEM-CONFLUX[22])** jointly organized by **MNNIT Allahabad** and **USM Malaysia** during April 14-16, 2022.

18) **Mr. Gunavant Deshpande**, **Ph.D. scholar (Reg. No. 2019RCL51)** was adjudged with the **Best Oral Presenter** award for the paper titled "*Multiobjective optimization with minimization of eco-indicator and damage index for ultrasound intensified in situ biodiesel production from microalgae*" authored by *Gunavant Deshpande, Dipesh S. Patle,* and *Ashish N. Sawarkar*, in one of the technical sessions (Biomass Utilization and Bioenergy (Part-2)) of the ***International Conference on Technological Interventions for Sustainability*** **(CHEM-CONFLUX[22])** jointly organized by **MNNIT Allahabad** and **USM Malaysia** during April 14-16, 2022.

19) **Ms. Ankita Tagade, PhD scholar (Reg. No. 2020RCL05)** was adjudged with the **Best Oral Talk** for the paper titled "*Valorization of finger millet straw as a precursor for biochar production: production, characterization, and applications*" authored by *Ankita Tagade* and *Ashish N. Sawarkar*, in one of the technical sessions (*Renewable and Sustainable Energy*) of the National Conference on "**Advances in Chemical Engineering and Science" (ACES-2022)** held at **Indian Institute of Science Education and Research (IISER) Bhopal** during 25-26 March, 2022.

20) **Mr. Trilok Patil (Reg. No. 20169024)** (Final year B.Tech. Chemical Engineering (2019-20), Motilal Nehru National Institute of Technology Allahabad, Prayagraj, Uttar Pradesh) received financial award by **MNNIT Alumni Association (MAA)** for publishing paper in SCI Journal **(*Bioresource Technology; Impact Factor (2021): 11.889*)**

21) **Mr. Sagar Hatwar** (Final year B.Tech. Chemical Engineering (2012-13), Anuradha Engineering College, Chikhli, Maharashtra) won **First Prize** for the paper titled "*Ionic liquids: Novel versatile lubricants/lubricant additives*" in ***National Level Technical Paper Presentation Competition*, THRESHOLD-2012** held at **Babasaheb Naik College of Engineering, Pusad, Maharashtra**.

Details of Papers Published in Peer-reviewed (SCI/SCIE/ESCI) Journals:

1. Bharti, B., Chawade, N. S., Kandpal, S., **Sawarkar, A.N.,** Patle, D.S., **2026**. Valorization of mixed-chlorella strains via lipid-derived biodiesel and pyrolysis of defatted residues: Kinetics and thermodynamics. ***Chemical Engineering Research and Design***, 230, 324-336. https://doi.org/10.1016/j.cherd.2026.04.055

2. Ahmed A., Bora, B., **Sawarkar, A. N.,** Ghime, D., Geed, S.R., **2026**. Smart nanomaterials in seawater desalination: Advances from molecular engineering to water security. ***Journal of Environmental Chemical Engineering,*** 14, 122632. https://doi.org/10.1016/j.jece.2026.122632
3. Ahmed, A., Kandpal, S., **Sawarkar, A. N.,** Geed, S. R., **2026**. Insights into pyrolysis of intermediate fuel oil sludge for energy recovery: Characterization, kinetics, reaction mechanism, and thermodynamic analysis. ***Journal of Analytical and Applied Pyrolysis***, 195, 107689. https://doi.org/10.1016/j.jaap.2026.107689
4. Singh, S., Kandpal, S., Geed, S. R., **Sawarkar, A. N., 2025**. Co-pyrolysis of garlic (*Allium sativum* L.) straw and polyethylene waste through thermogravimetric analysis: Assessing synergistic effects in terms of kinetic and thermodynamic analyses. ***Bioresource Technology***, 438, 133228. https://doi.org/10.1016/j.biortech.2025.133228
5. Kandpal, S., Anas, M., Yadav, S., Geed, S.R., Kamsonlian, S., **Sawarkar, A. N., 2025**. Machine learning models for co-gasification of petcoke with biomass/coal: A comparative analysis of bagging, boosting, and neural networks with model interpretation using shapley additive and local interpretable model-agnostic explanations. ***Journal of Environmental Chemical Engineering***, 13, 118206. https://doi.org/10.1016/j.jece.2025.118206
6. Kumar, V., Agrawal, A., Chaudhari, P.K., Thakur, C., Kushwaha, J.P., **Sawarkar, A. N., 2025**. Bio-treatment of mixed dye wastewater in aerobic sequential batch reactor. ***Journal of the Indian Chemical Society***, 102, 101957. https://doi.org/10.1016/j.jics.2025.101957
7. Tagade, A., Kandpal, S., Singh, S., **Sawarkar, A. N., 2025**. Kinetic and thermodynamic analyses of pyrolysis of finger millet (*Eleusine coracana*) straw through both model-free and model-based methods and application of ANN-based machine learning model to predict thermal degradation. ***Bioresource Technology Reports***, 30, 102139. https://doi.org/10.1016/j.biteb.2025.102139
8. Tekade, S.P., Gugale, P.P., Gohil M.L., Gharat, S.H., Patil, T., Chaudhari, P.K., Patle, D.S., **Sawarkar, A.N., 2025.** Pyrolysis of waste polyethylene under vacuum using zinc oxide. ***Energy Sources, Part A: Recovery, Utilization, and Environmental Effects***, 47, 3597-3610. https://doi.org/10.1080/15567036.2020.1856976
9. Bharti, B., Kandpal, S., **Sawarkar, A. N.,** Patle, D., **2024**. Holistic approach for sequential transesterification and pyrolysis of microalgal biomass: Kinetic and thermodynamic analysis of pyrolysis using model-free and model-based approaches. ***Renewable Energy***, 235, 121319. https://doi.org/10.1016/j.renene.2024.121319
10. Kandpal, S., Tagade, A., **Sawarkar, A. N., 2024**. Critical insights into ensemble learning with decision trees for the prediction of biochar yield and higher heating value from pyrolysis of biomass. ***Bioresource Technology,*** 411, 131321. https://doi.org/10.1016/j.biortech.2024.131321
11. Gautom, S., Bora, B., Talukdar, P., Ahmed, A., **Sawarkar, A. N.,** Saikia, R., Geed, S.R., Verma, J.S., **2024**. Optimized approach for naphthalene wastewater biodegradation by *Enterobacter ludwigii* NS12 isolated from petroleum industry sludge: Bioreactor study and kinetic investigation. ***Journal of Water Process Engineering***, 62, 105359. https://doi.org/10.1016/j.jwpe.2024.105359
12. Tagade, A., Kandpal, S., **Sawarkar, A. N., 2024**. Insights into pyrolysis of pearl millet (*Pennisetum glaucum*) straw through thermogravimetric analysis: Physico-chemical characterization, kinetics, and reaction mechanism. ***Bioresource Technology***, 391, 129930. https://doi.org/10.1016/j.biortech.2023.129930
13. Singh, S., **Sawarkar, A. N., 2024**. Thermal decomposition aspects and kinetics of pyrolysis of garlic stalk. ***Energy Sources, Part A: Recovery, Utilization, and Environmental Effects***, 46, 4914-4924. https://doi.org/10.1080/15567036.2020.1716891
14. Singh, P., Singh, R.K., Gokul, P.V., Hasan, S.H., **Sawarkar, A. N., 2024**. Thermal degradation and pyrolysis kinetics of two Indian rice husk varieties using thermogravimetric analysis. ***Energy***

