Dr. G.L.Devnani

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Patent

"Development of Epoxy Composites Reinforced By Waste Kans Grass (Saccharum Spontaneum) Filler By Hand-Layup method" has been filed successfully for PATENT with application no. **202011051143 dated 24.11.2020 and published on 05/03/2021**

Books

1. Book entitled "Natural Fiber Composites: Processing, Characterization, Applications, and Advancements by Shishir Sinha & G.L Devnani, **CRC Press by Taylor and Francis** eBook ISBN9781003201724
2. Book entitled "Bast Fibers and Their Composites Processing, Properties and Applications" G. Rajeshkumar, G.L. Devnani, Shishir Sinha, M.R. Sanjay, Suchart Siengchin by **Springer Singapore** ISBN 978-981-19-4865-7
3. Book proposal entitled "Chemical Plant Safety and Risk Assessment: A Modern Approach. has been accepted CRC Press by Taylor and Francis (Contract has been signed in Jan 2021)

Research Projects

1. Effect of Nano Fillers for the performance improvement of composites for diverse applications under **TARE scheme of DST-SERB (2022-2024) Amount- 15 Lacs**

Papers Published in SCI/SCOPUS Journals

1. Manish Choudhary, Dhananjay Singh, Sandesh Kumar Jain, Shri Ram S. Sonawane, Deepak Singh, G.L. Devnani, Keerti Srivastava, Kinetics modeling & comparative examine on thermal degradation of alkali treated Crotalaria juncea fiber using model fitting method, Journal of the Indian Chemical Society, Volume 100, Issue 2,2023,100918,ISSN 0019-4522, https://doi.org/10.1016/j.jics.2023.100918.
2. Deeksha Jaiswal, **G.L. Devnani**, G. Rajeshkumar, M.R. Sanjay, Suchart Siengchin **(2022)** "Review on extraction, characterization, surface treatment and thermal degradation analysis of new cellulosic fibers as sustainable reinforcement in polymer composites, **Current Research in Green and Sustainable Chemistry"** Volume 5, 2022, 100271,ISSN 2666-0865, (Elseveir) https://doi.org/10.1016/j.crgsc.2022.100271.
3. Manish Choudhary, Sandesh Kumar Jain, **G.L. Devnani**, Shri Ram S. Sonawane, Dhananjay Singh, **(2022)** Thermal kinetics and morphological investigation of

alkaline treated rice husk biomass, Journal of the Indian Chemical Society, Volume 99, Issue 5, 2022, 100444, ISSN 0019-4522, https://doi.org/10.1016/j.jics.2022.100444.

