

ICAR-National Institute of Research on Jute & Allied Fibre Technology  
12, Regent Park, Kolkata-700040

राष्ट्रीय पटसन एवं समवर्गी रेशा प्रौद्योगिकी अनुसंधान संस्थान  
12, रीजेन्ट पार्क, कोलकाता - 700040

## PROFILE\*

1. Full Name: Dr. Santanu Basak
2. Educational Qualification: Ph.D
3. Designation: Scientist
4. ARS Discipline: Textile Chemistry
5. Date of joining in ICAR: 15.09.2011
6. Date of Joining in ICAR-NINFET: 11.08.2020
7. Working experiences (in years): 14 Years
  - a. Research: 11 Years
  - b. Teaching: Nil
  - c. Industry: 3 Years
8. Area of work (Five areas only)
  - a. Sustainable finishing of natural fibre made fabric by using different bio-macromolecules
  - b. Development of natural fibre based rubberized flexural composite as a substitute of natural leather.
  - c. Natural fibre based controlled release fragrance pack for well-being purposes.
  - d. Processing and chemical based surface modification of cellulosic and ligno-cellulosic fibres
  - e. Sustainable dyeing and finishing with irradiation-based technology
9. Contact details
  - a. Mobile No: 9643297075
  - b. Email (Including ICAR email): [shantanubasak@gmail.com](mailto:shantanubasak@gmail.com)  
[Santanu.Basak@icar.gov.in](mailto:Santanu.Basak@icar.gov.in)
10. Number of project completed (As PI): 2
  - A. Fire retardant cotton fabric by using wastage plant extract
  - B. Natural fibre based Fragrance pack for well-being applications



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

1. IEI Young engineer award in the Textile Engineering Division in year 2017-18, for contribution in research, technology transfer in the field of textile in last ten years, conducted by Institution (IEI) of Engineers (India) [Incorporated by Royal Charter in 1935]. Award presented in the 30<sup>th</sup> National Convention of Textile Engineers, West Bengal State Centre, Kolkata, India.
2. ISEES Best PhD thesis award from the "International society for energy, environment and sustainability in 2021, Indian Institute of Technology, Kanpur, India.
3. Best post graduate project award in student project competition organized by Business and Excellency Division, Pearl Academy of Fashion, New Delhi, March 24, 2009. [Paper topic: Value addition of wool textile by using 172nm UV Excimer lamp]
4. Best poster award in 12<sup>th</sup> International conference of Apparel and home textiles, Organized by Okhla Garment and Textile Clusture, New Delhi, 15<sup>th</sup> October, 2016. [ Poster topic: Flame retardancy of textile by exploring plant bio-molecule]
5. Best poster award in 6<sup>th</sup> International conference of Apparel and home textiles, Organized by Okhla Garment and Textile Clusture, New Delhi, 21<sup>st</sup> September, 2010. [ Poster topic: Functionalized wool textile by using 172nm UV Excimer lamp]

**Appreciations**

1. A. "Certificate of outstanding contribution in reviewing" awarded on June 2018 in recognition of the contributions made to the quality of the journal by International Journal of Biological Macromolecule, Elsevier Journal (NAAS rating: 9.9).
2. "Certificate of outstanding contribution in reviewing" awarded on October 2018 in recognition of the contributions made to the quality of the journal by Material Letters, Elsevier journal (NAAS rating: 8.3)
3. Travel grant from the organizing committee of 2<sup>nd</sup> Journal of Thermal Analysis and Calorimetry conference [JTACC+ V4] and 7<sup>th</sup> V4 thermo-analytical conference held on 18-21 June 2019 at Budapest, Hungary. [Travel grant exempt from paying registration fee]. Profile has been selected among ten young thermo-analytical researcher from the world for travel grant.

**Appreciation as Editorial board member**

1. Associate editorial board member of the journal named "Recent Patent in material science-Bentham Science Publication", 2018 [ ISSN: 1874-4656 (online) and 1874-4648 (print)
2. Editorial advisory board member in the Biotechnology section from 2018 of "Cambridge scholars publishing limited", registered in England, Reg No. 4333775, Vat No. 108280727[ www.cambridgescholars.com]
3. Editorial board member of "Fine Chemical Engineering", Journal of Universal Wiser Publisher Ltd, Reg No. 201835891K.
4. Editorial board member of the Applied Chemical Engineering, published by "Enpress publishers" [ISSN: 2578-2010] from 2018.

