

## Patents

1. Panda JK, Sastry GRK, **Pattanaik BP**, Mishra SR, Gugulothu SK, Raju LBB, Madhu S, Ameresh H, Kar B, Jena PK. A noble study on a DI diesel engine fueled with different blends of Leucas Zeylanica methyl ester (Izme) and 2-EHN diesel additive with diesel. Application status link: <https://ipindiaonline.gov.in/epatentfiling/PATForms/frmFORM-3.aspx>. Application No.- 202141014101.
2. Behera RK, **Pattanaik BP**, Rath BB, Sahu KB, Biswal DK, Khamari BK, Samal BP, Sethy S, Mahana P, Nayak AK. Cleaner Production and High Machining Performance of EDM through Mixed Bio-dielectric Fluids. Application No. - 388719-001. Application status link: <https://search.ipindia.gov.in/DesignApplicationStatus/>.
3. Behera RK, **Pattanaik BP**, Rout UK, Mahapatra RN, Samal BP, Khamari BK. Industrial Mould Design for Production of Aluminium Metal Matrix Hybrid Composites. Design Application No. - 6319536.
4. Behera RK, Samal BP, **Pattanaik BP**, Mahapatra RN, Rout UK, Sinha GS, Khamari BK, Das PK, Nayak AK, Dash K, Padhi PM. Mould Design for Scientific Applications in Manufacturing of Aluminium Metal Matrix Composites. Design Application No. - 397842-001. Link: <https://search.ipindia.gov.in/DesignApplicationStatus/>
5. Behera RK, Khamari BK, **Pattanaik BP**, Rout UK, Mahapatra RN, Ray L, Maji PK, Mahana P. Novel greenhouse solar PV chamber to minimize CO<sub>2</sub>. Design Application No. - 6323094.
6. Panda JK, Gugulothu SK, Rai RN, Srikanth V, **Pattanaik BP**, Panigrahi BK, Dewangan NK. Trade-off study on environmental-economical aspects of a CRDI engine using hydrogen as dual fuel mode powered with different low viscous alcohol additives.

## Research Publications (International Journals)

1. Nayak, C., **Pattanaik, B. P.**, & Panda, J. K. (2022). Trade-off study on economy and environmental aspects of a dual-fuel diesel engine using diesel additive and producer gas. *Journal of Energy Resources Technology*, 144(3), 032306. Indexed in: **SCI, Impact factor: 3.07**. DOI: <https://doi.org/10.1115/1.4052862>
2. Dash, D., **Pattanaik, B.P.** (2022). Fuel-Purpose Bioethanol from Agricultural Waste: A Step Towards Sustainable Environment and Energy Security. In: Kolhe, M.L., Jaju, S.B., Diagavane, P.M. (eds) *Smart Technologies for Energy, Environment and Sustainable Development*, Vol 1. Springer Proceedings in Energy. Springer, Singapore. DOI: [https://doi.org/10.1007/978-981-16-6875-3\\_59](https://doi.org/10.1007/978-981-16-6875-3_59)
3. Jena D, **Pattanaik BP**. A mesh-free particle based method to study the fluid flow characteristics in tuned liquid dampers. In: *Recent Experimental and Computational Research in Structural Engineering*, Book Series: Engineering Research Transcripts 2023; 6:41-48. eBook ISBN: 978-981-16-6875-3; Hardcover ISBN: 978-981-16-6874-6, Publisher: Grinrey Publishing, Pune, Maharashtra, India.
4. **Pattanaik, B. P.** (2021). Emission studies on a direct injection diesel engine fueled with Karanja biodiesel using dimethyl carbonate as additive. *Turkish Journal of Computer and*

*Mathematics Education (TURCOMAT)*, 12(12), 1226-1232. Indexed in: **SCOPUS**. DOI: <https://doi.org/10.17762/turcomat.v12i12.7568>

