



Entrance Examination

Entrance examination for admission to various Diploma & Certificate courses was conducted by the institute on 12th June, 2016 at six centers, Kanpur, Delhi, Kolkata, Pune, Patna & Chennai. From the academic session 2016-17, a new Certificate Course in **“Industrial Instrumentation and Process Automation”** has been introduced. Results for all courses have been declared & are available on our website <http://nsi.gov.in>.



Organized by National Sugar Institute, Kanpur & The Sugar Technologists' Association of India, New Delhi.

The Seminar was attended by large no. of delegates from Maharashtra, Karnataka and Uttar Pradesh. During the seminar 10 research papers on the topics relating to condensate management, water techniques for waste water purification and as recycling of water so as to minimize fresh water consumption and waste water discharge were presented.



Seminar Organized

An All India seminar on **“Water Management & Meeting the CPCB Guidelines”** was jointly

Keeping in view monitoring of effluent water quality an area of growing concern, a paper on **“Real time data monitoring for effluent**

treatment plant of sugar industry: a case study” was also presented by the institute.

Training Program Conducted

1. For M/s Parrys Sugar Refinery at Silk Road, Kakinada- Two weeks Accredited Training Program conducted by the Institute at the site of M/s Parrys Sugar Refinery at Silk Road, Kakinada, Telangana for the technical personnel of factory from 25th March 2016 to 05th April 2016. During the program practical concepts of various unit operations carried out in a stand-alone sugar refinery were discussed and elaboration was made about the newer technologies in area of sugar refining. Clarification/guidance was also given on the practical problems been faced by the factory personnel at various unit operations.

2. For M/s Dalmia Bharat Sugar Division- One week Accredited Training Program from 30th May to 7th June, 2016 conducted by the Institute for the Quality Control personnel and Lab in-charges of M/s Dalmia Bharat Sugar Division. During the program various lectures on Quality Control, Control of Sugar Losses, Milling Control, Methods of Sampling, Control of Micro-organism in Mill house & Boiling house etc. were conducted and practical concepts of various sugar house products were made clear to the participants.



The participants were also imparted practical training for analyzing process liquors and sugar house products as per standards protocols.

RESEARCH:

The Institute during the period took up R&D work on the following:

1. Alcohol from Cassava- The Cassava Starch has been converted into fermentable sugars using commercially available three different enzymes. This conversion has been optimized by taking different enzymes concentrations. The optimization of enzymes and substrate concentration by taking different enzymes without gelatinization has been done and 100% conversion of Cassava Starch into fermentable sugar has been achieved with all three enzymes. The conversion of fermentable sugar obtained into ethanol is being done.



2. Production of invert syrup from Cane Juice, Molasses, Sweet Sorghum, Sugar Beet Juice

– The work has been initiated using organic clarificants like Deola and Aloevera etc. The dosage of different clarificants & other parameters have been optimized & efficiency of each has been assessed.



The production of invert syrup from sugarcane juice using ion-exchange resins has also been initiated. The results are encouraging in the preliminary experiments. Invert syrup from sugarcane juice by ion exchange process is being standardized using different clarification methods prior to ion-exchange treatments.

3. Zeolite from bagasse fly ash : synthesis and its utilization in catalysis – The identification and characterization of the synthesized di-hydro pyrimidione utilizing fly ash derived-Zeolite as a catalyst has been completed. The substrate scope of established protocol is under evaluation at the Organic Chemistry laboratory of the institute.

4. Study of fly ash as low cost colour adsorbent – Some experiments have been performed to evaluate fly ash as an adsorbent in sugar industry waste water. Treatments carried out at M/s Dalmia Chini Mills, Unit Ramgarh, Sitapur and at Experimental Sugar Factory of the institute show encouraging results. Further studies are being made to assess the rate of exhaustion of the fly ash bed under varying input loads, process for regeneration and then the cost economics of the envisaged process.



A manuscript entitled “Efficient water conservation treatment and system in cane sugar factories: A need of the hour” communicated to the SISSTA and will be presented during the annual convention of the SISSTA to be held in July, 2016.