6. List of publication (Numbers only)

- a. Research papers in National journal (NAAS rated): 15
  - b. Research papers in International journal (NAAS rated): 42
  - c. Popular articles: 7
  - d. Book Chapter: 24
  - e. Books Edited: 1
  - f. Seminar Papers: 5
  - g. Bulletin: 1
- 7.Seminar presentation (numbers only): 10
- a. Invited papers: 1
  - b. Research papers: 9
- 8.Patents Applied (Numbers only): 2
- 9.Patents Granted (Details): Nil
- a. ...
  - b. ...
10. Technology Commercialised (five with details)
- a. ....
  - b. ....
11. List the five major achievements in the career
- a. Developed a new process of making flame retardant natural fibre-based material like paper, fabric, rope etc. by using wastage plant bio-molecules. In detail mechanism lies behind the flame retardancy has been established and the research findings also have been published in various reputed international journals.
  - b. Developed natural fibre based fragrance pack for well-being applications. This fragrance pack is effective up to 10 days after opening the packet and it also repel mosquitoes up to 7 days of continuous usage.
12. List the 10 best publications in the whole career (Details)
1. **Basak S**, Raja ASM, Saxena S and Patil PG, Tannin based polyphenolic bio-macromolecules: Creating a new era towards sustainable flame retardancy of polymers, Polymer Degradation and Stability, 2021, 189, 109603-109620 [ **NAAS Rating: 11**]
  2. **Basak S**, Saxena S, Raja ASM, Patil PG, Krishnaprasad G, Narkar R, Kambli N, Development of cotton fibre based fragrance pack and its characterization, Cellulose, 2021, DOI: 10.1007/s10570-021-03974-9 [ **NAAS rating: 11.5**]

3. **Basak S.**, Patil, P.G. Shaikh, A.J., Samanta, A.K. Green coconut shell extract and boric acid: new formulation for making thermally stable cellulosic paper, *Journal of Chemical Technology and Biotechnology.*, 2016, 91, 2871-2881. [ **NAAS rating: 8.5**]
4. **Basak S**, Samanta K.K., Chattopadhyay S.K. and Narkar R., Thermally stable cellulosic paper made using banana pseudostem sap, a wasted byproduct, *Cellulose*, 2015, Vol-22, No-4, pp- 2767-2776. [ **NAAS rating: 11.5**]
5. **Basak S**, Ali SW, Sodium lignin sulphonate and pomegranate rind extract (PRE) bio-molecule: A novel composition for making fire resistant cellulose polymer, *Combustion Science and Technology*, 2021, DOI: <https://doi.org/10.1080/00102202.2021.1922397> [ **NAAS rating: 7.8**]
6. **Basak S**, Saxena S, Chattopadhyay S.K., Narkar R. and Mahangade R., Bannana Pseudostem Sap: A Waste Plant Resource for Making Thermally Stable Cellulosic Substrate, *Journal of Industrial Textiles*, 2015, 46 :1003-1023. [ **NAAS Rating: 9.7**]
7. **Basak S.**, Samanta K. K., Chattopadhyay S. K., Pandit P & Maiti S. Green fire retardant finishing and combined dyeing of proteinous wool fabric. *Coloration Technoogy*, 2016, 132: 135-143. [ **NAAS rating: 7.2**]
8. **Basak S**, Ali S.W. Leveraging flame retardant efficacy of the pomegranate rind extract: a novel biomolecule on the lingo-cellulosic material, *Polymer Degradation and Stability*. 2017, 144: 83-92. [ **NAAS rating: 11**]
9. **Basak S**, Ali SW. Sustainable fire retardancy of textiles using bio-macromolecules. *Polymer Degradation and Stability*. 2016; 133:47-64. [ **NAAS rating: 11**]
10. **Basak S**, Ali SW. Fire resistant behavior of cellulosic textile functionalized with wastage plant bio-molecules: A comparative scientific report. *International Journal of Biological Macromolecule*, 2018; 114: 169-180. [ **NAAS rating: 13**]
  
13. Training program attended (Numbers only): 10
14. Training program organized (Numbers only): 2
15. Professional Affiliations (Details)
  - a. Life Member of The Institution of Engineers (India), Textile Engineering Division, Membership No. (M-1676916) [ An ISO9001:2015 certified organization]
  - b. Life Member of Indian Science Congress Association, Material Science Division. Membership number. D14823
  - c. Life member of Indian Fibre Society (IFS)
  - d. Life member of The Indian Natural Fibre Society (TINFS)
  - e. Life member of Agriculture Research Service Forum (ARS Forum)
  - f. Member of American Association of Textile Chemists and colorists (AATCC)