Sources, Part A: Recovery, Utilization, and Environmental Effects, 46, 5632-5643. https://doi.org/10.1080/15567036.2020.1736215

15. Tagade, A., **Sawarkar, A. N., 2023**. Valorization of millet agro-residues for bioenergy production through pyrolysis: Recent inroads, technological bottlenecks, possible remedies, and future directions. ***Bioresource Technology***, 384, 129335. https://doi.org/10.1016/j.biortech.2023.129335

16. Sharma, A., Aravind Kumar, A., Mohanty, B., **Sawarkar, A.N., 2023.** Critical insights into pyrolysis and co-pyrolysis of poplar and eucalyptus wood sawdust: Physico-chemical characterization, kinetic triplets, reaction mechanism, and thermodynamic analysis. ***Renewable Energy***, 210, 321-334. https://doi.org/10.1016/j.renene.2023.04.066

17. Sharma, A., Suryawanshi, B., Mohanty, B., **Sawarkar, A.N., 2023**. Comparison of artificial neural network and response surface methodology for evaluation of the predictive capability of bio-oil yield from pyrolysis of *Mangifera indica* wood sawdust. ***Fuel***, 338, 127251. https://doi.org/10.1016/j.fuel.2022.127251

18. Kumar, P., Singh, V.P., Tagade, A., **Sawarkar, A.N., 2023**. Thermochemical characterization of post-phytoremediated vetiver (*Vetiveria zizanioides* (L.) Nash) root and shoot for their prospective bioenergy potential. ***Industrial Crops and Products***, 191, 115964. https://doi.org/10.1016/j.indcrop.2022.115964

19. Rajpoot, L., Tagade, A., Deshpande, G., Verma, K., Geed, S.R., Patle, D.S., **Sawarkar, A.N., 2022**. An overview of pyrolysis of de-oiled cakes for the production of biochar, bio-oil, and pyro-gas: Current status, challenges, and future perspective. ***Bioresource Technology Reports***, 19, 101205. https://doi.org/10.1016/j.biteb.2022.101205

20. Deshpande, G., Shrikhande, S., Patle, D.S., **Sawarkar, A.N., 2022**. Simultaneous optimization of economic, environmental, and safety criteria for algal biodiesel process retrofitted using dividing wall column and multistage vapor recompression. ***Process Safety and Environmental Protection***, 164, 1-14. https://doi.org/10.1016/j.psep.2022.05.059

21. Geed, S.R., **Sawarkar, A. N.,** Singh, R. S., Rai, B. N., **2022**. New approach for biodegradation of Malathion pesticide by *Bacillus* sp. isolated from agricultural field: Bioreactor and kinetics. ***Journal of Environmental Chemical Engineering***, 10, 107936. https://doi.org/10.1016/j.jece.2022.107936

22. **Sawarkar, A. N.,** Kirti, N., Tagade, A., Tekade, S. P., **2022**. Bioethanol from various types of banana waste: A review. ***Bioresource Technology Reports***, 18, 101092. https://doi.org/10.1016/j.biteb.2022.101092

23. Singh, S., Tagade, A., Verma, A., Sharma, A., Tekade, S.P., **Sawarkar, A. N., 2022**. Insights into kinetic and thermodynamic analyses of co-pyrolysis of wheat straw and plastic waste via thermogravimetric analysis. ***Bioresource Technology***, 356, 127332. https://doi.org/10.1016/j.biortech.2022.127332

24. Deshpande, G., Shrikhande, S., **Sawarkar, A.N.,** Patle, D.S., **2022**. Multiobjective optimization of ultrasound intensified and ionic liquid catalyzed in situ algal biodiesel production considering economic, environmental and safety indicators. ***Chemical Engineering Research and Design***, 180, 134-152. https://doi.org/10.1016/j.cherd.2022.02.011

25. Kirti, N., Tekade, S.P., Tagade, A., **Sawarkar, A. N., 2022**. Pyrolysis of pigeon pea (*Cajanus cajan*) stalk: Kinetics and thermodynamic analysis of degradation stages via isoconversional and master plot methods. ***Bioresource Technology***, 347, 126440. https://doi.org/10.1016/j.biortech.2021.126440

26. Singh, R.K., Patil, T., Pandey, D., Tekade, S.P., **Sawarkar, A. N., 2022**. Co-pyrolysis of petroleum coke and banana leaves biomass: Kinetics, reaction mechanism, and thermodynamic analysis.