5. Graphene Oxide from bagasse: synthesis and its utilization in carbo-catalysis – An effort has been made to evaluate the synthetic efficacy of bagasse dried Graphene Oxide as Carbocatalyst. A manuscript entitled “Graphene oxide from bagasse : synthesis and its utilization in carbocatalysis” has been communicated for publication / presentation as a full paper under technical session, Co-product at ISSCT Congress, 2016. The preparation of draft manuscript towards filing of a patent application for “Graphene Oxide from Bagasse” is under process.

6. Development of alternate methods for determination of Phosphate in cane juice - Some preliminary experimental work have been carried out towards spectrophotometric determination of phosphate in cane juice based on formation of molybdo-phosphate in ethylene glycol-water mix solution.

The standard calibration curve (different concentrations of standard phosphate solution v/s absorbance) based on formation of molybdo-phosphate in ethylene glycol water mix solution have been obtained as a result of preliminary trials. The optimization studies are undergoing by

analyzing a series of solution containing known value of phosphate and sugarcane juice with different dilution



Preparation of standards and calibration graph towards spectrophotometric determination of phosphate in cane juice based on formation of molybdophosphate in ethylene glycol-water mixed solution is under process.

7. Cane Juice Clarification by fermenter gases for production of sulphur-less sugar- On the basis of the results achieved from experiments carried out at NSI laboratory and in the laboratory of commercial sugar factories, a research paper has been prepared and sent for publication in the ISSCT Congress, which has been accepted for presentation in ISSCT Congress to be held in December, 2016 in Thailand. Efforts are being made to conduct pilot plat trials in the next crushing season.

8. Improvement in sugar quality by clarification of intermediate boiling house products- This problem has been taken with a view to improve the sugar quality through clarification / centrifugation / treatment of A-heavy, melts, B- heavy and C- light molasses. Centrifugation of syrup/ melts in laboratory centrifuge was carried out and the effect was studied. The turbidity removal of 80-87% was achieved by centrifugation. Further studies are in progress.

Research Papers Published/sent for Publication

1. “Effect of Potassium Zinc Sulphur on Morphological, Yield Attributes and Bio-

chemical traits of Sugar Beet on Ethanol Production” by Ashok Kumar & Lokesh Babar published in the proceedings of Annual Convention of NISSTA held on 29-30 April, 2016 at Lucknow.

2. “Role of Sugar Industry in Uttar Pradesh Power Crisis” by Anoop Kumar Kanaujia and D. Swain published in the proceedings of Annual Convention of NISSTA held on 29-30 April, 2016 at Lucknow.

3. “Electro-coagulation coupled with Adsorption and Ion-Exchange Process: Feasible Choice for reusing Sugar Factory Condensates and Effluent” by Seema Paroha presented during All India Seminar on “**Water Management & Meeting the CPCB Guidelines**” organized by National Sugar Institute jointly with The Sugar Technologists’ Association of India on 12th May, 2016 at NSI, Kanpur.

4. “Real Time Monitoring for Effluent Treatment Plant of Sugar Industry: A Study” by M.K. Banerjee presented during All India Seminar on “**Water Management & Meeting the CPCB Guidelines**” organized by National Sugar Institute jointly with The Sugar Technologists’ Association of India on 12th May, 2016 at NSI, Kanpur.

5. “Ethanol Production in India – Looking Beyond” by Narendra Mohan sent for publication in annual convention of DSTA to be held in August, 2016.

6. “Efficiency Enhancement of Sugar Dust Collection System” by Sanjay Chauhan sent for publication in 74th annual convention of STAI to be held in July, 2016 at New Delhi.

7. “Ozonation: An Alternative to Sulphitation” by V.P. Singh, Jahar Singh & P. Sanyal sent for publication in 74th annual convention of STAI to be held in July, 2016 at New Delhi.

8. “Production of Invert Syrup from Cane Juice using natural clarificants and citric acid” by V. Banerjee, S. Kumar and S. Paroha

sent for publication in 74th annual convention of STAI to be held in July, 2016 at New Delhi.

