

### Organising Secretary Report-CARBO-XXXIV

The International Carbohydrate Conference (CARBO-XXXIV) was organized by Department of Chemistry, University of Lucknow, Lucknow in association with NIPER, Raebareli and ACCTI from December 5-7, 2019. The conference organized with the objective "**Emerging frontiers in Carbohydrates Chemistry and Glycobiology**", was inaugurated on 5th December 2019 at Malviya Hall, University of Lucknow. The Opening Ceremony was presided by the Vice Chancellor, Mr. S.K. Shukla while Prof. R.R. Schmidt of Konstanz University, Germany was the chief guest. Prof. Naveen Khare, Organizing Secretary of the conference and President, ACCTI welcomed the guests and highlighted the importance of carbohydrates in our daily life. Prof. Schmidt has talked about the Structural aspects of carbohydrates which make this moiety efficiently able to form diverse linkages, substitutions, and branching patterns that has attracted generations of chemists towards harnessing these miraculous properties. The Chief Guest, Vice Chancellor and dignitaries on Dias have released the souvenir of the conference. The Vice Chancellor and the present Head of the Department of Chemistry, Prof. Naveen Khare honored the retired teachers of the Department of Chemistry, University of Lucknow. Prof. Ashok K. Prasad, Hon. Secretary, ACCTI then honoured the ACCTI awardees for 2019 which were-

1. Dr. Vinod Tewari, BHU, Varanasi for Excellence of Carbohydrate Conference
2. Dr. Amritpal Kaur, GND University, Amritsar for Prof. MP Khare Memorial Award
3. Dr. Brij Raj Sharma, Sunita Hydrocolloids, Rajasthan for CG Merchant Memorial

In this CARBO-XXXIV annual event, recent developments in all areas of carbohydrates including glycobiology were focused. The Conference has brought together established and emerging researchers, scientists, technologists and industrialists to serve as a forum for deliberation and discussions on the progress in all major areas of carbohydrates, viz.

Structures & Synthesis of Complex Carbohydrates, Plant & Microbial Polysaccharides: Isolation, Characterization, Structure Elucidation & Utilization, Transition Metal Saccharides Chemistry and Biochemistry, Carbohydrates for Green Energy, Glyco-Nanotechnology, Carbohydrates in Drug Development, Carbohydrate based Biopolymers: Modifications and Applications, Traditional Nutraceuticals and Complex Carbohydrates.

In a total of 9 technical sessions, the conference covered 37 lectures including 5 plenary Lecture, 23 invited lectures, 9 oral presentations, and 115 poster presentation, where 10 best presented by the scholars below the age of 35 years were selected for best poster, and invited for short oral presentation, and then finally two of them were selected for the ACCT(I) Young Scientist Award-2019. Sustainable platform for intellectual interaction between industry and academia was held on day one (05.12.19), with the aim of developing research and development of carbohydrate chemistry, biology and technology in the country in which various panelists were there viz. Dr. P.L. Soni, Prof. K.P.R. Kartha, Dr. Rene Roy, Prof. Serge Mignani, Dr. Raju Adhikari, Dr. Brij Raj Sharma, Dr. Nishodh Saxena.

There was two general body meeting of the Association of Carbohydrate Chemists and Technologists (India). The first meeting was organized at Delhi University on 27 September 2019. And the second Annual General Body meeting of the Association of Carbohydrate

Chemists and Technologists (India) was organized by the University of Lucknow, Lucknow at 6.30 PM on 04/12/2019 at Birbal Sahni Institute of palaeosciences (Venue).

President, ACCT (I), Prof. Naveen Khare gave the introductory speech while Prof. Ashok Prasad, Hon. Secretary of the ACCT (I), then read out the minutes of the previous AGB meeting held during the XXXIII Carbohydrate Conference which was organized at IISER-Kolkata. The minutes were accepted unanimously as proposed by Dr. P L Soni and seconded by Dr. Vinod Tiwari as well Vineet Kumar and Dr R P Tripathi. Prof. Ashok Prasad then described the previous years' activities of the Association and the agenda finalized by the EC members. The meeting of the Executive Committee members was held for two hours followed by Dinner where the new Executive Committee members were elected and exchanged their views for the betterment of the activities of the Association followed by cultural programme and dinner.