Journal of Environmental Management, 301, 113854. https://doi.org/10.1016/j.jenvman.2021.113854

27. Verma, K., Gajera, Z.R., **Sawarkar, A. N., 2022**. Kinetics of gasification and co-gasification petcoke and coal. ***Journal of Institution of Engineers India (Series E)***, 103, 31–39. https://doi.org/10.1007/s40034-020-00178-x

28. **Sawarkar, A. N., 2022**. Reaction kinetics and coke forming propensities of Arabian mix asphalt vis-a-vis Arabian mix vacuum residue. ***Petroleum Science and Technology***, 40, 1333-1348. https://doi.org/10.1080/10916466.2021.2022695

29. Tekade, S.P., Jadhav, G.R., Kalekar, S.E., Pednekar, A.S., Shende, D.Z., Wasewar, K.L., **Sawarkar, A. N., 2021**. Utilization of human urine and waste aluminum for generation of hydrogen. ***Bioresource Technology Reports***, 15, 100821. https://doi.org/10.1016/j.biteb.2021.100821

30. Singh, R.K., Patil, T., Pandey, D., **Sawarkar, A. N., 2021**. Pyrolysis of mustard oil residue: A kinetic and thermodynamic study. ***Bioresource Technology***, 339, 125631. https://doi.org/10.1016/j.biortech.2021.125631

31. Tagade, A., Kirti, N., **Sawarkar, A. N., 2021**. Pyrolysis of agricultural crop residues: An overview of researches by Indian scientific community. ***Bioresource Technology Reports***, 15, 100761. https://doi.org/10.1016/j.biteb.2021.100761

32. Shrikhande, S., Deshpande, G., **Sawarkar, A.N.,** Ahmad, Z., Patle, D.S., **2021**. Design and retrofitting of ultrasound intensified and ionic liquid catalyzed in situ algal biodiesel production. ***Chemical Engineering Research and Design***, 171, 168-185. https://doi.org/10.1016/j.cherd.2021.05.010

33. Singh, S., Patil, T., Tekade, S.P., Gawande, M.B., **Sawarkar, A. N., 2021**. Studies on individual pyrolysis and co-pyrolysis of corn cob and polyethylene: thermal degradation behavior, possible synergism, kinetics, and thermodynamic analysis. ***Science of the Total Environment***, 783, 147004. https://doi.org/10.1016/j.scitotenv.2021.147004

34. Singh, R.K., Patil, T., Verma, A., Tekade, S.P., **Sawarkar, A. N., 2021**. Insights into kinetics, reaction mechanism, and thermodynamic analysis of pyrolysis of rice straw from rice bowl of India. ***Bioresource Technology Reports***, 13, 100639. https://doi.org/10.1016/j.biteb.2021.100639

35. Patle, D.P., Pandey, A., Srivastava, S., **Sawarkar, A. N.,** Kumar, S., **2021**. Ultrasound-intensified biodiesel production from algal biomass: A review. ***Environmental Chemistry Letters***, 19, 209–229. https://doi.org/10.1007/s10311-020-01080-z

36. Singh, S., **Sawarkar, A. N., 2020.** Pyrolysis of corn cob: Physico-chemical characterization, thermal decomposition behavior and kinetic analysis. ***Chemical Product and Process Modeling***, 16, 117-127. https://doi.org/10.1515/cppm-2020-0048

37. Singh, R.K., Patil, T., **Sawarkar, A. N., 2020**. Pyrolysis of garlic husk biomass: Physico-chemical characterization, thermodynamic and kinetic analyses. ***Bioresource Technology Reports***, 12, 100558. https://doi.org/10.1016/j.biteb.2020.100558

38. Gajera, Z.R., Verma, K., Tekade, S. P., **Sawarkar, A. N., 2020**. Kinetics of co-gasification of rice husk biomass and high sulphur petroleum coke with oxygen as gasifying medium via TGA. ***Bioresource Technology Reports***, 11, 100479. https://doi.org/10.1016/j.biteb.2020.100479

39. Singh, R.K., Pandey, D., Patil, T., **Sawarkar, A. N., 2020**. Pyrolysis of banana leaves biomass: Physico-chemical characterization, thermal decomposition behavior, kinetic and thermodynamic analyses. ***Bioresource Technology***, 310, 123464. https://doi.org/10.1016/j.biortech.2020.123464

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41. **Sawarkar, A. N., 2019**. Cavitation induced upgrading of heavy oil and bottom-of-the-barrel: A review. ***Ultrasonics Sonochemistry***, 58, 104690. https://doi.org/10.1016/j.ultsonch.2019.104690

42. **Sawarkar, A. N., 2019**. Upgrading of Mumbai High vacuum residue. ***Petroleum Science and Technology***, 37, 1090–1098. https://doi.org/10.1080/10916466.2019.1575875

43. Sharma, D., Prajapati, A.K., Chaudhari, R., Kaushal, R.K., Pal, D., **Sawarkar, A. N., 2018**. Preparation and characterization of CuO catalyst for the thermolysis treatment of distillery wastewater. ***Environment Technology***, *39*, 2604-2612.

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44. Choudhary, R., Jyoti., G., Ghosh, P., **Sawarkar, A. N.,** Chaudhari, P.K., **2017**. Electrocoagulation process to remove contaminants of coking wastewater using aluminum electrode. ***Desalination and Water Treatment,*** *86*, 68-79. https://doi.org/10.5004/dwt.2017.20922

45. Disale, S., Kale, S., Abraham, G., Kahandal, S., **Sawarkar, A.N.,** Gawande, M.B., **2016**. A sustainable and efficient synthesis of benzyl phosphonates using PEG/KI catalytic system. ***Frontiers in Chemistry***, *4*, 1-6. https://doi.org/10.3389/fchem.2016.00035

46. Murthy, B.N., **Sawarkar, A. N.,** Mathew T., Deshmukh, N. A., Joshi, J. B., **2014**. Petroleum coke gasification: A review. ***The Canadian Journal of Chemical Engineering***, *92,* 441-468. https://doi.org/10.1002/cjce.21908

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50. **Sawarkar, A. N.,** Pandit, A. B., Samant, S. D., Joshi, J. B., **2007**. Petroleum residue upgrading via delayed coking: A review. ***The Canadian Journal of Chemical Engineering***, *85*, 1-24. https://doi.org/10.1002/cjce.5450850101