5. **Pattanaik, B. P.**, Nayak, C., & Misra, R. D. (2021). Emission studies on a diesel engine fueled with mixed biodiesel produced from non-edible oils. In: *Recent Advances in Mechanical Engineering: Lecture Notes in Mechanical Engineering* (pp. 137-145). Springer Singapore. Indexed in: **SCOPUS**. DOI: [https://doi.org/10.1007/978-981-15-7711-6\\_15](https://doi.org/10.1007/978-981-15-7711-6_15)
6. **Pattanaik, B. P.**, & Misra, R. D. (2018). Experimental studies on production of deoxygenated vegetable oils and their performance evaluation in a compression ignition engine. *Biomass Conversion and Biorefinery*, 8, 899-908. Indexed in: **SCI, Impact factor: 4.103**. DOI: <https://doi.org/10.1007/s13399-018-0328-4>
7. **Pattanaik, B. P.**, & Misra, R. D. (2017). Effect of reaction pathway and operating parameters on the deoxygenation of vegetable oils to produce diesel range hydrocarbon fuels: A review. *Renewable and Sustainable Energy Reviews*, 73, 545-557. Indexed in: **SCI, Impact factor: 16.799**. DOI: <https://doi.org/10.1016/j.rser.2017.01.018>
8. **Pattanaik, B. P.**, Jena, J., & Misra, R. D. (2017). The effect of oxygen content in soapnut biodiesel-diesel blends on performance of a diesel engine. *International Journal of Automotive and Mechanical Engineering*, 14(3), 4574-4588. Indexed in: **SCOPUS, ESCI**. DOI: <https://doi.org/10.15282/ijame.14.3.2017.14.0361>
9. Nayak, C., **Pattanaik, B. P.**, & Nayak, S. K. (2014). Effect of preheated jatropha oil and jatropha oil methyl ester with producer gas on diesel engine performance. *International Journal of Automotive and Mechanical Engineering*, 9, 1709-1722. Indexed in: **SCOPUS, ESCI**. DOI: <https://doi.org/10.15282/ijame.9.2013.20.0142>
10. Nayak, S. K., & **Pattanaik, B. P.** (2014). Experimental investigation on performance and emission characteristics of a diesel engine fuelled with mahua biodiesel using additive. *Energy Procedia*, 54, 569-579. Indexed in: **SCOPUS**. DOI: <https://doi.org/10.1016/j.egypro.2014.07.298>
11. Nayak, S. K., **Pattanaik, B. P.**, Ghosh, D. P., & Ukamanal, M. (2013, April). Experimental investigation on a diesel engine fuelled with biodiesel produced from waste cooking oil. In *2013 International Conference on Energy Efficient Technologies for Sustainability* (pp. 501-507). IEEE. DOI: <https://doi.org/10.1109/ICEETS.2013.6533436>
12. **Pattanaik BP**, Jena PK, Sahu SP, Sahu R, Das KG. Emission studies on a diesel engine operated with karanja methyl ester blends using di-ethyl ether additive. *International Journal of Research and Analytical Reviews* 2020; 7(1): 59–63. Indexed in: **UGC Care**.
13. **Pattanaik BP**, Jena J, Misra RD. Effect of fuel oxygen content on the performance of a CI engine operating on soapnut biodiesel blends. *Journal of Energy and Environmental Sustainability* 2017; 3: 66–70.
14. **Pattanaik BP**, Misra RD. Investigation on performance and emission of a DI diesel engine using blends of jatropha oil and its biodiesel in dual fuel mode with producer gas. *International Journal of Application of Engineering and Technology* 2016; 2(2): 155–160.
15. **Pattanaik, B. P.**, Nayak, C., & Nanda, B. K. (2013). Investigation on utilization of biogas & Karanja oil biodiesel in dual fuel mode in a single cylinder DI diesel engine. *International journal of Energy and Environment*, 4(2), 279-290.

16. **Pattanaik BP**, Nanda BK, Bose PK. Performance and emission studies on a single cylinder DI diesel engine fuelled with diesel and rice bran oil methyl ester blends. *International Journal of Advances in Engineering and Technology* 2012; 3(1): 505–513.

