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SEMINARS/CONFERENCES :

1. Shri D. Swain, Prof. of Sugar Engineering and Shri Anoop Kanaujia, Asstt. Prof. of Sugar Engineering presented their research paper on **“Bagasse Drying, an Efficient Way of Saving Fuel in Sugar Industry”** during the all India Seminar organized by The Sugar Technologist’s Association of India on 3rd February 2017 at Meerut, U.P.



2. Shri V.P. Srivastava, Asstt. Prof. of Organic Chemistry attended Indo-German Workshop on Recent Applications of Carbohydrates in Chemistry and Biology (RACCB-2017) from 14-16th February 2017 at IIT BHU, Varanasi and made a poster presentation on **“Utilization of Lignocellulose Waste Biomass of Sugar Industry as a Precursor to Access a Carbocatalyst”**.



3. Shri Narendra Mohan, Director, National Sugar Institute, delivered key note address on **“Energy and Water Conservation”** during the seminar organized jointly by SISSTA and SNSI, at Belagavi, Karnataka on 25th February, 2017. Shri Vinay Kumar, Asstt. Prof. of Sugar Engineering and Shri Virendra Kumar, Technical Officer (Instrumentation) also presented their paper on **“Utilization of Solar Energy: An Opportunity for Indian Sugar Industry”** during the seminar.



4. Shri Narendra Mohan, Director, delivered a lecture on **“Indian Sugar Industry-Recent Trends”** during the Faculty Development Program (FDP) on Emerging Trends in Food and Bioprocess Industries organized by Harcourt Butler Technical University, Kanpur on 10th February, 2017.

5. Shri Narendra Mohan, Director and Dr. (Mrs.) Seema Paroha, Prof. of Biochemistry attended national seminar on **“Production of Ethanol/Biofuels from alternate source, ZLD through effluent treatment”** organized by AIDA at New Delhi on 22nd & 23rd February, 2017. Dr. (Mrs.) Seema Paroha, Prof. of Biochemistry also presented a paper on **“An overview of Indian cane molasses**

quality and need for alternate feed stocks” during the seminar.



6. Dr. Ashutosh Bajapi, Prof. of Sugar Technology attended one day all India seminar on **“Emerging Trends in use of Stainless Steel to combat Corrosion in Sugar & Allied Industries”** organized by The Sugar Technologist’s Association of India on 4th March, 2017 at Pune. During the seminar Dr. Bajpai presented a paper on **“Overview of Corrosion of Process Equipment in Indian Cane Sugar Industry”**.



7. Shri Narendra Mohan, Director, National Sugar Institute inaugurated National Conference on **“Advances in Chemistry for**



Sustainable Development” organized by Harcourt Butler Technical University, Kanpur

on 22nd March, 2017 at HBTU Kanpur. He also delivered a lecture on need for a cohesive effort for development of low cost indigenous technologies with all concerned disciplines joining hand in hand.

8. Shri Narendra Mohan, Director, National Sugar Institute and Dr. Ashok Kumar, Asstt. Prof. of Agriculture Chemistry attended the National Conference on **“Farmers Centric Agri-innovation for Sustainable Development”** organized by C.S. Azad University of Agriculture & Technology, Kanpur on 24-25th March, 2017 at Kanpur. Dr. Ashok Kumar made a paper as well as poster presentation on **“Effect of Potassium Application on Nutrient Uptake, Yield and Quality of Sugarcane & Sustainable Soil Health”** during the conference.

NANO ETHANOL UNIT:

A Nano Ethanol unit has been commissioned at the institute for imparting better practical training to the students of Alcohol Technology course and also to carry out R&D on ethanol production using various feed stocks. Trials using molasses and sugarcane juice have already been taken. Further trials shall be conducted with sugar beet juices.



WASTE WATER TREATMENT PILOT PLANT TRIALS:

Innovative Electro-coagulation unit developed by National Sugar Institute for waste water treatment was installed in Experimental Sugar Factory. It provided satisfactory results even on most polluted

waste water streams from sugar factories as treated water was found fit for survival of aquatic life.



EXTENSION LECTURE:

Dr. (Mrs.) Priyanka Singh, Scientific Officer, U.P. Council of Sugarcane Research, Shahjahanpur delivered a lecture on **“Quality parameters and post-harvest Sugarcane deterioration”** on 1st February, 2017 at the Institute for the benefit of students as well as faculty.