Book Chapter:

- Kandpal, S., **Sawarkar, A.N.,** 2025. Production of biochar from sewage sludge and municipal waste, in: Thatoi, H.N., Mohapatra, S., Pandey, A., Lam, S. S. (Eds.), Biochar and the Circular Economy: Innovations in Production and Application. **Taylor & Francis-CRC Press**, ISBN: 9781003659761. https://doi.org/10.1201/9781003659761-8

- Deshpande, G., **Sawarkar, A.N.,** Patle, D.S., 2024. Analysis of safety and economic objectives for intensified algal biodiesel process, in: Patle, D.S. and Rangaiah,G.P. (Eds.), Control and Safety Analysis of Intensified Chemical Processes. **Wiley**, ISBN: 978-3-527-35262-3. https://doi.org/10.1002/9783527843657.ch12

Book/Conference Proceedings:

- Mani, A., Rani, R., Mal, J., Sinha, R., Singh, H., Singh, D.K., Gupta, S., **Sawarkar, A.N.** (Eds.). Abstract Proceedings of the 2nd International Conference on Health and Agricultural Biotechnology: Interdisciplinary Trends (HABIT-2026) organized by the Department of

Biotechnology, MNNIT Allahabad during October 30-November 1, 2026 at Motilal Nehru National Institute of Technology Allahabad, Prayagraj. (ISBN: 978-81-992037-3-0)

- Pandey, A., Pandey, A., Tiwari, A., Kumar, A., **Sawarkar, A.N.,** Kumar, D., Nath, G., Gangwar, J.N., Yadav, M., Kumar, R., Joseph, S., Srivastava, S., Kumar, S. (Eds.). Abstract Proceedings of International Conference on "*Technology and Innovations for Sustainable Development*" (TISD-2023) held during October 27-30, 2023 at Motilal Nehru National Institute of Technology Allahabad, Prayagraj. (ISBN: 978-93-93647-45-0)

- Kumar, S., Patle, D., Katiyar, P., **Sawarkar, A. N.** (Eds). Proceedings of International Conference on *"Technological Interventions for Sustainability"* (CHEM-CONFLUX[22]) held during April 14-16, 2022 at Motilal Nehru National Institute of Technology Allahabad, Prayagraj. (ISBN: 978-93-94086-16-6)

- Chaudhari, P.K., Keshav, A., **Sawarkar, A. N.** (Eds). Proceedings of *National Symposium on Reaction Engineering* (NSRE-2010), held during January 22-23, 2010 at National Institute of Technology, Raipur.

Patent/Design:

Title	Rotary kiln lifters
Application Number	487484-001
Applicants	Saurav Kandpal, Ashish N. Sawarkar
Country	India
Status	FER generated (23/03/2026)

Title	Semi-continuous biochemical reactor for biodiesel production
Registration Number	6310987
Applicants	Saurabh Yadav, Suantak Kamsonlian, Ashish N. Sawarkar, Shailendra Kumar Pandey, and Arvind Kumar Gautam
Country	UK
Status	Granted
Date of Grant	25/09/2023

Invited Talks delivered:

1) Delivered an Invited talk on **"Co-Gasification Modeling of Petroleum Coke with Biomass/Coal using Advanced Machine Learning Models: Identification of the Most Influential Parameters for Syngas Composition"** in the e-Short Term Course on "Computational Advances in Chemical Engineering: CAD, HPC, Molecular Simulations, ML/AI" (CACE-2025) organized by the Department of Chemical Engineering, **National Institute of Technology, Hamirpur,** Himachal Pradesh, India during December 9-13, **2025**.
2) Delivered an Invited talk on **"Co-pyrolysis of Rice Husk and Short Residue from Refinery in a Fixed-Bed Reactor for Enhanced Energy Recovery from Rice Husk"** in the International Conference on "Biotechnology for Sustainable Development & Circular Economy" (BSDCE-2025) organized by Center for Industrial Biotechnology Research (CIBR), **Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar,** Odisha, India during December 8-10, **2025**.
3) Delivered an Invited talk on **"Co-pyrolysis of Biomass and Vacuum Distillation Residue from Petroleum Refinery for Efficient Energy Recovery from Biomass"** in the IX International Conference on "Sustainable Energy and Environmental Challenges" (IX SEEC) organized by IIT Mandi Catalyst, **Indian Institute of Technology Mandi,** India Under the auspices of

International Society for Energy, Environment and Sustainability (ISEES) during December 13-15, **2024**.