9. “Efficient water conservation treatment and system in cane sugar factories : A need of the hour” by Narendra Mohan, Seema Paroha, V.P. Srivastava and MahendraYadav sent for publication in the annual convention of SISSTA to be held in July, 2016.

Consultancy Services

During the period April, 2016– June, 2016, consultancy services were provided to the following:

Overseas:

1. M/s Kibos Sugar Refinery Ltd., Kisumu, Kenya.

India:

1. M/s Green Power Sugars Ltd., Satara, Maharashtra,

2. M/s Kalakurichi-II Coop. Sugar Mills Ltd., Vellupuram, Tamilnadu,

3. M/s Upper Ganges Sugar & Industries Ltd., Seohara, Bijnor, UP,

4. M/s NSL Krishnaveni Sugars Ltd., Ramkrishnapuram, Mehboobnagar, Telangana,

5. M/s Gangakhed Sugar & Energy Ltd., Parbhani, Maharashtra,

6. M/s S. Nijalingappa Sugar Institute, Belagavi, Karnataka,

7. M/s Rajasthan State Ganganagar Sugar Mills Ltd., Shri Ganganagar, Rajasthan

8. M/s Laila Sugars Pvt. Ltd., Distt. Belgavi, Karnataka,

9. M/s Dhampur Sugar Mills Ltd., Unit-Rajpura, Distt.-Bijnor,UP

10. M/s Malaprabha SSK Ltd., Distt.-Belagavi, Karnataka,

11. M/s NSL Sugars Ltd., unit- Aland, Hyderabad,

12. M/s Jakraya Sugar Ltd., Chelekar Galli Mangal, Wadha, Distt.-Solapur, Maharashtra,

13. M/s The Punjab State Federation of Coop. Sugar Mills Ltd, Chandigarh,

14. M/s The Odisha State Coop. Bank Ltd., Pt. J.L Nehru Marg, Bhubaneswar.

15. M/s Jamkhandi Sugars Ltd., Bagalkot, Karnataka.

16. M/s Mysore Sugar Mills Ltd., Mandya, Karnataka.

17. M/s Padmbhushan Krantiveer Dr. Nagnathanna Nayakwadi Hutatma Kisan Ahir SSK Ltd., Sangli, Maharashtra

18. M/s Sonhira SSK Ltd., Mohanrao Kadamnagar, Kadegaon, Sangli, Maharashtra

19. Uttarakhand Coop. Sugar Factories Federation Ltd., Unit-Bazpur, Udham Singh Nagar, Uttarakhand

20. Uttarakhand Coop. Sugar Factories Federation Ltd., Unit-Nadehi, Udham Singh Nagar, Uttarakhand.

Seminars /Conference / Training Program Attended

1. Director, National Sugar Institute attended a “Symposium on Specialty Sugars” at Reims, France from 5th to 7th April, 2016. During symposium he presented the scenario of production of special sugars in India with emphasis on production of Organic Sugar.





He also had detailed discussion with Editor ISJ, President AVH and other experts on the topic of online colour monitoring, crystal image, drying of refined sugar etc.

2. Shri Mihir Mandal, Asstt. Prof. Sugar Technology and Shri Dinesh Chandra, Research Asstt. (Biochemistry) attended short term course on “**Classroom Communication**” from 4th to 8th April, 2016 organized by National Institute of Teachers Training & Research, Chandigarh.

3. Shri Narendra Deo, Junior Technical Officer (Sugar Tech.) attended training course on “**Good Governance**” held from 25-29th April, 2016 organized by Institute of Secretariat Training & Management, New Delhi.

4. Director attended the Annual Convention of North Indian Sugarcane & Sugar Technologists Association (NISSTA) held on 29-30th April, 2016 at Lucknow.



Besides him, Shri D. Swain, Prof. Sugar Engineering, Shri Anoop Kanaujia, Asstt. Prof. Sugar Engineering, Dr. Ashok Kumar, Asstt.



Prof. Agri. Chemistry and Shri Mahendra Kumar Yadav, Jr. Technical Officer (Sugar Tech.) also attended the convention and presented their papers.