RESEARCH:

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

1. An investigation on microflora in different combination of press mud using different sources for biogas production-

The study was taken up for investigation on microflora in different combination of press mud using different sources for biogas production. The experimental set for the production of biogas using different combinations of press mud, cow dung / sewage, distillery spent wash and lignocellulosic material (green leaves and cane tops) was set up and microflora were isolated and purified. All the sets contained bacteria, a few contained yeasts and very few funguses. The study which was carried out at 14th and 21st day and results have shown the absence of fungus and mostly bacterial populations have been seen. Further characterization & identification of purified bacteria and fungus shall be taken up.

2. Isolation and purification of yeast strains from saccharine materials and their performance for fermentative production of alcohol-

Various saccharine materials were screened for carrying out isolation work. The isolation of yeasts was started and good growth of cells was seen with different raw materials. The isolation of yeast strains has been done by taking fig fruit, jaggery, sugar solution and grapes. No yeast could be obtained from jaggery. The yeasts obtained from sugar solution, fig and grapes were purified by pour plate method using serial dilution technique. The isolated and purified yeast strains are now being grown on diluted molasses for attenuation.



3. Production of invert syrup from Cane Juice, Molasses, Sweet Sorghum & Sugar Beet Juice The Sugar cane juice obtained

from the sugar cane variety CoSe1434 and Co0238 was clarified using *Aloe vera* at a given temperature (using steam). The clarified juice was inverted by using fresh cation and anion exchange resins. The study was done using peeled sugar cane. The process yielded satisfactory results and further work shall be taken up with sugar beet juices.

4. Graphene oxide from bagasse: synthesis & its utilization in carbo-catalysis - A paper entitled "Utilization of lignocellulose waste biomass of sugar industry as a precursor to access a carbocatalyst" was presented as a poster in Indo-German workshop on "Recent Applications of Carbohydrates in Chemistry and Biology" (RACCB-2017) held at Department of Chemistry, IIT BHU, Varanasi, U.P., India, during Feb, 14-16, 2017. A Patent application has also been filed on "A process for synthesizing graphene oxide from sugarcane bagasse".

5. Studies on sugar assisted synthesis of Graphene-

Graphene, owing to its exotic physical and electrical properties has led the recent advances in material sciences and is finding its way into various fields including electronics, biomedical, environment and engineering. Chemical reduction of Graphene oxide utilizing hydrazine or its derivatives as the reducing agent is one of the highly explored synthesis approaches for the Graphene preparation. However, they are highly hazardous and explosive. Organic chemistry division has been working on development of Eco-friendly synthesis of Graphene based materials using green chemistry. This study indicates sugarcane juice/molasses as new, green, and efficient reducing agent as well as stabilizing agent for Graphene oxide reduction. The prepared material has been characterized with UV-visible absorption spectroscopy, Fourier transform infrared spectroscopy, Fourier transform infrared spectroscopy,

Raman spectroscopy and X-ray diffraction (XRD).



6. Improvement in Sugar Quality by clarification of intermediate boiling house products -

Various intermediate boiling house products, viz A-heavy, B-heavy and C-light molasses collected from commercial sugar factories were treated with different doses of phosphoric acid and flocculants. After treatment, the samples were centrifuged in a lab centrifugal machine. About 50% reduction in turbidity and 10-12% reduction in ICUMSA colour value was observed with the treatment. Effect of dilution is being studied by keeping molasses brix at 40°, 50° and 60° Bx. Encouraging results have been obtained and further work is in progress.

7. Production of Bio-CNG from Press Mud- Blue print for under taking pilot/ prototype scale trials using press mud with or without spent wash has been prepared to make high calorific value Compressed Natural Gas.



Detail experiment was set up for the production biogas using different combinations of press mud, cow dung /

sewage, distillery spent wash and lignocellulosic material (green leaves and cane tops) was set up to select the best combinations of press-mud and sugar industries waste. A small glass model was designed with CO₂ and H₂S scrubbing systems having manometers attached for pressure calculations to study the best selected suitable pretreatment and Co-digestion method so as to make high calorific value CNG.

RESEARCH PAPERS / POSTER PRESENTED / PUBLISHED / SENT FOR PUBLICATION:

1. **“Bagasse Drying, an Efficient Way of Saving Fuel in Sugar Industry”** by D. Swain & Anoop K. Kanaujia presented during all India Seminar organized by The Sugar Technologist Association of India on 3rd February 2017 at Meerut, U.P.