4) Delivered an Invited talk on **"Recent Trends and Future Perspectives on Co-gasification of Petroleum coke and Biomass"** in the 4th International Symposium on Analytical and Applied Pyrolysis (PYROASIA 2024), a flagship annual event of Pyro Asia Forum, organized by IIT Guwahati and Frontier Laboratories, Japan, held during November 28-29, **2024** at **IIT Guwahati**.
5) Delivered an Invited talk on **"Synergistic Effect of Co-gasification of Biomass and Petroleum Coke: Case Study of Millet Agro-residue and Petroleum Coke"** in International Conference on "Innovations in Biotechnology for Sustainability" (IBS-2024) organized by School of Biotechnology, Jawaharlal Nehru University (JNU), New Delhi, India and BRSI, held during November 22-25, **2024** at **Jawaharlal Nehru University, New Delhi**.
6) Delivered an Invited talk on **"Co-gasification of Petroleum Coke and Agro-residues"** in the National Seminar on "Recent Trends in Energy and Fuel Production Technologies (RTEFPT-2024)", organized by the Department of Chemical Engineering, **Veer Surendra Sai University of Technology (VSSUT), Burla,** Odisha during February 24-25, **2024**.
7) Delivered an Invited talk on **"Co-gasification of Biomass and Petroleum Coke: Recent Advances and Future Directions"** in International Conference on "Advances and Innovations in Biotechnology for Sustainable Bioresources and Bioeconomy" (AI- BSBB2023) held at **AKS University, Satna,** Madhya Pradesh, India during November 22-25, **2023**.
8) Delivered an Invited talk on **"Advances in Valorization of Agro-residues through Pyrolysis: A Case Study of Finger Millet Straw"** in VII International Conference on "Sustainable Energy and Environmental Challenges" (VII SEEC) organized by **Indian Institute of Technology (BHU) Varanasi,** India Under the auspices of International Society for Energy, Environment and Sustainability (ISEES) during December 16-18, **2022**.
9) Delivered an Invited talk on **"Pyrolysis of Finger Millet Straw for the Production of Biochar in a Drop Tube Furnace"** in International Conference on "Biotechnology, Sustainable Bioresources and Bioeconomy" (BSBB-2022) jointly organized by the Department of Biosciences and Bioengineering, Department of Chemical Engineering, School of Energy Science & Engineering, and School of Agro & Rural Technology, IIT Guwahati in tandem with the Biotech Research Society, India (BRSI) during December 7-11, **2022** at **IIT Guwahati**.
10) Delivered an Invited talk on **"Biochar from Pyrolysis of Biomass: Recent Advances and Applications"** in "National Conference on Environmental and Industrial Biotechnology" (NCEIB-2022) organized by Department of Biotechnology, **Dr. Ambedkar Institute of Technology for Handicapped, Kanpur (AITH, Kanpur)** during November 10-12, **2022**.
11) Delivered an Invited talk on **"Current status of pyrolysis of agricultural crop residues in India: Challenges and opportunities"** in 17th Annual event of BRSI International Conference on "Biotechnology for Sustainable Agriculture, Environment and Health" (BSAEH-2021) jointly organized by MNIT Jaipur and The Biotech Research Society, India held at Birla Institute of Scientific Research, Jaipur, Rajasthan, India during April 4-8, **2021** at **MNIT Jaipur**.
12) Delivered an Invited talk on **"Pyrolysis of Biomass"** in short term course on "Recent Advances in Biomass Utilization & Fermentation Technology" (SFC-BUFT 2017) held at **Motilal Nehru National Institute of Technology Allahabad** during January 9-15, **2017**.
13) Delivered an Invited talk on **"Importance of Co-Curricular Activities in Personality Development"** in National Seminar on "Educated youth -Future challenges and personality development" held at **Motilal Nehru National Institute of Technology Allahabad** during November 18-19, **2017.**

Papers Presented *by me* in National/International Conference:

1. **Sawarkar, A. N.** Bioenergy potential of waste sugarcane leaves via pyrolysis. Paper presented at the *International Conference on Advances in Chemical and Materials Sciences* (ACMS-2022) organized by Indian Institute of Chemical Engineers (IIChE), Kolkata in association with Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, Heritage Institute of Technology, Kolkata, and Osmania University College of Technology, Hyderabad during April 14 - 16, **2022**.
2. **Sawarkar, A. N.** Petroleum coke gasification: Status and future perspective in Indian context. Paper presented at the 74th *Annual session of IIChE* (CHEMCON-2021) organized by Indian Institute of Chemical Engineers Bhubaneswar Regional Centre & CSIR- Institute of Minerals and Materials Technology, Bhubaneswar in association with Institute of Chemical Technology-IndianOil Odisha Campus, Bhubaneswar during December 27-30, **2021**.
3. **Sawarkar, A. N.** Pyrolysis of waste tyres in the presence of rice husk ash. Paper presented at the 72nd *Annual session of IIChE* (CHEMCON-2019) held at IIT Delhi during December 16-19, **2019**.
4. **Sawarkar, A. N.** Heavy crude oil upgrading: Recent advances and possible way forward. Paper presented at the 71st *Annual session of IIChE* (CHEMCON-2018) held at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar during December 27-30, **2018**.
5. Verma, A., Singh, H., **Sawarkar, A. N.** Kinetics of pyrolysis of rice straw. Paper presented at the *70th Annual session of IIChE* (CHEMCON-2017) held at Haldia Institute of Technology, Haldia during December 27-30, **2017**, pp.35-36.
6. Gokul, P.V., Singh, P., Hasan, S., **Sawarkar, A. N.** Bio-oil and bio-char potential of arecanut husk. Paper presented at the *International Conference on Emerging Materials & Applications" (ICEMA-2017) held* at Allahabad University, Allahabad, Uttar Pradesh during February 20-22, **2017**.
7. Gokul, P.V., **Sawarkar, A. N.** Utilization of rice husk through pyrolysis. *69th Annual session of IIChE* (CHEMCON-2016) held at Anna University, Chennai during December 27-30, **2016**.
8. **Sawarkar, A. N.,** Singh, V.P. Disparities in the kinetic results of pyrolysis of biomass: Recent advances and the possible way forward. Paper presented at the 1st *International Conference on Recent Advances in Bio-Energy Research* (ICRABR-2015) held at Sardar Swaran Singh National Institute of Renewable Energy, Kapurthala during March 14-17, **2015**.
9. **Sawarkar, A. N.** Processing of heavy crude oils: A challenge as well as an opportunity for petroleum refiners. Paper presented at the *67th Annual session of IIChE* (CHEMCON-2014) held at Punjab University, Chandigarh during December 27-30, **2014**.
10. **Sawarkar, A. N.** Novel batch reactor for pyrolysis of waste tyres into useful products. Paper presented at the *International Conference on Environment and Energy* (ICEE) held at Jawaharlal Nehru Technological University, Hyderabad on during December 15-17, **2014**.
11. **Sawarkar, A. N.**, Kashyap R., Pandey A., Sawhney S., Ritendra Kumar, Sharma R., Numerical investigation of cavitation for simple geometries and study of effect of geometry on cavitation number. Paper presented at the National conference on *Applications of Mathematics in Engineering and Sciences* (AMES-2014) held at MNNIT, Allahabad during November 29-30, **2014**.
12. **Sawarkar, A. N.** Value addition via pyrolysis of North Gujarat vacuum residue. Paper presented at the *66th Annual session of IIChE* (CHEMCON-2013) held at Institute of Chemical Technology, Mumbai during December 27-30, **2013**.
13. Jain, S., **Sawarkar, A. N.** Role of plant derived-derived biopesticides for sustainable agricultural activities. Paper presented at the *International conference on Health, Environment and Industrial Biotechnology* held at MNNIT, Allahabad during November 21-23, **2013**.