4. **G.L.Devnani,** Shishir Sinha **(2021)**Utilization of Natural Cellulosic African Teff Straw Fiber for Development of Epoxy Composites: Thermal Characterization with Activation Energy Analysis **Journal of Natural Fibers** (accepted on 9 June 2021) **(IF. 5.324)** https://doi.org/10.1080/15440478.2021.1929646
5. G. Rajeshkumar, S. Arvindh Seshadri, **G.L. Devnani**, M.R. Sanjay, Suchart Siengchin, J.Prakash Maran, Naif Abdullah Al-Dhabi, Ponmurugan Karuppiah, Valan Arasu Mariadhas, N. Sivarajasekar, A. Ronaldo Anuf **(2021)** Environment friendly, renewable and sustainable poly lactic acid (PLA) based natural fiber reinforced composites – A comprehensive review. **Journal of Cleaner Production**,127483, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2021.127483. **(IF. 9.297)**
6. G. Rajeshkumar, V. Hariharan, **G. L. Devnani**, J. Prakash Maran, M. R. Sanjay, Suchart Siengchin, Naif Abdullah Al-Dhabi, K. Ponmurugan **(2021)** Cellulose fiber from date palm petioles as potential reinforcement for polymer composites: Physicochemical and structural properties. **Polymer composites** https://doi.org/10.1002/pc.26106. **(IF. 3.171)**
7. G. Rajeshkumar, **G.L.Devnani** J. Prakash Maran, M. R. Sanjay, Suchart Siengchin, Naif Abdullah Al-Dhabi, K. Ponmurugan **(2021)** Characterization of novel natural cellulosic fibers from purple bauhinia for potential reinforcement in polymer composites. **Cellulose** https://doi.org/10.1007/s10570-021-03919-2 **(IF. 5.044)**
8. Manish Choudhary, Dhananjay Singh, **G.L. Devnani**, Anshuman Mishra, **(2021)** Impact of various surface modifications on agro waste rice husk and its reinforced polymer composites, **Materials Today: Proceedings** https://doi.org/10.1016/j.matpr.2021.01.187.
9. D.S. Pattanayak, D. Pal, C. Thakur, S. Kumar, **G.L. Devnani (2021)** Bio-synthesis of iron nanoparticles for environmental remediation: Status till date, **Materials Today: Proceedings**, Volume 44, Part 2,Pages 3150-3155, ISSN 2214-7853 https://doi.org/10.1016/j.matpr.2021.02.821.
10. Nidhi Shukla, **G.L.Devnani (2021)** A Review on mechanical properties of hybrid natural fiber polymer composites. MATPR-D-21-00171 **Materials today proceedings** (Elsevier) accepted on 6 Jan 2021 https://doi.org/10.1016/j.matpr.2021.01.122.
11. S.K. Patel, Deepak Singh, **G.L Devnani**, Shishir Sinha, Dhananjay Singh **(2020)** Potable Water Production Via Desalination Technique Using Solar Still Integrated with Partial Cooling Coil Condenser **Sustainable Energy Technologies and Assessments** Vol 43, Feb 2021, (Accepted 13 Nov. 2020) https://doi.org/10.1016/j.seta.2020.100927 **(IF. 5.353)**
12. Vigyan Nidhi, Deepesh Singh and **G.L. Devnani (2020)** Fly ash mediated epoxy composites: a review **J Indian chem. Society** Vol. 97, July 2020, 1038-1042
13. **Devnani, G. L.,** & Sinha, S **(2020)** African Teff Straw as a Potential Reinforcement in Polymer Composites for Light-Weight Applications: Mechanical, Thermal, Physical, and Chemical Characterization before and after Alkali Treatment. **Journal of Natural Fibers,** 17(07), 1011-1025. https://doi.org/10.1080/15440478.2018.1546640 **(IF. 5.324)**
14. **Devnani, G. L.**, & Sinha, S. **(2019)** Extraction, characterization and thermal degradation kinetics with activation energy of untreated and alkali treated *Saccharum spontaneum* (Kans grass) fiber. **Composites Part B**, 166, 436-445 **(IF. 9.078)** https://doi.org/10.1016/j.compositesb.2019.02.042

15. **Devnani, G.L**., Sinha, S. **(2019)** Effect of nanofillers on the properties of natural fiber reinforced polymer composites **Materials Today: Proceedings** 18(3), 2019, Pages 647- 654 https://doi.org/10.1016/j.matpr.2019.06.460
16. **Devnani, G. L.**, & Sinha, S. **(2019)** Epoxy-based composites reinforced with African teff straw (Eragostis tef) for light weight applications. **Polymer and polymer composites,** 27(4), 189-200 **(IF. 2.0)** https://doi.org/10.1177/0967391118822269
17. **Devnani, G. L.**, & Sinha, S. **(2018)** Mathematical modelling of water absorption behavior of bagasse fiber reinforced epoxy composite material. **Materials Today: Proceedings** 5(9), Part 1,16912-16918 https://doi.org/10.1016/j.matpr.2018.04.094
18. Devnani et al. **(2014)**"Adsorption of As(III) from aqueous solutions by iron impregnated quartz, lignite, and silica sand: kinetic study and equilibrium isotherm analysis" **Desalination and water treatment** 52,3178-3190 **(IF. 1.320)**https://doi.org/10.1080/19443994.2013.797182

Papers Published in Non SCI Journals

1. Tiwari S. & Devnani G.L., **(2016)** "Vegetable oils as a solvent for the liquid liquid extraction of isopropanol from isopropanol water system" **International journal of scientific engineering and applied science** 2(1), 287-292 ISSN 2395-3470
2. Mishra A., Singh D., Devnani G.L.**(2016)** "Synthesis of environmental friendly biolubricant : a novel approach" 6(3), 536-541 **International journal of latest trends in engineering and technology** ISSN 2319-3778
3. Patel S., Singh D., Dev R, Devnani G.L. **(2016)** "Experimental Investigation for Drinking Water Production through Double Slope Solar Still" 2(1) 45-47 **International Journal of Scientific and Technical Advancements** ISSN: 2454-1532
4. Singh D., Devnani G.L, Pal D**.(2016)** "Biomethane: An efficient source for the production of CNG and formaldehyde" 2(1), 466-470 **International journal of scientificengineering and applied science** ISSN 2395-3470

