

International Conference-IS 2014
“Green Technologies for Sustainable Growth of Sugar & Integrated Industries”
at Nanning, P.R. China from 25-28 November 2014

The importance of sugar crops as a source of sugar, sustainable energy and other value added products has led to an enhanced interest in these crops at the global level in recent years. The diversion to other sugar crops and also to various other end-products like bio-fuel and bio-ethanol, bio-plastics etc., is bound to have an impact on the socio-economic canvas of the sugar producing countries. Innovative technologies and practices including Green Technologies and exchange of these technologies and ideas need to be in place to meet the increasing demands and to exploit these exciting opportunities. Keeping these in view, the International Association of Professionals in Sugar and Integrated Technologies (IAPSIT) organized IS 2014 at Nanning in the Guangxi province in China. The occasion also marked ten decades of remarkable service of IAPSIT towards the development of sugar and integrated industries in the developing countries through its various activities. More than 220 delegates from 22 countries participated in this scientific gathering.

The venue of the International Conference was the Xiangsihu International Hotel at Nanning, situated adjacent the Guangxi Academy of Nationalities and nearby the Guangxi Academy of Agricultural Sciences. The picturesque surroundings of the Hotel were a treat to the eyes with the Xiangsi lake at a stone-throw away from the hotel. The tastefully decorated interiors offered the right ambience for a comfortable stay for the delegates, with the well equipped halls of the venue providing an ideal environment for the scientific deliberations.

The Conference got to a start on 25 November 2014 after a Group Photograph Session of the delegates. Dr. S. Solomon Secretary of the Conference welcomed the delegates and gave a brief account of the IAPSIT and the Conference. Dr Yang-Rui Li, President, IAPSIT and Organizing Secretary of IS 2014 briefed about programmes during the Conference. The Chief Guest, the Hon'ble Governor of Guangxi Province apprised the gathering about the main concerns of Chinese sugar industry and hoped that the Conference would chalk out ways and means to address the issues.

This was followed by the Plenary Session chaired by Mr. Jai S Gawander from Fiji and Co-ordinated by Dr Priyanka Singh from India. There were lectures on the status of sugar and integrated industries in China, bio-fertilizers in sugarcane agriculture in Brazil and its impact on crop productivity, the Brazilian Bioethanol Programme, impact of climate change on sugarcane production in developing countries, sequencing strategies like Next Generation Sequencing Technologies, transgenic research in sugarcane improvement, nutrient management with respect to N fertilizers, disease management in sugarcane, selection methods for effective sugarcane improvement etc.

Technical Sessions

The Technical Sessions were held on 26 November and 28 November 2014. Three Technical Sessions were held concurrently. Technical Session I was on Sugar Crops Production Technologies and Mechanization, Technical Session II was on Sugar Crops Improvement and Protection and Technical Session III was on Sugar Crops Processing, Value Addition and Sugar Energy Matrix in Developing Countries.

The Technical Session I was chaired by Dr Yang-Rui Li from China and Co-chaired by Dr Raffaella Rossetto and Dr Prakash Lakshmanan from Australia. The Co-ordinators for the Session were Dr T.K. Srivastava and Dr. Sudhir Shukla from India. The five invited lectures covered topics on climate variability trends on sugarcane production in Fiji, innovation and technology transfer for production and sustainability, agro-technologies like water management and site-specific fertilizer application in sugarcane based cropping systems etc. The short presentations covered wide ranging topics like drip irrigation and fertigation, soil nutrient management strategies for improved sugarcane production, bio-manured multi-ratooning for enhanced productivity in plant-ratoon systems, post-harvest trash management for weed control, role of invertases and bacteria in staling of juice and strategies to control staling etc.

The Technical Session II was chaired by Dr. Isabella Guinet-Brial of France and Co-chaired by Dr. Robert Margarey from Australia and Dr. Yong-Bao Pan from USA. The Session Co-ordinators were Dr. Amaresh Chandra from India and Prof. Li-Tao Yang from China. A total of five invited lectures and twenty five short presentations were delivered. The use of molecular markers in sugarcane and sugarbeet breeding programmes, phylogenetic and association studies in these crops, expression analysis with respect to economic attributes like sugar content, management of post-harvest losses through molecular techniques, cytomorphological studies in sugarcane, sugarcane genome sequencing programme by China for *Saccharum spontaneum* etc. were highlighted. The crop protection aspects centred on the emerging sugarcane diseases in the developing countries and their management, management of diseases and pests using conventional and molecular techniques and through bio-control. Visacane, the CIRAD Quarantine Tool for pest and disease-free sugarcane germplasm exchange was also presented.

The Technical Session III dealt with the status of sugar industry in South East Asia as a whole and in various countries. The challenges in the South East Asian Sugar industry and strategies to overcome these challenges, status of sugar industry in other countries like Sri Lanka, Indonesia and China were outlined by the speakers. Challenges in commercialization of sweet sorghum in India and Philippines were also presented in the session.