14. **Sawarkar, A. N.** Studies in delayed coking of Bombay high vacuum residue. Paper presented at the National conference on *Recent Advances in Chemical Engineering* held at UDCT, Jalgaon on 4th February, **2012**.
15. Kasture, P. K., **Sawarkar, A. N.** Utilization of dairy waste for the production of biodiesel and glycerin. Paper presented at the National conference on *Recent Advances in Chemical Engineering* held at UDCT, Jalgaon on 4th February, **2012**.
16. **Sawarkar, A. N.,** Pandit, A. B., Joshi, J. B. Studies in delayed coking of Arabian mix asphalt. Paper presented at the *61st Canadian Chemical Engineering Conference* held at London, Ontario, Canada during October 23-26, **2011**.
17. Satheesh, R., Singh, G., Upadhyay, M., Chaudhari, P. K., **Sawarkar, A. N.** Petroleum coke gasification: An emerging refinery operation. Paper presented at the *National Symposium on Reaction Engineering*, January 22-23, **2010**, NIT, Raipur, India, pp. 303-316.
18. **Sawarkar, A. N.,** Kataria, K. L., Kulkarni, R. P., Pandit, A. B., Joshi, J. B., Yadram, Tandon, D., Kumar, M. M. Kinetic behavior of Arab mix short residue during coking reactions. *PETROTECH-2005*, Paper presented at the *6th International Petroleum Conference and Exhibition*, January 15-19, **2005**, New Delhi, India.

Details of Publication/Presentation in International Conference:

1. Shukla, P., Singh, A.K., Kandpal, S., Hasan, S.U., **Sawarkar, A.N.** Bio-oil and biochar from sweet lime (*Citrus limetta*) peel waste in a customized pyrolysis unit: Characterization and application. *2nd International Conference on Health and Agricultural Biotechnology: Interdisciplinary Trends* (HABIT-2026) held at MNNIT Allahabad during October 30-November 1, **2026**.
2. Singh, A.K., Shukla, P., Mahapatra, R., Kandpal, S., **Sawarkar, A.N.** Syngas and biochar from municipal sewage sludge via thermochemical conversion: Comparative assessment of sludge samples from two sewage treatment plants. *2nd International Conference on Health and Agricultural Biotechnology: Interdisciplinary Trends* (HABIT-2026) held at MNNIT Allahabad during October 30-November 1, **2026**.
3. Kandpal, S., Mahapatra, R., Joshi, J.B., **Sawarkar, A.N.** A novel integrated machine learning approach for accurate estimation of kinetic and thermodynamic parameters for pyrolysis of biomass from feedstock composition. *2nd International Conference on Health and Agricultural Biotechnology: Interdisciplinary Trends* (HABIT-2026) held at MNNIT Allahabad during October 30-November 1, **2026**.
4. Mahapatra, R., Kandpal, S., Mishra, A., **Sawarkar, A.N.** Insights into kinetics, reaction mechanism, thermodynamics, and optimization of bamboo leaves pyrolysis. *3rd International Conference on Sustainable Environment & Energy Innovations* (CHEM-CONFLUX26) held at MNNIT Allahabad during October 22-24, **2026**.
5. Kandpal, S., **Sawarkar, A.N.** Modeling co-gasification of biomass/coal with petroleum coke using advanced ML models: identifying the most influential parameters affecting syngas composition. X International Conference on *Sustainable Energy and Environmental Challenges* (X SEEC) organized by International Society for Energy, Environment and Sustainability (ISEES) held at IIT Jodhpur during December 15-18, **2025**.
6. Kandpal, S., Anas, M., Kamsonlian, S., **Sawarkar, A.N.** Hydrogen-rich syngas production through co-gasification of biomass and petcoke in a horizontal tubular furnace and modeling the intricate process through machine learning. *International Conference on Health and Agricultural Biotechnology: Interdisciplinary Trends* (HABIT-2025), organized by Department of Biotechnology, MNNIT Allahabad during February 28-March 2, **2025**.
7. Kandpal, S., **Sawarkar, A.N.** Prediction of synthesis gas composition and yield from co-gasification of biomass with other carbonaceous wastes through machine learning. *7th*

International Conference on Bioenergy, Environment and Sustainable Technologies, organized by Department of Biotechnology, Arunai Engineering College, Tiruvannamalai, Tamilnadu, India in association with BRSI on January 29-31, **2025**.