The following lectures were delivered in technical sessions on 05.12.19: **Technical Session I: Plenary Lecture 1** (Chaired by Prof. David W Gammon, University of Cape Town, South Africa and Dr. P.L. Soni, Editor-in-Chief, Forest Research Institute, Dehradun ); Glycosylation-Efficiency in Glycosyl Acceptor Masking and in Glycosyl Donor Anomeric by **Prof. Richard R. Schmidt**, Fachbereich Chemie, Universitat Konstanz, Germany.; **Invited Lecture-1**; Application of Chemoselective Ligation Reactions in Carbohydrate Chemistry by **Prof. Valentin Wittmann**, Fachbereich Chemie, Universitat Konstanz, Germany.; **Invited Lecture-2**; Vinyl Sulfones as  $2\pi$  Partners in 1,3 Dipolar Cycloadditions Metal Free Routes to Disubstituted 1,2,3- Triazolylated Carbohydrates by **Prof. Tanmay Pathak**, Department of Chemistry, Indian Institute of Technology Kharagpur, India.; **Invited Lecture-3**; Synthesis and Study of Ligands for Carbohydrate Binding Proteins by **Prof. Paul V. Murphy**, School of Chemistry, NUI Galway, Ireland.

**Technical Session II: Plenary Lecture-2** (Chaired by Dr. R.P. Tripathi, Dean and Course Coordinator NIPER-Raebarelli, and Dr. KPR Kartha, Professor (Retd.) Department of Medicinal Chemistry, NIPER-Mohali, Punjab); ncRNAs as Therapeutic Targets: A Paradigm Shift in Drug Discovery by **Prof. Tushar K. Chakraborty**, Indian Institute of Science, Bengaluru, India; **Invited Lecture-4**; Multivalent Inhibitors of Protein Carbohydrate Interactions by **Prof. Roland J. Pieters**, Utrecht Institute for Pharmaceutical Sciences, Utrecht University, The Netherlands; **Invited Lecture-5**; (Excellence in Carbohydrate Research Award Lecture) Click Inspired Synthesis of Glycohybrid Molecules of Chemotherapeutic Potential by **Dr. Vinod K. Tiwari**, Department of Chemistry, Banaras Hindu University, Varanasi; **Invited Lecture-6**; Synthesis of C-Glycosides of Biologically Important Lead Molecules by **Prof. Indrapal Singh Aidhen**, Department of Chemistry, Indian Institute of Technology Madras, India; **OP-1**;Thermostable Cellulose Degrading Bacteria from Dirang Hotspring and its Utility in Bioethanol Production from Agrowaste by **Dr. Debabrat Baishya**, Department of Bioengineering and Technology, Guwahati University, Guwahati, India

**Technical Session III, on day 06.12.19: Plenary Lecture-3;** (Chaired by Prof. R.R. Schmidt, Fachbereich Chemie, Universitat Konstanz, Germany and Dr. G. Muralikrishna, Retd. Head & Chief Scientist, Department of Biochemistry, CSIR-CFTRI, Mysore); Challenges in the Synthesis of Unusual Sugars and Glycoconjugates by **Prof. David W. Gammon**, University of Cape Town, South Africa; **Invited Lecture-7;** (CG Merchant Memorial Award Lecture) Guar Gum: A versatile Industrial Hydrocolloid by **Dr. Brij Raj Sharma**, Quality Assurance/Research & Development, Sunita Hydrocolloids Pvt. Ltd. Rajasthan, India; **Invited Lecture-8;** Biodegradable Polymers for Agriculture and Packaging Applications by **Dr. Raju Adhikari**, RMIT University, Victoria, Australia; **OP-2,** Comparative Study of Pesticide Delivery using Polysaccharide Nanocomposites/ Polysaccharide Composites /Lignin- Clay/ Modified Clay-Polyethyleneimine by **Dr. Ritu Mahajan**, Institute of Nanoscience and Technology, Mohali, Punjab, India; **OP-3,** Development of Carbohydrate Based Edible Coatings to Extend the Post-Harvest Shelf Life of Perishable Fruit Crops by **Dr. Koushik Mazumder**, Food and Nutritional Biotechnology Department National Agri-Food Biotechnology Institute (NABI), Mohali, India.