The Poster Interactive Session was held on 27th November 2014 from 10 AM -11.30 AM. The posters were presented in three sections corresponding to the Technical Sessions. Dr. S. Solomon from India was the Chairman and Dr. M Swapna from India co-ordinated the Session. In the first section, eight posters were presented on sugarcane, sugarbeet and sweet sorghum. The topics ranged from agro-techniques for water, nutrient and other resource management to development of a web-based expert-disorder diagnostic system for sugarcane agriculture etc. The second section had 14 posters with the topics on conventional and modern tools for sugar crops improvement for sugar as well as biomass, bio-intensive crop protection strategies through integrated approaches like bio-control, use of sugarcane based intercropping systems etc. The posters in section III talked about the efforts towards mechanization in sugarcane agriculture esp., small scale harvesters and also Outgrower Model for cane development to transform sugar crops farmers and sugar industry economy.

A visit to the laboratories and research fields of Guangxi Academy of Agricultural Sciences was arranged on November 27, 2014 at 8.30 AM. The delegates visited the bio-control laboratories and also the Key Laboratory for Sugarcane Biotechnology and Genetic Improvement. The varietal demonstration fields had the latest improved varieties developed by the Institute. Diseases free *in vitro* seedling nursery of sugarcane plantlets and the germplasm collection and maintenance area were also visited by the delegates. A visit to the

Shiangsi sugar mill on 27 November 2014 was also a part of the Conference activities. The freshly harvested clean canes which were brought to the mill for crushing, with no trash or other impurities, were a treat to the eyes. The delegates also visited the sugarcane fields in the sugar mill area. The sugarcane grown in an undulating topography with self detrashing clean canes standing in the field was an attractive sight.

The Valedictory Session of IS 2014 was held on 28 November 2014 at 11 AM in the Multifunctional Hall. Dr. S. Solomon, Secretary, IAPSIT welcomed the dignitaries and delegates and gave a quick brief about the Conference. This was followed by presentation of reports and the recommendations by the Chairmen/Co-ordinators of the various sessions. The posters by Dr M Nouri from Iran and Dr SS Hasan from India in Session I, those by Dr Huang from China and Dr Sunethra Wanasinghe from Sri Lanka Session II and the posters by Dr A.K Singh and Dr A.K. Sah from India in Session III were adjudged as the Best Posters. Award for distinguished contribution in sugarcane research and significant contribution for academic exchange was conferred on Dr Yang-Rui Li from China. Distinguished contribution awards were also given to other sugar crops researchers. Dr. S. Solomon, the Founder Secretary of IAPSIT, and the Secretary for IS 2014 was presented with the IAPSIT Life Time Achievement Award 2014 for his outstanding contributions towards the general upliftment of sugar industry in the developing countries through his various activities. Some of the participants gave their feedback about the Conference. Dr Yang-Rui Li, President of IAPSIT and the Organizing Secretary of IS 2014 gave the concluding remarks and Mr. Jai Gawander, Vice-President, IAPSIT proposed a Vote of Thanks. The President, IAPSIT formally declared the Conference closed with the announcement of IS 2017 at South Africa.

It was not all work and no play for the delegates at the Conference. There was a breathtaking cultural extravaganza “Brocade Banquet” at the Nanning International Convention and Expo Centre on November 27, 2014 for the delegates. The dancers gave a mesmerizing performance leaving the audience spell-bound in a dream world. There was also a visit to the Guangxi Museum of Nationalities and to the Confucius Temple in Nanning on the afternoon of November 28, 2014. The delegates took maximum advantage of the opportunity to visit the market places and “to shop till they drop” for their favourite items. The shopping spree continued on all the days with the participants getting a taste of the various traditions and culture of the area.

The main recommendations that emanated from the deliberations were

- Agro-techniques favouring soil carbon enhancement, water and nutrient management need to be adapted along with steps for mitigation of climate change.
- Sugarbeet can be an attractive alternative for sugarcane under limited water availability.
- Post-harvest management to reduce sugar losses need to be strengthened for enhanced sugar recovery.
- Application of molecular markers should go hand-in-hand with the conventional breeding strategies for enhanced breeding efficiency.
- Biotechnological interventions need to be taken up for sugarbeet improvement.
- Techniques like transcriptome analysis and genome sequencing needs to be strengthened especially in developing countries.
- Concerted and continuous efforts are needed for proper monitoring and reporting newly emerging diseases.
- The novel molecular tools for disease diagnosis need to be shared among the developing countries for effective utilization.

- The South-East Asian countries are faced with common problems like low productivity and sugar recovery. India and China along with IAPSIT need to play a greater role in the upliftment of sugar industry in this region.