8. Kandpal, S., Tagade, T., **Sawarkar, A.N.** Multi-target prediction of biochar yield and HHV using ensemble of decision trees. *4th International Symposium on Analytical and Applied Pyrolysis* **(PYROASIA 2024)**, a flagship annual event of **Pyro Asia Forum**, organized by **IIT Guwahati, India and Frontier Laboratories, Japan**, held during November 28-29, **2024**.
9. Kandpal, S., **Sawarkar, A.N.** Efficient prediction of biochar yield from pyrolysis of agro-residues using ensemble learning with decision trees. *International Conference on Biotechnological Intervention for Health, Agriculture and Circular Economy* (Biosangam-2024) organized by Department of Biotechnology, MNNIT Allahabad during February 23-25, **2024**.
10. Kandpal, S., Tagade, T., **Sawarkar, A.N.** Novel rotary kiln reactor for biochar production through biomass pyrolysis and its application in microbial fuel cells. *International Conference on Advancement in Energy* (*ऊर्जाSangam-2023*) organized by Department of Mechanical Engineering, MNNIT Allahabad during December 18-20, **2023**.
11. Jain, I., Chaudhary, R., Tagade, T., Kandpal, S., **Sawarkar, A.N.** Co-gasification of petroleum coke and biomass through thermogravimetric analysis: Kinetics and thermodynamic analysis. *International Conference on Technology and Innovations for Sustainable Development* (TISD-2023) organized by Central Library, MNNIT Allahabad during October 27-29, **2023**.
12. Tekade, S.P., Kumbhar, A.S., Velhal, D.R., Sutar, P.P., **Sawarkar, A.N.** Hydrogen generation using sea water and aluminum. *International Conference on Technological Interventions for Sustainability* (CHEM-CONFLUX[22]*)* jointly organized by MNNIT Allahabad and USM Malaysia during April 14-16, **2022**.
13. Nagar, R., Sehra, A., **Sawarkar, A.N.** Bioenergy potential of sugarcane leaves via pyrolysis: Characterization, kinetics, and reaction mechanism. *International Conference on Technological Interventions for Sustainability* (CHEM-CONFLUX[22]*)* jointly organized by MNNIT Allahabad and USM Malaysia during April 14-16, **2022**.
14. Singh, S., **Sawarkar, A. N.** Co-pyrolysis of garlic stalk and polyethylene waste: kinetics, thermodynamics, and synergistic effect. *International Conference on Technological Interventions for Sustainability* (CHEM-CONFLUX[22]*)* jointly organized by MNNIT Allahabad and USM Malaysia during April 14-16, **2022**.
15. Deshpande, G., Patle, D.S., **Sawarkar, A.N.** Multiobjective optimization with minimization of eco-indicator and damage index for ultrasound intensified in situ biodiesel production from microalgae. *International Conference on Technological Interventions for Sustainability* (CHEM-CONFLUX[22]*)* jointly organized by MNNIT Allahabad and USM Malaysia during April 14-16, **2022**.
16. Tagade, A., Rajpoot, L., **Sawarkar, A.N.** Biochar production from finger millet straw via slow pyrolysis: Production, characterization, and kinetics. *International Conference on Technological Interventions for Sustainability* (CHEM-CONFLUX[22]*)* jointly organized by MNNIT Allahabad and USM Malaysia during April 14-16, **2022**.
17. Mishra, A., Kumar, A., **Sawarkar, A.N.** Kinetic and thermodynamic analyses of pyrolysis of cotton stalk. *International Conference on Technological Interventions for Sustainability* (CHEM-CONFLUX[22]*)* jointly organized by MNNIT Allahabad and USM Malaysia during April 14-16, **2022**.
18. Dixit, J., Patle, D.S., **Sawarkar, A.N.** Co-gasification of petroleum coke and biomass: Recent advances, challenges, and future perspective. *International Conference on Technological Interventions for Sustainability* (CHEM-CONFLUX[22]*)* jointly organized by MNNIT Allahabad and USM Malaysia during April 14-16, **2022**.
19. Tekade, S.P., Digaskar, K.R., Chavan, P.R., Indulkar, D., **Sawarkar, A.N.** Thermogravimetric analysis and experimental pyrolysis characteristics of coconut shell waste under vacuum, inert

and atmospheric conditions. *International Conference on Technological Interventions for Sustainability* (CHEM-CONFLUX[22]*)* jointly organized by MNNIT Allahabad and USM Malaysia during April 14-16, **2022**.

20. Tagade, A., Rajpoot, L., **Sawarkar, A.N.** Recent advances in microwave assisted pyrolysis of biomass. 3rd International Conference on Recent Advances in Bio-Energy Research (ICRABR-2022) organized by Sardar Swaran Singh National Institute of Bio-Energy, Kapurthala, Punjab, India during March 9-11, **2022**.
21. Rajpoot, L., Tagade, A., Patle, D.S., **Sawarkar, A.N.** De-oiled cakes as source of biofuels through pyrolysis: A review. 3rd International Conference on Recent Advances in Bio-Energy Research (ICRABR-2022) organized by Sardar Swaran Singh National Institute of Bio-Energy, Kapurthala, Punjab, India during March 9-11, **2022**.
22. Tagade, A., **Sawarkar, A.N.** Physico-chemical characterization of various millet agro-residues for assessing their bioenergy potential. 74th Annual session of IIChE (CHEMCON-2021) organized by Indian Institute of Chemical Engineers Bhubaneswar Regional Centre & CSIR-Institute of Minerals and Materials Technology, Bhubaneswar in association with Institute of Chemical Technology-IndianOil Odisha Campus, Bhubaneswar during December 27-30, **2021**.
23. Deshpande, G.K., Patle, D.S., **Sawarkar, A.N.** Biodiesel production via ultrasound assisted transesterification of microalgae: Recent inroads, issues, and plausible solutions. 73rd Annual session of IIChE (CHEMCON-2020) jointly organized by Indian Institute of Chemical Engineers (IIChE) Headquarters & IIChE - Hyderabad Regional Centre during December 27-29, **2020**.
24. Tagade, A., Kirti, N., **Sawarkar, A.N.** Pyrolysis of Banana Agro-waste: Recent Advances, Challenges, and Recommendations. 73rd Annual session of IIChE (CHEMCON-2020) jointly organized by Indian Institute of Chemical Engineers (IIChE) Headquarters & IIChE - Hyderabad Regional Centre during December 27-29, **2020**.
25. Kirti, N., Tagade, A., **Sawarkar, A.N.** Bioethanol from banana waste: Current status, issues, and future perspective. 73rd Annual session of IIChE (CHEMCON-2020) jointly organized by Indian Institute of Chemical Engineers (IIChE) Headquarters & IIChE - Hyderabad Regional Centre during December 27-29, **2020**.
26. Gajera, Z.R., Verma, K., **Sawarkar, A. N.** Co-gasification of rice husk and petroleum coke. *International Conference on Biotechnological Interventions for Societal Development* (BIOSANGAM 2020) held at MNNIT Allahabad during February 21-23, **2020**.
27. Verma, K., **Sawarkar, A. N.** Thermal decomposition behaviour and kinetics of pyrolysis of hahua de-oiled cake through TGA. *International Conference on Biotechnological Interventions for Societal Development* (BIOSANGAM 2020) held at MNNIT Allahabad during February 21-23, **2020**.
28. Singh, S., **Sawarkar, A. N.** Co-pyrolysis of corncob and plastic waste: Physico-chemical characterization, kinetics, and thermodynamic Analysis. *International Conference on Energy and Environmental Technologies for Sustainable Development* (CHEM-CONFLUX20*)* held at MNNIT Allahabad during February 14-16, **2020**.
29. Singh, R.K., **Sawarkar, A. N.** Kinetics of pyrolysis of banana agro-residue. *International Conference on Energy and Environmental Technologies for Sustainable Development* (CHEM-CONFLUX20*)* held at MNNIT Allahabad during February 14-16, **2020**.
30. Singh, S., Singh, R.K., Verma, A., **Sawarkar, A. N.** Reaction mechanism and kinetics of pyrolysis of garlic straw. *71st Annual session of IIChE* (CHEMCON-2018) held at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar during December 27-30, **2018**.
31. Patel, P., **Sawarkar, A. N.** Pre-treatment and thermo-chemical conversion of biomass for bio-energy. *70th Annual session of IIChE* (CHEMCON-2017) held at Haldia Institute of Technology, Haldia during December 27-30, **2017**, pp.27-29.