Book chapters

1. Patel S., **Devnani G.L**., Singh D. **(2022)** Effects of Additives and Treatment on Fly Ash-Based Polymer Composites. In: Verma P., Samuel O.D., Verma T.N., Dwivedi G. (eds) Advancement in Materials, Manufacturing and Energy Engineering, Vol. II. Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-16-8341-1_12
2. **Devnani G.L**. (2021) Recent Trends in the Surface Modification of Natural Fibers for the Preparation of Green Biocomposite. In: Thomas S., Balakrishnan P. (eds) Green Composites. Materials Horizons: From Nature to Nanomaterials. Springer, Singapore. https://doi.org/10.1007/978-981-15-9643-8_10.
3. Jaiswal D., Srivastava I., Agarwal H., Khan A., **Devnani G.L.** (2021) Effect of Hybridization and Chemical Modification on the Water-Absorption Behaviour of Banana Fibre–Reinforced Polyester Composites. In: Jawaid M., Khan A. (eds) Vegetable Fiber Composites and their Technological Applications. Composites Science and Technology. Springer, Singapore. https://doi.org/10.1007/978-981-16-1854-3_10
4. Shukla N., Agrawal H., Srivastava I., Khan A., **Devnani G.L.** (2021) Natural Composites: Vegetable Fiber Modification. In: Jawaid M., Khan A. (eds) Vegetable Fiber Composites and their Technological Applications. Composites Science and

Technology. Springer, Singapore. https://doi.org/10.1007/978-981-16-1854-3_13

5. **Devnani G.L.,** Lodhi P., Singh D. (2021) Morphological Characterizations Carbon Nanotube -Polymer Composites. In: Abraham J., Thomas S., Kalarikkal N. (eds) Handbook of Carbon Nanotubes. Springer, Cham. https://doi.org/10.1007/978-3-319-70614-6_10-1
6. Tyagi M., **Devnani G.L.** (2021) Nanocomposites Based on Polymer Blends and CNT. In: Abraham J., Thomas S., Kalarikkal N. (eds) Handbook of Carbon Nanotubes. Springer, Cham. https://doi.org/10.1007/978-3-319-70614-6_20-1

Invited Lectures

1. "Role of Nano-fillers on the Properties of Natural Fiber Reinforced Green Composites " in FDP on Sustainable Trends in Energy & Environment" (STEE-2021) organized by IETLucknow from 6 Feb-10 Feb 2021
2. "Thermal decomposition kinetic analysis of natural fibers and their reinforced polymer composites" in International Online Conference on Reuse and Recycling of Materials Management (ICRM 2020) organized by Mahatma Gandhi University, P.D Hills P.O, Kottayam, Kerala, India & Wroclaw University of Technology , Wroclaw, Poland from 11Dec.-13 Dec. 2020
3. "Utilization of agricultural waste for development of green composites" in FDP on Next Generation of Chemical Manufacturing & Waste Management organized by IET Lucknow from 29 July-02 Aug. 2020
4. "Renewable Energy" Webinar conducted by Prabhat Engineering College on June 04, 2020
5. "Characterization of natural fibers and their reinforced polymer composites" in International conference on Innovation and Opportunities in Chemical Engineering for sustainable environment and energy organized by RBS Agra from 27-29 Feb, 2020
6. ''Natural fiber reinforced polymer composites'' in National conference on Nanotechnology & Environment held at NIT Raipur from 13-14Feb. 2020
7. "Characterization and Thermal kinetic analysis of biomass" in FDP on Advances in Renewable and Bio-energy organized by IET Lucknow from 19-23 Oct. 2019
8. "New Horizons in Chemical Engineering" Expert Lecture organized by IICHE Lucknow Regional center on 2nd April 2016
9. "New trends in Chemical Engineering Curriculum" in the workshop on Chemical Engineering Curriculum Review organized by Chemical Engineering Department HBTI Kanpur from 10-11 June 2015
10. "Introduction to Modeling and Simulation" in the workshop on Modeling and simulation of chemical process organized by TEQIP/HBTI Kanpur from 24-28 Feb. 2009

Course Modules Developed

Developed E content of Industrial chemistry for MHRD's NME-ICT Project throughCEC New Delhi in 2017 https://odp.inflibnet.ac.in/index.php/module_details?course=chemistry

Reviewer of International (SCI) Journals

1. Journal of Composite materials (Sage Publisher)
2. Journal of Elastomers and Plastics (Sage Publisher)
3. Journal of natural fibers (Taylor and Francis)