### *Conference Papers (International / National)*

1. **Pattanaik BP**, Jena PK. Studies on the emissions of a research diesel engine operating with Karanja biodiesel blends using source SVO as fuel additive. International Conference on “Advances in Energy and Environmental Engineering”, 17-18 December 2024, Department of Mechanical Engineering, Dr. Vithalrao Vikhe Patil College of Engineering, Ahmednagar, Maharashtra, India.
2. **Pattanaik BP**, Jena PK, Dash S. Effect of Biodiesel with Iron Oxide Nano Particle Additive on the Emissions of a Direct Injection Diesel Engine. International Conference on “Advances in Communication, Medical Electronics and Smart Grid Automation”, 22-23 November 2024, JIS College of Engineering, Kalyani, West Bengal, India.
3. **Pattanaik BP**. Studies on emission reduction in a biodiesel-fueled research diesel engine using iron oxide nanoparticle as a fuel additive. International Conference on “Research and Innovation for Sustainable Development”, 4-5 May 2024, University Institute of Engineering & Technology, Maharshi Dayanand University, Rohtak, Haryana, India.
4. Sahu AK, **Pattanaik BP**. Computational simulation of non-premixed low-swirl methane air flame. International Conference on “Advances and Creations in Mechanical Engineering”, 20-22 December 2022, Department of Mechanical Engineering, Pravara Rural Engineering College, Loni, Ahmednagar, Maharashtra, India.
5. Jena D, Choudhury SK, **Pattanaik BP**. A mesh-free particle-based method to study the fluid flow characteristics in tuned liquid dampers. International Conference on “Advances in Civil Engineering”, 20-22 December 2022, Department of Mechanical Engineering, Pravara Rural Engineering College, Loni, Ahmednagar, Maharashtra, India.
6. **Pattanaik BP**, Dash D, Achary GS, Sahoo S., Tripathy C. Effect of biodiesel with iron oxide nanoparticle additive on the emissions of a direct injection diesel engine. International Conference on “Nanotechnology: Opportunities & Challenges”, 28-29 November 2022, Department of Applied Sciences & Humanities, Jamia Millia Islamia, New Delhi.
7. **Pattanaik BP**, Dash D, Dash PK, Panda JK. Emission studies on a direct injection diesel engine fueled with Karanja biodiesel using dimethyl carbonate as additive. International Conference on “Sustainable Innovation in Science and Technology”, 26-27 February 2021, G. H. Rasoni University, Saikheda, Chhindwara, Madhya Pradesh, India.
8. Dash D, **Pattanaik BP**. Fuel Purpose Bioethanol from Agricultural Waste: A Step towards Sustainable Environment and Energy Security. International Conference on “Smart Technologies for Energy, Environment and Sustainable Development”, 4-5 December 2020, G. H. Rasoni College of Engineering, Nagpur, Maharashtra, India.
9. **Pattanaik BP**, Jena PK, Sahu R. Studies on the effect of karanja methyl ester with di-tertiary-butyl peroxide additive on emissions of a diesel engine. 5<sup>th</sup> International Conference on Materials and Manufacturing Engineering, 06–07 August 2020, Sri

Chandrasekharendra Saraswathi Viswa Mahavidyalaya (SCSVMV), Kanchipuram, Tamilnadu, India.

