

# Dr. Sayani Ray

Chemistry, Organic, Enzymology, Fine structure, Polysaccharides, Interaction  
M. Sc., Ph. D.

## *Curriculum vitae*

- 2015- July 2016 Post-Doctoral study with **Dr. Claire Dumont** (INRA, Toulouse, France) and **Dr. Michael J O'Donohue** (Head of the Science and Process Engineering of CEPIA of French National Institute for Agricultural Research, France).
- 2012- Dec 2014 Doctoral study with **Dr. Estelle Bonnin** (supervisor), Dr. Marc Lahaye (INRA, Nantes, France) and Dr. William Helbert (CERMAV, Grenoble, France).
- 2009-2011 Post Graduate Study (Organic Chemistry) at the University of Burdwan, India (1<sup>st</sup> in Org Chem, M Sc).
- 2006-2009 Graduate Study (Chemistry) at the University of Burdwan, India (1<sup>st</sup> class in Chemistry, B Sc).

## *Awards/Distinctions*

- **Generation, chemical modifications and molecular structures of polysaccharide-based antiviral compounds from natural sources; PI – Dr. Sayani Ray, UGC, New Delhi, India**
- INRA Post-Doctoral Fellowship, 2016-2017, **FRANCE**
  - INSA Post-Doctoral Fellowship, 2015-2016, **FRANCE**
  - INRA Doctoral Fellowship, 2011-2014, **FRANCE**
  - CSIR-Junior Research Fellowship, CSIR, New Delhi, 2011, **India**
  - Sumanta Basu Medal (1<sup>st</sup> in Org Chem, M Sc), Burdwan University, **India**

## *Research Highlights/ Experimental Skills*

**Selected polysaccharides from natural sources: isolation, chemical characterization, modification and interaction with protein.**

- Extraction, purification and fine structural characterization (GPC, smith degradation, permethylation analysis, enzymatic degradation, ESI MS) of polysaccharides.
- Development of chemically engineered polysaccharides from natural sources.

- Protein – polysaccharide interaction study (UV-vis and fluorescence spectroscopy).