49th Meeting of Advisory Board of the Institute

49th meeting of Advisory Board was held on 18th April, 2016 at Krishi Bhawan, New Delhi under the Chairmanship of Joint Secretary (Sugar & Sugar Administration). A presentation on the research and other work done at the institute during the last one year was presented by the Director, NSI. Advisory Board suggested for more R&D work to be carried out in the areas of bio-ethanol and on special sugar production in the institute. R&D work being carried out by the institute on electro-coagulation of waste waters sugar industry, production of ethanol from other feed stocks and on developing model for water conservation in sugar factories was appreciated by the board members. The advisory board also suggested to upgrade the existing academic and R&D facilities at the institute so as to convert it to an institute of eminence.

Visitors from Abroad

Mr. Bhire, Managing Director & Mr. N. K. Jain, Production Head of M/s Kibos Sugar Refinery Ltd., Kisumu, Kenya visited the Institute on 9th to 10th May, 2016. During the visit they visited Agriculture Farm, Experimental Sugar Factory and various research laboratories and shown keen interest in

the research work being carried out in the Institute laboratories. An agreement between M/s Kibos Sugar Refinery Ltd., Kisumu, Kenya and Institute was also made to provide technical consultancy for enhancing technical efficiency of existing sugar, co-generation and ethanol



units. The institute, in addition to it, shall also provide Kibos assistance in recruitment of technical staff and pre-dispatch inspection of material.



Visit of Office Bearers of Maharashtra Sahakari Sakhar Sangh, Mumbai

The Vice Chairman, Managing Director and Director of the Maharashtra Sahakari Sakhar Sangh Mumbai, visited the institute on 16th June, 2016. During the visit they took a round of the Agriculture Farm, Experimental Sugar Factory and various Research Laboratories and discussed

about the sugarcane development program in subtropical region. Matters relating to newer sugarcane varieties viz. Co 0238, Co 0239, Co 118, CoJ 88 etc., ethanol production and refined sugar production were also discussed.



Visit of Managing Director of Shri Someshwar SSK Ltd., Malaprabha SSK Ltd. and Special Officer of Bheema Shankar SSK Ltd.

The Managing Director, Someshwar SSK Ltd., Malaprabha SSK Ltd., and Special Officer, Bheema Shankar SSK Ltd. along with Shri Vinay Kumar, Ex- Managing Director, National Federation of Cooperative Sugar Factories Ltd. visited the institute on 20th June, 2016, to discuss the issues relating to modernization cum expansion and setting up of co-generation facilities at M/s Malaprabha SSK Ltd. They also had detailed discussions with the institute





faculty on improving overall working of sugar factories in Karnataka.

Swachata Pakhwara

Activities under “Swachhata Pakhwara” were taken up from 14-30th April, 2016. Besides undertaking cleanliness drive in residential and non-residential buildings, seminar and debate on “Importance of cleanliness in daily life” was also organized.

हिन्दी कार्यशाला

सरकारी कामकाज में हिंदी का अधिक से अधिक प्रयोग कर राजभाषा विभाग के निर्देशों का पालन करने के उद्देश्य से दि. 23.6.2015 को संस्थान के सेमीनार हाल में प्रातः 11.30 पर हिंदी कार्यशाला का आयोजन किया गया, जिसमें संस्थान के 30 अधिकारियों एवं कर्मचारियों ने भाग लिया। श्री नरेन्द्रसिंह, राजभाषा अधीक्षक, उ.मध्य रेलवे सेंट्रल स्टेशन, कानपुर नगर ने कार्यशाला का उद्घाटन किया।



श्री सिंह ने संस्थान के अधिकारियों एवं कर्मचारियों को हिंदी के अधिकाधिक प्रयोग हेतु राजभाषा विभाग के दिशा निर्देशों से अवगत कराते हुये समस्त कार्य हिंदी में करने की अपील की।

International Yoga Day Celebrated

Institute celebrated International Yoga Day on 21st June, 2016. On the occasion, faculty, staff and students participated in Yoga program organized at the Institute.