10. **Pattanaik BP**, Jena P, Sahu SP, Sahu R, Das KG. Emission studies on a diesel engine operated with karanja methyl ester blends using di-ethyl ether additive. National Conference on Recent Innovations in Science, Engineering and Management, 28–29 February 2020, Templecity Institute of Technology and Engineering, Bhubaneswar, Odisha, India. E-ISSN: 2348-1269, P- ISSN: 2349-5138.
11. **Pattanaik BP**, Nayak C, Misra RD. Emission studies on a diesel engine fueled with mixed biodiesel produced from non-edible oils. 1<sup>st</sup> International Conference on Recent Advancements in Mechanical Engineering, 07–09 February 2020, National Institute of Technology Silchar, Assam, India.
12. **Pattanaik BP**, Nayak C. Development, characterization and emission analysis of deoxygenated non-edible vegetable oils as potential CI engine fuel. National Conference on Mechanical, Materials and Renewable Energy Technology, 10–11 January 2020, Einstein Academy of Technology and Management, Bhubaneswar, Odisha, India.
13. Nayak C, **Pattanaik BP**. Emission analysis of dual fuel diesel engine using producer gas and diesel additive. National Conference on Mechanical, Materials and Renewable Energy Technology, 10–11 January 2020, Einstein Academy of Technology and Management, Bhubaneswar, Odisha, India.
14. Nayak C, **Pattanaik BP**. Comparative performance analysis of different blends of karanja oil and its blends in a diesel engine. National Conference on Mechanical, Materials and Renewable Energy Technology, 10–11 January 2020, Einstein Academy of Technology and Management, Bhubaneswar, Odisha, India.
15. **Pattanaik BP**, Jena J, Misra RD. Effect of fuel oxygen content on the performance of a CI engine fuelled with soapnut biodiesel blends. 1<sup>st</sup> ISEES International Conference on Sustainable Energy and Environmental Challenges, 26–28 February 2017, Centre of Innovative and Applied Bioprocessing, Mohali, India.
16. **Pattanaik BP**, Misra RD. Investigation on performance and emission of a DI diesel engine using blends of Jatropha oil and its biodiesel in dual fuel mode with producer gas. International Conference on Advances in Mechanical Engineering Energy Systems and Sustainability, 22–23 December 2014, Lakshmi Narain College of Technology, Gwalior, India, pp. 11–16.
17. **Pattanaik BP**, Mohanty MK, Nanda BK, Nayak SK, Panua R, Bose PK. Experimental investigation on the production of Karanja biodiesel and its application in a low compression ratio diesel engine. 4<sup>th</sup> International Conference on Advances in Energy Research, 10–12 December 2013, Indian Institute of Technology Bombay, Mumbai, India, pp. 899–907, ISBN: 978-81-928795-0-5.
18. Nayak SK, **Pattanaik BP**. Experimental investigation on performance and emission characteristics of a diesel engine fuelled with Mahua biodiesel using additive. 4<sup>th</sup> International Conference on Advances in Energy Research, 10–12 December 2013, Indian Institute of Technology Bombay, Mumbai, India, pp. 1233–1239, ISBN: 978-81-928795-0-5.

19. Nayak SK, **Pattanaik BP**, Ghosh DP, Ukamanal M. Experimental investigation on a diesel engine fuelled with biodiesel produced from waste cooking oil. International Conference on Energy Efficient Technologies for Sustainability, 10-12 April 2013, St. Xavier's Catholic College of Engineering, Nagercoil, India, pp. 501–507; Electronic ISBN:978-1-4673-6150-7, Print ISBN:978-1-4673-6149-1.
20. **Pattanaik BP**, Nayak C, Bose PK. Experimental investigation on biodiesel production from Karanja oil and its use in a diesel engine. International Conference on Developing Unconventional Oil and Gas Resources, 1–3 March 2013, Indian Institute of Technology Madras, Chennai, India, pp. 122–130.
21. Nayak C, **Pattanaik BP**, Nanda BK. Investigation on utilization of vegetable oils & their blends in a single cylinder diesel engine: A review. 1<sup>st</sup> International Conference on Advances in Mechanical Engineering, 12–14 March 2012, Amrutvahini College of Engineering, Sangamner, Maharashtra, India, pp. 125–130.
22. **Pattanaik BP**, Nanda BK, Pattanaik SK. Performance and emission studies on a single cylinder direct injection diesel engine using Nahar oil biodiesel and diesel blends as alternative fuel. Proceedings of the International Conference on Emerging Trend in Engineering & Technology (ICETET), 24–25 February 2012, Singapore, pp. 59-63. ISBN: 978-93-81693-21-6.
23. **Pattanaik BP**. Investigation on engine performance and emission characteristics of a DI diesel engine using Sesame oil biodiesel-diesel blend as alternative fuel. International Conference on Recent Advances & Challenges in Energy, 4–6 January 2012, Manipal Institute of Technology, Manipal, Karnataka, India, pp. 312–316.
24. **Pattanaik BP**. Studies on engine performance and emission of a single cylinder DI diesel engine using Nahar oil biodiesel and diesel blends as alternative fuel. National Conference on Renewable and New Energy Systems, 22–23 December 2011, Synergy Institute of Engineering and Technology, Dhenkanal, Odisha, India.
25. **Pattanaik BP**. Performance and emission studies on a single cylinder DI diesel engine fueled with diesel and rice bran oil methyl ester blends. National Conference on Recent Advances in Science and Technology, 30 Sep–1 Oct 2011, Synergy Institute of Engineering and Technology, Dhenkanal, Odisha, India.