4. Polymer and Polymer composites (Sage Publisher)
5. Waste management (Elsevier)
6. Cellulose (Springer)
7. Environmental Science and Pollution Research (Springer)
8. Arabian Journal of Science and Engineering (Springer)
9. Journal of Vinyl additive and Technology (Sage)
10. Journal of Applied Polymer Science (Willey)
11. Fibers and Polymers (Springer)

Papers presented in International/National Conferences

1. "Fly ash mediated epoxy composites: A Review" National Conference on Nanotechnology & Environment **(NCNE) 2020** organized by NIT Raipur form 13-14 February 2020
2. "Hybrid natural fiber polymer composites: Mechanical Characterization" **CHEMCON 2019** organized by IIT Delhi from 15-18 December2019
3. "Effect of surface treatment on morphology, thermal kinetics and Water absorption of natural fibrs"paper presented in **CHEMCON 2017** held at Haldia December 27-30, 2017
4. "Effect of surface treatment on thermal degradation kinetics and activation energy of Bamboo Fiber: Application in polymer composites" International Conference on Applied Catalysis and Chemical Engineering scheduled during April 08 - 10, 2019 at Dubai, UAE(**ACC-2019**).
5. "Effect of nanofillers on the properties of natural fiber reinforced polymer composites" International Conference on Nanotechnology: Ideas, Innovations & Initiatives -2017 **ICN3I:2017** organized by IIT Roorkee from 06-08 December 2017
6. "Mathematical modelling of water absorption behavior of bagasse fiber reinforced epoxycomposite material" Poster presented at International Conference on Advances in Materials & Processing: Challenges & Opportunities (**AMPCO 2017**) held at IIT Roorkee from 30 Nov-02 Dec. 2017
7. "Recent developments in natural fiber surface treatment for property improvement of natural fiber reinforced polymer composites" Poster presented in **CHEMCON 2016** held at Chennai from December 27-30, 2016
8. "Liquid-liquid extraction studies for the system composed of isopropanol, water and vegetable oils" presented in **CHEMCON 2015** organized by IIT Guwahati from December 27-30, 2015
9. "Synthesis and characterisation of biolubricant from esterification reaction of oleic acid and iso-amyl alcohol" presented in **CHEMCON 2014** organized by Dr SSB UICET Chandigarh from December 27-30, 2014
10. "Environmental Friendly Bio-Lubricants" presented in **GENESIS-2013** Advances in Bioprocess for Environmental safety and nutritional security. Organized by BEFT Department HBTI Kanpur from March 02-03, 2013
11. "Application of neural network modeling for Cr(VI) removal from aqueous system." Technological Advancements in Chemical and Environmental Engineering (**TACEE-2012**) organized by BITS Pilani from 23-24 march 2012
12. "Environmental Hazards of chromium emissions" in Energy and Environmental issues related to chemical industries organized by RBS Agra from 18-19 February 2012

Faculty Development Programmes attended

1. One week FDP on "Renewable Energy and Effluent Treatment" organized by AICTE/IET Lucknow from 01 March-05 March 2021
2. One week FDP on "Next Generation of Chemical Manufacturing & Waste Management "organized by AICTE/IET Lucknow from 29 July-02 Aug. 2020
3. One week FDP on "Data Analysis And SPSS Software" organized by TEQIP/Mathematics Deptt. HBTU Kanpur from 21-25 Oct. 2019
4. One week FDP on "Functional materials: Recent Trends and Future Prospects" organizedby QIP center IIT Roorkee from 20-25 May 2019
5. One week FDP on Nanostructured materials: Science and Technology organized by IIT Roorkee under GIAN/MHRD Gov. of India from 8-12 Oct 2018
6. One week FDP on "Green Chemistry for Cleaner Technology" organized by QIP center IIT Roorkee from 9-13 Jan. 2017
7. One week FDP on "Chemical Micro process engineering: Flow modelling and application" organized by QIP center IIT Roorkee from 20-24 June 2016
8. One week FDP on "Water and wastewater treatment" organized by TEQIP/ IIT Roorkeefrom 21-25 July 2015
9. One week FDP on "Nanotechnology : basics and applications in chemical engineering" Organized by QIP center IIT Roorkee from 22-26 June 2015
10. One week FDP on "Statistical analysis for engineers" organized by CDTE/QIP center IIT Kanpur from 04-08 May 2015
11. One week FDP on "Mechanics school at IIT Kanpur" organized by TEQIP/IIT Kanpur from 20-24 Feb 2015
12. One week FDP on "Water pollution and waste water treatment" organized by Chemical Engineering Deptt. NIT Allahabad from 27-31 Jan. 2015
13. One week FDP on "Structure and Characterization of materials" organized by TEQIP/IITKanpur from 22-26 Dec. 2014
14. One week FDP on "Engineering Education: Opportunities, Challenges & Future Directions" organized by TEQIP/Mechanical Engg. HBTI Kanpur from 07-12 March 2014
15. One week FDP on "Curriculum development and evaluation methods in technical education" organized by TEQIP/Plastic &Mechanical Engg. HBTI Kanpur from 1-6 July 2013
16. One week FDP on "Essentials of Teaching Learning Process" organized by TEQIP/Humanities Deptt. HBTI Kanpur from 18-23 March 2013
17. One week FDP on "Software applications in Chemical Engineering and technology" organized by TEQIP/Chemical Engineering HBTI Kanpur from 25-29 March 2009
18. One week FDP on "Modeling and Simulation of Chemical Process" organized by TEQIP/Chemical Engineering HBTI Kanpur from 24-28 Feb. 2009
19. One week FDP on "Computational Techniques in Chemical Engineering" organized byISTE/MAE Pune from 13-18 Dec. 2004
20. One week FDP on "Intellectual Property Rights and Patent Information" organized byNITTR Chandigarh/HBTI Kanpur from 27 Sept-1 Oct. 2004
21. Two week FDP on "Advances in Hydrocarbon Engineering" organized by QIP center IITRoorkee from 23 June-04 July 2003