**Technical Session IV: Plenary Lecture-4;** (Chaired by Dr. Pradeep Jauhari, Formerly Director Ministry of Chemical and Fertilizer, Government of India, Shastri Bhavan, New Delhi and Prof. Ashok Prasad, University of Delhi, Delhi ); Synthesis of Disaccharide Standards for Quantitation of Heparin Sulfate in Biological Samples by **Prof. Vito Ferro**, University of Queensland, Brisbane, Australia; **Invited Lecture-9;** A Simple and Powerful Solution of Stereoselective Sialylation by **Prof. Hiromune Ando**, Faculty of Applied Biological Sciences, Gifu University, Japan; **Invited Lecture-10;** Cyclodextrins Imitating Proteins by **Prof. Mathieu Sollogoub**, Sorbonne Université, Institut Parisien de chimie Molculaire Paris, France; **Invited Lecture-11;** Burgeoning Influence of Gold-catalysed Glycosidations on Glycosaminoglycans and Tuberculosis by **Prof. Srinivas Hotha**, Indian Institute of Science Education and Research, Pune, India; **Invited Lecture-12;** (Prof. M. P. Khare Memorial Award Lecture) Diversity in Starch and Flour Functionality Amongst Indian Wheat Varieties by **Dr. Amritpal Kaur**, Guru Nanak Dev University, Amritsar, Punjab, India

**Technical Session V: Invited Lecture-13;** (Chaired by Dr. R.P. Tripathi, Course Coordinator NIPER-Raebareilly, and Prof. Balaram Mukhopadhyay, Department of Chemical sciences, IISER Kolkata, West Bengal, India) Insights in Carbohydrate Lipophilicity by **Prof. Bruno J. Linclau**, University of Southampton, Highfield, Southampton, United Kingdom; **Invited Lecture-14;** *myo*-Inositol to Natural Products: Enantiomeric Scaffolding Appears to be the Key by Prof. M.S. Shashidhar, National Chemical Laboratory, Pune, India; **Invited Lecture-15;** Glycobiology: Promising Future Ahead by **Dr. Pradeep K. Srivastava**, Ex. Senior Principal Scientist, CSIR-CDRI, Lucknow, India; **OP-4;** Glycorandomisation: A Powerful Tool in Drug Discovery by **Dr. Vishwa Deepak Tripathi**, Department of Chemistry, M. K. College, Lalit Narayan Mithila University, Bihar, India

**Technical Session VI: Invited Lecture-16;** (Chaired by Dr. Vasudev Singh, Emeritus Medical Scientist, Department of Studies in Food Science and Nutrition, University of Mysore, Mysore, and Dr. Manjoocha Srivastava, Senior Scientist, CSIR-NBRI, Lucknow); Thinking Outside the

Cells: How Heperan Sulfate Micro Heterogeneity Control Cell Functions by **Dr. Kikkeri Raghavendra**, Indian Institutes of Science Education and Research, Pune, India; **Invited Lecture-17**; Stereospecific Synthesis of C-Aryl Glycosides *via* Heck Type Cross-Coupling Reactions by **Dr. Jeyakumar Kandasamy**, Department of Chemistry, IIT BHU, Varanasi, India; **Invited Lecture-18**; Regioselective Synthesis of Chirally Enriched Tetrahydrocarbazolones and Tetrahydrocarbazoles by **Dr. Ram Sagar Misra**, Department of Chemistry, Banaras Hindu University, Varanasi, India; **OP-5**; Chemical Processing of Spent Aromatic Biomass to Xylose, Levulinic Acid and Lignin by **Dr. Bhuwan B. Mishra**, Center of Innovative and Applied Bioprocessing (CIAB), Mohali, Punjab, followed by Conference Dinner at Hotel Clarks Avadh, Lucknow.

**Technical Session VII on day 07.12.19: Plenary Lecture-5**; (Chaired by Dr. Bijoy Kundu, Former Chief Scientist, CSIR-Central Drug research Institute, Lucknow, and Dr. Vineet Kumar, Head and Scientist G, Forest Research Institute, Dehradun); Newer Synthetic Strategies and Applications of Glycodendrimers by **Dr. Rene Roy**, Department of Chemistry, Université du Québec à Montréal, Canada; **Invited Lecture-19**; Cellulose Chemistry: Applications in Nanoscience & Energy by **Prof. A.J. Varma**, CSIR-National Chemical Laboratory, Pune, India; **Invited Lecture-20**; Dendrimer-Enabling Therapeutic Oligonucleotide Delivery Systems as Innovative Nanomedicine by **Prof. Serge Mignani**, Glycovax pharma, Développement scientifique, 424, Montréal (Québec) H3J1S6, Canada; **OP-6**; Challenges and Techniques involved in the Characterization of Carbohydrate based Bio similars (Low Molecular weight Heparin like Enoxaparin, Daltaparin etc) by **Dr. Anupam K. Srivastava**, Mylan Laboratories Ltd., Department of Bio-analytical & Complex Analytics, Hyderabad.

