भाकृअनुप-राष्ट्रीय प्राकृतिक रेशा अभियांत्रिकी एवं प्रौद्योगिकी संस्थान
12, रीजेंट पार्क, कोलकाता – 700 040, (आईएसओ 9001: 2015)
ICAR-National Institute of Natural Fibre Engineering & Technology
12, Regent Park, Kolkata - 700 040, (An ISO 9001: 2015 Certified Institute)

Profile

1. **Full Name** : **Dr. L Ammayappan**
2. **Educational Qualification** : **MSc, PhD, PGDCA**
3. **Designation** : **Principal Scientist**
4. **ARS Discipline** : **Textile Manufacture & Technology** *(Erstwhile Textile Chemistry)*
5. **Date of joining in ICAR** : **September 26, 2001**
6. **Date of Joining in ICAR-NINFET** : **January 05, 2011**
7. **Working experiences** : **28 Years**
   1. Research : 22 Years
   2. Teaching : 4¼ Years
   3. Industry : 1¾ Years
8. **Area of work**
   1. Bio-composite from natural fibre-based reinforcement and thermosetting resin
   2. Functional particle board from plant fibrous biomass & residues
   3. Coloration and finishing on protein fibrous textiles
   4. Functional finishing on lignocellulosic fibre textiles by conventional & nanoparticles
   5. Physical, chemical and mechanical characterization of natural fibers
9. **Contact details**
   1. Mobile : 8296355193
   2. Email : lammayappan@yahoo.co.in; l.ammayappan@icar.gov.in
10. **Number of projects completed (As PI) = 05**

1. *NFBSFARA funded project FQ30209* - Jute based bio-composites for industry (From June 2012 to September 2015)
2. *Institute project CBP 09*-Functional finishing of jute textiles using different nanoparticles (From April 2012 to December 2015).
3. *Institute project CBP 13*- Jute based conductive polymer composite for electromagnetic shielding (From April 2015 to September 2017)
4. *Institute project CBP 17* - Development of jute based composite products (From October 2015 to March 2019)
5. *Institute project CBP 20* - Development of fire retardant and termite proof particle board from whole jute plant (From April 2019 to September 2022)
6. *Associated as CoPI for twelve institute and externally funded projects since 2001*

11. Professional Achievements (Awards / Best Papers/Appreciation) = 05

1. **Best Oral Presentation Award** for the paper **"**Effect of pretreatments on in-situ formation of silver nanoparticle on jute fibre" by Ammayappan, L, Ray, D.P, Roy, A.K, and Chakraborty, S, International conference on Bio-resources and Stress Management, Kolkata, February 06-09, 2013
2. **Best Poster Award** for the paper " Effect of Pre treatment of Jute Fabric with potassium permanganate on the jute polyester based bio-composites" by Mondal, D, Ray, DP, Ammayappan, L, Debnath,S, Ghosh, RK, Dasgupta, S, Chakraborty, S, and Islam, Md.S, International conference on Natural Fibers-Theme :Jute and Allied Fibers, Kolkata, August 1-3, 2014
3. **Best Oral Presentation Award** for the paper "Surface modification of jute fibre through potassium permanganate for development of polyester based biocomposites" by Ray, DP, Ammayappan, L, Debnath,S, Ghosh, RK, Mondal, D, Dasgupta,S, Chakraborty, S, and Islam, Md.S, National seminar on Biopolymer & Green Composites: Emerging Science & Technology, Centre for Biopolymer Sceince & Technology, Cochin, November 14, 2014
4. **Best Poster Award** for the paper "Synthesis of low molecular weight compatiblisers (CA-26) for preparation of Jute based bio-composites" by Ray, DP, Ammayappan, L, Debnath,S, Ghosh, RK, Mondal, D, Dasgupta,S, Chakraborty, S, and Islam, Md.S, International symposium on Polymer Science & Technology, Indian Association for the Cultivation of Science , Kolkata, January 23-26, 2015
5. **Best Paper Presentation Award** for the paper on *Green biocomposite boards based on jute and Tamarind kernel Powder (TKP),* Thombare,N, Pandey, SK, Ansari, MF, Shivesh Kumar and Ammayappan, L, International Conference on "Bioscience Research for Nutritional Security, Environmental Conservation & Human Health in Rural India", Ranchi, December 22-24, 2014.

12. List of publication

1. Research papers in National journal (NAAS rated) = 17 (first author 09)
2. Research papers in international journal (NAAS rated) = 18 (first author 12)
3. Popular articles = 100
4. Book Chapter = 32
5. Books Edited = 03
6. Seminar Papers = 05
7. Bulletin = Nil

13. Seminar presentation = 60

1. Invited papers = 12
2. Research papers = 48
3. Poster = 24

14. Patents Applied = 05 (03 granted)

1. As Principal Inventor = 02 (granted)
2. As Co- Principal Inventor = 03 (01 granted)

15. Patents Granted = 02

1. *Ammayappan, L.*, Ganguly, P.K., Nag, D., Debnath, S., Ray, D.P., Ghosh, R.K., Dasgupta, S., and Chakraborty, S., (2015). A process for surface modification of jute fibre/fabric for improved interfacial adhesion characteristics and biocomposites obtained thereof, (1348/KOL/2015) granted on July 28, 2020.
2. Ammayappan L., Ganguly, P.K., Nag, D., Debnath, S., Ray, D.P., Ghosh, R.K., Dasgupta, S., and Chakraborty, S., 2022. A surface modification process of jute fibre for enhanced functionalities and biocomposites obtained thereof, E-filed on 30.12.2015 (1348/KOL/2015) and granted on July 18, 2022.