Ph.D. Guidance

Presently guiding 1 Ph.D. Scholar Nidhi Shukla who is working on "Hybrid natural fiberreinforced polymer composites" (Date of registration – Sept. 2019)

M.Tech. Guidance

S.No.	Name of the student	Roll No. /SR No.	Topic	Year of award
1.	Kriti Sharma	200202005	Characterization Of Untreated And Chemically Treated Sisal Fiber Reinforced Epoxy Composites For Light Weight Applications	2022
2.	Ayushi	190202002	A study on Fabrication of surface treated Sisal fiber reinforced epoxy composites	2021
3.	Sushant		Studies on fly ash based polymer composites	Continuing
4.	Deeksha Jaiswal	180202006	"Extraction, Characterization and Thermal Degradation analysis of Novel Cellulosic Fiber Indian Barnyard Millet for Reinforcement in PolymerComposites"	2020
5.	Juli Pandey	180202005	"Thermal Kinetic analysis of Kans grass reinforced Epoxy composites"	2020
6.	Vigyan Nidhi	180206015	Fly ash mediated Epoxy composites	2020
7.	Anju		Separation Of Isopropyl Alcohol From Isopropyl Alcohol-Water Mixture Using Vegetable Oils As Solvent	2017
8.	Nidhi Thapa	758/14	Separation of butanol from butanol-water mixture by liquid-liquid extraction process with vegetable oil as solvent	2016
9.	Shubham Tiwari	716/13	"Liquid-liquid equilibrium studies for the system composed of isopropanol, water and vegetable oil"	2015
10.	Pragati Shukla	6204551011	Liquid Liquid Equilibrium studies for the system composed of Water Ethanoland vegetable oil	2014

11.	Ghazi mohd sawood	739/12	Liquid Liquid Equilibrium studies for the system composed of Water Ethanoland Non edible oils oil	2014
12.	Padmesh Awasthi	768/11	Liquid Liquid Equilibrium studies for the system composed of Water Ethanoland vegetable oil	2013
13.	Ankita Mishra	801/11	Synthesis of Biolubricants from the esterification reaction of Oleic acid with i- Amyl alcohol by using different acid catalysts	2013
14.	Shashi Bala		Studies on the removal of Arsenic from contaminatedwater	2012
15.	Mohit Nigam	808/07	Neural network modeling for Cr (VI) removal from aqueous system using Zeolite	2012
16.	Vikas Kumar	708/04	Simulation and Optimization of Primary reformer of ammonia plant	2006
17.	Sanjai Kr. Verma	734/03	Studies of Urea Plant & Modeling of gas liquid transfer in Urea synthesis reactor	2006

Administrative Responsibilities

1. Associate Dean Continuing Education and Internal Quality Assurance 2019-till date
2. Secretary USAC 2019-2021
3. Departmental MTech. Coordinator Feb 2020-till date
4. DPGC member of Food Technology 2019-2021
5. DPC member of Food Technology 2019-till date
6. Member of state level committee for New education Policy (NEP)

(**Dr. G.L.Devnani**)