**Technical Session VIII**: Chaired by Prof. Richard R. Schmidt, Prof. David W. Gammon, Prof. Rene Roy, Prof. A.J. Varma, Prof. K.P.R. Kartha, Dr. Manjoosha Srivastava in which Oral presentation of 10 best posters by the young researchers Out of 115 poster presentation, the 10 best posters presented by scholars were selected their names are as follows: **Adesh Kumar Singh**, IIT-BHU, Varanasi, India; **Ashwini Wali**, NCL-Pune; **Deepak Sharma**, Forest Research Institute, Dehradun; **Dipika Pan**, IEST, Shibpur; **Kavita**, Delhi University, Delhi; **Kedar Sharma**, IIT-Guwahati; **Sanyogita Shahi**, Kalinga University, Raipur; **Prashant Jain**, IISER-Pune; **Dr. Shipra Nagar**, National Centre For Polar and Ocean Research Ministry of Earth Sciences, Government of India Headland Sada, Vasco-Da-Gama, Goa; **Dr. Stuti Gupta**, Chemistry Department, Lucknow University, Lucknow and all 10 were invited for short oral presentations.

**Technical Session IX: Invited Lecture-21**; (Chaired by Dr. V.P. Sharma, Senior Principal Scientist, Head, Quality Assurance, CSIR-Indian Institute of Toxicology Research, Lucknow, Prof. Anakshi Khare, Retd. Department of Chemistry, University of Lucknow, Lucknow and Dr. Arun Sethi, Chemistry Department, University of Lucknow, Lucknow); Synthetic Oligosaccharide-Based Conjugates as Promising *Shigella* Vaccine Candidates by **Dr. Laurence Mulard**, Institut Pasteur, Unité de Chimie des Biomolécules, Paris, France; **Invited Lecture-22**; Synthesis of Sugar Based Ionic Liquids for Sustainable Societal Applications by **Dr.**

**Rajasekhara Reddy**, Department of Chemistry, VIT University, Vellore, India; **Invited Lecture-23**; New Findings in Catalytic Glycosylations by **Dr. Christain M. Pedersen**, University of Copenhagen, Copenhagen, Denmark; **OP-7**; Development and Antimicrobial Evaluation of *Acacia Nilotica* Gum Induced Silver Nanoparticles by **Dr. (Ms) Mahtab Z. Siddiqui**, Processing & Product Development Division, ICAR-IINRG, Ranchi, India; **OP-8**; Structurally Diverse Pectin Oligosaccharides with Prebiotic Attributes by **Dr. Ravindra Pal Singh** (Ramalingaswami Re-entry fellow) National Agri-Food Biotechnology Institute (NABI), Mohali, India; **OP-9**; A Fluorescent Aminosugar for High-throughput Screening of Nucleic Acid Binders by **Dr. Nihar Ranjan**, National Institute of Pharmaceutical Education and Research, Raebareli, India.

Dr. K. P. R. Kartha, NIPER, Mohali, Dr. Ashok Prasad, Hon. Secretary (ACCTI), Dr. Vinod K. Tiwari, Jt. Secretary and Prof. Naveen Khare, Organising Secretary (CARBO-XXXIV) coordinated the valedictory function and invited delegates and participants to express their views about the organization of the event. Prof. David Gammon and other experts appreciated, and congratulated the organization committee for quality of lectures and other elements of conference regarding ambience, stay, food etc. Dr. P.L. Soni, Chief Advisor ACCTI and Dr. Vasudev Singh expressed pleasure on smooth and excellent organization of conference. Prof. Naveen Khare, President (Academic) ACCT(I) announced different awards. The ACCT(I) Young Scientist award was given to Mr. Prashant Jain, IISER-Pune and Dr. Stuti Gupta, University of Lucknow, Lucknow was awarded with the ACCTI award. And also the Award was given to the organizing committee members of CARBO-XXXIV from ACCTI Executive members as a token of appreciation. Finally, Dr. P.L.Soni proposed the vote of thanks, and ended the International Carbohydrate Conference (CARBO-XXXIV).

(Prof. Naveen Khare)  
Organizing Secretary, CARBO-XXXIV  
Head, Chemistry Department  
University of Lucknow  
Dated Dec. 8, 2019