16. **Technology Commercialised** *(five with details)*

1. Technology for development of value-added products like blanket, shawl and namda from wool and speciality hair
2. Technology for application of nanoparticles based functional finishing on natural fibre textiles
3. In-situ synthesis of silver nanoparticle on lignocellulosic fibres
4. Development of products from jute based reinforced bio-composites

17. List the five major achievements in the career

1. Best distinguished worker under Scientist Category for the year 2021.
2. International training program on "Nano Technology (Agricultural Engineering)" at Department of Department of Food Science, Cook College, 65 Dudley Road, Rutgers, The State University of New Jersey, New Brunswick, New Jersey 08901-8520, United States of America from 29.03.2010 to 26.06.2010.
3. Developed a process for synthesis and application of silver, zinc oxide, and silica nanoparticle on lignocellulosic based textiles for semi-durable functionality.
4. Developed a technology for surface modification protocol for functional and rigid biocomposites from jute reinforcement
5. Developed a finishing protocol for the development of functional wool based textiles

18. List the 10 best research publications in the career (Details)

1. ***Ammayappan L,*** Roy A.N, Samanta K.K, Nayak L.K, Debnath S, Singha A, Baite H, and Bhowmick S, 2023. Development of a composite product from fibre yielding crop residues, Industrial Crops and Products, 202: 116986. https://doi.org/10.1016/j.indcrop.2023.116986
2. ***Ammayappan, L,*** Chakraborty S, Musthafa I, and Pan N.C., 2022. Standardization of a chemical modification protocol for jute fabric reinforcement, *Journal of Natural Fibers*, 19(2): 562-574
3. ***Ammayappan, L.,*** Chakraborty S, and Pan N.C., 2021. Silica nanocomposite based hydrophobic functionality on jute textiles, *The Journal of The Textile Institute*, 112 (3), 470-481

4. ***Ammayappan, L*,** Pan N.C, Chakraborty S, Khan A., 2019. A study on durability of a fragrance finishing on jute fabric, *Journal of Natural Fibers*, 17 (11): 1630-1639

5. ***Ammayappan, L.,*** Ghosh R.K, Dasgupta S, Chakraborty S, and Ganguly P.K., 2018. Optimization of alkali treatment condition on jute fabric for the development of rigid biocomposite, *Journal of Industrial Textiles,* 47 (5): 640-655

6. ***Ammayappan, L.,*** and Chakraborty S., 2017. Coating of silver nanoparticles on jute fibre by in situ synthesis, *Cellulose,* 24 (3): 1563-1577

7. ***Ammayappan, L.,*** and Shakyawar, D.B., 2016. Dyeing of carpet woollen yarn using natural dye from Cochineal, *Journal of Natural Fibers*, 13(1): 42 – 53

8. ***Ammayappan, L*,** Das S, Guruprasad R, Ray D.P., and Ganguly, P.K., 2016. Effect of lac treatment on mechanical properties of jute fabric /polyester resin based biocomposite, *Indian Journal of Fibre and Textile Research*, 41(3): 312-317

9. ***Ammayappan, L.***, Shakyawar D.B., Gupta N.P., 2011. Optimization of dyeing condition for wool/cotton union fabric with direct dye using Box-Behnken Design, *Fibres and Polymers*, 12(7): 957-962

10. ***Ammayappan, L.***, and Jeyakodi Moses, J. 2009, Study of antimicrobial activity of aloevera, chitosan, and curcumin on cotton, wool and rabbit Hair, *Fibers and Polymers*, 10(2):161-166.

19. Training program attended = 14

20. Training program organized = 04

1. As coordinator = 01
2. As co-coordinator = 03

21. Professional Affiliations (Details)

1. **Life Member** in Indian Society for Sheep & Goat Production and their utilization (ISSGPU), Avikanagar, Rajasthan, India (0199012001); Textile Association (India)- Kolkata unit, West Bengal (WB/LM/23537); The Indian Science Congress Association, Kolkata, West Bengal, (L20406); The Indian Natural Fibre Society, NIRJAFT, Kolkata, West Bengal.

2. **Peer reviewer** for Journal of Applied Polymer Science, Carbohydrate Polymer, Agricultural Review, Textile Research Journal , Journal of Industrial Textiles, Cellulose, Indian Journal of Fibre and Textile Research, Journal of the Textile Institute, Journal of Natural Fibres, Colouration Technology, Industrial Crops & Products, Scientific Reports

3. **Editor in chief** for *Asian Journal of Textiles* & *International Journal of Applied Sciences* since 2012

4. **Examiner / expert** for the evaluation / member of PhD thesis / Viva Voce under Anna University-Chennai, Alagappa University-Karaikudi & Periyar University-Salem.

5. **Editorial board member** of the Institute Annual Report since 2015 & The Indian Journal of Natural Fibres

6. **Two Certified technology** by ICAR in July 2023 as an associate developer