## Publications

17. Structural insight of an antioxidative arabinogalactan protein of *Aegle marmelos* fruit gum and its interaction with  $\beta$ -lactoglobulin- K. Bera, S. Ray, W. Raja and B. Ray, *Int. J. Biol. Macromol.*, 99, (2017), 300-307.
16. Green seaweed *Enteromorpha compressa* (Chlorophyta, Ulvaceae) derived sulphated polysaccharides inhibit herpes simplex virus, N. Lopes, S. Ray, S. F. Espada, W. A. Bomfim, B. Ray, L. C. F. Galhardi, R. E. C. Linhares and C. Nozaw, *Int. J. Biol. Macromol.*, 102, (2017), 605-612.
15. Chemical profile of a polysaccharide from *Psidium guajava* leaves and its in vivo antitussive activity. S. Khawas, V. Sivova, N. Anand, K. Bera, B. Ray, G. Nosalova and S. Ray, *Int. J Biol. Macromol.*, 109, (2018) 681-686.
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14. Structural highlights of an antioxidative arabinogalactan protein of *Lanea grandis* gum that stabilizes  $\beta$ -Lactoglobulin- S. K. Majee, K. Bera, W. Raja, K. Ghosh, **S. Ray** and B. Ray, *Food Hydrocolloids*, 2016, **61**,720-729.
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13. Additionally sulfated xylomannan sulfates from *Scinaia hatei* and their antiviral activities- **S. Ray**, C. A. Pujol, E. B. Damonte and B. Ray, *Carbohydr. Polym.*, 2015, **131**, 315-321.
12. Isolation and structural elements of a water-soluble free radical scavenger from *Nyctanthes arbor-tristis* leaves- K. Ghosh, **S. Ray**, K. Bera and B. Ray, *Phytochemistry*, 2015, **115**, 20-26.
11. Chemical structure of the arabinogalactan protein from gum ghatti and its interaction with bovine serum albumin- K. Ghosh, **S. Ray**, D. Ghosh and B. Ray, *Carbohydr. Polym.*, 2015, **117**, 370-376.
10. Isolation and structural features of an antiradical polysaccharide of *Capsicum annuum* that interacts with BSA- S. K. Majee, **S. Ray**, K. Ghosh, V. Micard and B. Ray, *Int. J. Biol. Macromol.*, 2015, **75**, 144-151.
9. Extracted polysaccharide from *Nyctanthes arbor-tristis* leaves: Chemical and antitussive properties- K. Ghosh, G. Nosalova, **S. Ray**, V. Sivova, S. Nosal and B. Ray, *Int. J. Biol. Macromol.*, 2015, **75**, 128-132.
8. [Novel and diverse fine structures in LiCl–DMSO extracted apple hemicelluloses](#). **S. Ray**, J. Vigouroux, B. Quémener, E. Bonnin and M. Lahaye, *Carbohydr. Polym.*, 2014, **108**, 46-57.
7. Interaction with bovine serum albumin of an anti-oxidative pectic arabinogalactan from *Andrographis paniculata*- U. R. Chatterjee, **S. Ray**, V. Micard, D. Ghosh, K. Ghosh, S. S. Bandyopadhyay and B. Ray, *Carbohydr. Polym.*, 2014, **101**, 342-348.
6. Generation and characterization of complex bioactive oligosaccharides from flax meal by a combination of enzyme hydrolysis, HPAEC and MALDI-TOF-MS. **S. Ray**, U. Adhikari and B. Ray, *Ind. J. Chem.*, 2014, 53B, 332-339.
5. Chemically Engineered Sulfated Glucans from Rice Bran Exert Strong Antiviral Activity at the Stage of Viral Entry- B. Ray, C. Hutterer, S. S. Bandyopadhyay, K. Ghosh, U. R. Chatterjee, **S. Ray**, I. Zeitrager, S. Wagner and M. Marschall, *J. Nat. Prod.*, 2013, **76**, 2180-2188.
4. An Antioxidative Carbohydrate Polymer from *Enhydra fluctuans* and Its Interaction with Bovine Serum Albumin- D. Ghosh, **S. Ray**, K. Ghosh, V. Micard, U. R. Chatterjee, P. K. Ghosal and B. Ray, *Biomacromolecules*, 2013, **14**, 1761-1768.
3. Characterization of mucilage polysaccharides, arabinogalactan proteins and cell-wall hemicellulosic polysaccharides isolated from flax seed meal: A wealth of structural moieties- **S. Ray**, F. Paynel, C. Morvan, P. Lerouge, A. Driouich and B. Ray, *Carbohydr. Polym.*, 2013, **93**, 651-660.
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2. The in vitro antiviral property of Azadirachta indica polysaccharides for poliovirus- L. C. Faccin-Galhardi, K. A. Yamamoto, **S. Ray**, B. Ray, R. E. C. Linhares and C. Nozawa, *J. Ethnopharmacol.*, 2012, **142**, 86-90.

1. Article: Antiviral Activity Against Dengue Virus of Diverse Classes of Algal Sulfated Polysaccharides- C. A. Pujol, **S. Ray**, B. Ray and E. B. Damonte, *Int. J. Biol. Macromol.*, 2012, **51**,412-416.

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### Communication

#### Oral :

1. **Ray, S.**, Vigouroux, J., Lahaye, M. Helbert, W., Fer, M., Bonnin, E. 27th International Carbohydrate Symposium 2014, Elucidation of enzymatic consortia for the structural chemotyping of dicot hemicelluloses. Bangalore, India.
2. **Ray, S.**, Vigouroux, J., Lahaye, M. Fer, M., Helbert, W., Bonnin, E. Congres GLUCIDOC 2013, Hemicelluloses fine structure in apple as investigated by enzymatic profiling. Landeda, France.

#### Poster :

1. **Ray, S.**, Vigouroux, J., Lahaye, M. Helbert, W., Fer, M., Bonnin, E. Internal Conference on challenges in chemistry and biology of carbohydrates 2014, Elucidation of enzymatic consortia for the structural chemotyping of dicot hemicelluloses. Dehradun, India.
2. **Ray, S.**, Vigouroux, J., Quemener, B., Bonnin, E., Lahaye, M. The XIIIth Cell Wall Meeting 2013, Hemicelluloses fine structure in apple as investigated by enzymatic profiling. Nantes, France.
3. **Ray, S.**, Vigouroux, J., Lahaye, M. Fer, M., Helbert, W., Bonnin, E. Summer Course Glycosciences 2012, Screening of bacterial enzymes for the degradation and modification of hemicelluloses of fleshy fruit. Groningen, Netherlands.
4. Ghosh, D., **Ray, S.**, Micard, V., Ray, B. CARBO XXVI: Symposium on Carbohydrates at the Interface of Chemistry and Biology 2011, An antioxidative arabinogalactan from *Enhydra fluctuans* that interacts with BSA. Kolkata, India.

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### Personal/Information

Date of Birth	24 <sup>th</sup> July, 1988
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