32. Pandey, D., **Sawarkar, A. N.** Heavy crude oil upgrading via SCW: Challenges and opportunities. *70th Annual session of IIChE* (CHEMCON-2017) held at Haldia Institute of Technology, Haldia during December 27-30, **2017**, pp.16-18.
33. Singh, P., Hasan, S.U., **Sawarkar, A. N.** Computational study on biomass fast pyrolysis in fluidized bed reactor: Emphasis on yield of bio-oil. *70th Annual session of IIChE* (CHEMCON-2017) held at Haldia Institute of Technology, Haldia during December 27-30, **2017**, pp.56-57.
34. Singh, R.K., **Sawarkar, A. N.** Phenolic wastewater treatment by adsorption in packed bed column using coconut shell activated carbon. *70th Annual session of IIChE* (CHEMCON-2017) held at Haldia Institute of Technology, Haldia during December 27-30, **2017**, pp. 49-51.
35. Gokul, P.V., Singh, P., Hasan, S. U., **Sawarkar, A. N.** Prospective pyrolysis product distribution of two rice husk varieties. *4th 3R International Scientific Conference on Material Cycles and Waste Management* held at Habitat Centre, New Delhi during March 8-10, **2017**.
36. **Sawarkar, A. N.,** Hasan, S. Insight into the mechanism of coke formation during cracking of heavy residues in a novel laboratory scale assembly. *AIChE Annual Meeting* held at San Francisco, CA, USA during November 13-18, **2016**.
37. **Sawarkar, A. N.,** Chaudhari, P.K. Hydrodynamic cavitation and adsorption as hybrid technique for the treatment of dye wastewater. *AIChE Annual Meeting* held at San Francisco, CA, USA during November 13-18, **2016**.
38. Sabbarwal, S., **Sawarkar, A. N.,** Kinetics of pyrolysis of rice husk via thermogravimetric analysis. *International Conference on Translational Biotechnology (Biosangam 2016)* held at Motilal Nehru National Institute of Technology, Allahabad during February 4-6, **2016**.
39. **Sawarkar, A. N.** Pyrolysis of bottom-of-the-barrel for the production of transportation fuels. *68th Annual session of IIChE* (CHEMCON-2015) held at Indian Institute of Technology, Guwahati during December 27-30, **2015**.
40. **Sawarkar, A. N.,** Kashyap, R., Pandey, A., Sawhney, S., Kumar, R., Sharma, R. Design of cavitating devices for hydrodynamic cavitation for heavy crude oil upgrading via CFD approach. International conference on *New Frontiers in Chemical, Energy and Environmental Engineering (INCEEE-2015)* held at NIT, Warangal during March 20-21, **2015**.
41. **Sawarkar, A. N.** Effect of rice husk on gasification reactivity of petroleum coke. 1st *International Conference on Recent Advances in Bio-Energy Research* (ICRABR-2015) held at Sardar Swaran Singh National Institute of Renewable Energy, Kapurthala during March 14-17, **2015**.
42. Satheesh, R., Singh, G., **Sawarkar, A. N.** Power generation from bagasse- A step towards sustainable development. *Proc. of International Conference on Advances in Renewable Energy*, June 22-24, **2010**, Maulana Azad National Institute of Technology (MANIT), Bhopal, India, pp. 210-221.

Details of Publication/Presentation in National Conference:

1. Singh, A. K., **Sawarkar, A.N.** In-depth analysis of resource recovery from municipal sewage sludge from two STPs in Prayagraj through In-house designed pyrolyzer and environmental impact assessment. 3rd National Conference on **"Recent Innovations in Chemistry and Chemical Engineering"** (RICCE - 2026), organized by Department of Chemical Engineering, Maulana Azad National Institute of Technology, Bhopal, India, held during October 9-10, **2026**.
2. Shukla, P., **Sawarkar, A.N.** Value-added products from sweet lime (*Citrus Limetta*) peel waste: Production, characterization, and applications. 3rd National Conference on **"Recent Innovations in Chemistry and Chemical Engineering"** (RICCE - 2026), organized by Department of Chemical Engineering, Maulana Azad National Institute of Technology, Bhopal, India, held during October 9-10, **2026**.

3. Chaudhary, R., Abbas, S., Gupta, J., **Sawarkar, A.N.** Co-pyrolysis of rice husk and waste tyres: Energy efficient waste-to-wealth approach. 3rd National Conference on **"Recent Innovations in Chemistry and Chemical Engineering"** (RICCE - 2026), organized by Department of Chemical Engineering, Maulana Azad National Institute of Technology, Bhopal, India, held during October 9-10, **2026**.
4. Kandpal, S., **Sawarkar, A.N.** Sewage sludge-derived biochar through pyrolysis in a horizontal tubular furnace: Production, characterization, and potential application as an energy storage material. *All India Seminar* on **Advanced Materials for Sustainable Development** organized by The Institution of India (IEI), Prayagraj Local Chapter in association with Department of Mechanical Engineering, Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India during October 31- November 1, **2025**.
5. Patil, O., Kandpal, S., **Sawarkar, A.N.** Classification of Type-2 diabetes using machine learning models. *All India Seminar* on **Sustainable Technology Solutions for Rural India towards Viksit Bharat** organized by The Institution of India (IEI), Prayagraj Local Chapter in association with School of Management Studies, Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India during July 26-27, **2025**.
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