2. **“Utilization of Lignocellulosic Waste Biomass of Sugar Industry as a Precursor to Access a Carbocatalyst”** by Shri Narendra Mohan, Shri Vishnu Prabhakar, poster presented during INDO-GERMAN WORKSHOP on **“Recent Applications of Carbohydrates in Chemistry and Biology”** (RACCB-2017) organized IIT BHU, Varanasi, U.P. India on 14th - 16th February, 2017.

3. **“Utilization of Solar Energy: An Opportunity for Indian Sugar Industry”** by D. Swain, Anoop K. Kanaujia and Vinay Kumar presented during all India seminar on **“Energy and Water Conservation”** organized jointly by SISSTA and SNSI at Belagavi, Karnataka on 25th February, 2017.

4. **“Spectrophotometric Determination of Phosphate in Sugarcane Juice using Organic Aqueous Media”** by Shri Narendra Mohan, Shri Vishnu Prabhakar, and Dr. (Mrs.) Chitra Yadav published in the Indian Sugar, January, 2017.

5. **“Role of Sugar Industry in Uttar Pradesh Power Crisis”** by Shri D. Swain, Shri Anoop

K. Kanaujia, published in Sharkara, Oct-Dec, 2016.

6. **“An overview of Indian cane molasses quality and need for alternate feed stocks”** by Narendra Mohan and Seema Paroha presented during the all India seminar organized by the AIDA on 22nd & 23rd February, 2017 at New Delhi.

7. **“Overview of Corrosion of Process Equipments in Indian Cane Sugar Industry”** by Narendra Mohan and Ashutosh Bajpai presented during all India seminar on **“Emerging Trends in use of Stainless Steel to combat Corrosion in Sugar & Allied Industries”** organized by The Sugar Technologists Association of India on 4th March, 2017 at Pune.

8. **“Effect of Potassium Application on Nutrient Uptake, Yield and Quality of Sugarcane & Sustainable Soil Health”** by Narendra Mohan, Ashok Kumar Yadav, Lokesh Babar & Prabhat Kumar Agrahari presented during National Conference on **“Farmers Centric Agri-innovation for Sustainable Development”** organized by C.S. Azad University of Agriculture & Technology, Kanpur on 24-25th March, 2017 at Kanpur.

9. **“Biomass Energy: A step towards Economic & Environmental Sustainability in India”** by Narendra Mohan, & Anoop Kumar Kanaujia sent for presentation during the forthcoming International Congress on Sugar & Sugarcane Derivatives being organized from 26 to 30th June, 2017 at La Habana, Cuba.

10. **“Sugarcane Juice Utilization: Expeditious Green Synthesis of Graphene”** by Narendra Mohan & Vishnu Prabhaka sent for presentation during the forthcoming International Congress on Sugar & Sugarcane Derivatives being organized from 26 to 30th June, 2017 at La Habana, Cuba.

11. **“Sugarcane Productivity Enhancement- A Holistic Approach”** by Narendra Mohan & Priyanka Singh sent for presentation during

the forthcoming International Congress on Sugar & Sugarcane Derivatives being organized from 26 to 30th June, 2017 at La Habana, Cuba.

GLOBAL PROGRAMME:



1. Three months training programme on Sugar Refinery for the IInd batch of Chemical Engineers of M/s Yemen Company for Sugar Refining, Hodeida, Republic of Yemen commenced at the Institute. Theoretical as well as practical training will be imparted to the trainees during the period on various techniques of raw melt clarification, concentration and crystallization.



VISITORS FROM ABROAD:

British Delegation led by Dr. Muiyiwa Akintoye and Dr. Andrew Swift along with Prof. Kulkarni, IIT visited the institute for collaborative work on use of bagasse and trash for production of protein rich animal feed, bio-manure and invert sugar.



INTERACTIVE SESSION FOR PCS PROBATIONERS:

Two batches of PCS Probationers visited Institute on 10th and 13th January, 2017 to participate in an interactive session on “Issues related to sugarcane production, milling, marketing, management, cost and sugar recovery”



VISIT OF DIGNITARIES:

1. Dr. Sushil Solomon, Vice Chancellor, CSA University of Agriculture and Technology, Kanpur visited the institute looked at various newly developed facilities in various laboratories including Nano Brewery.



2. Shri Y.V. Patil, MLA, Indi Constituency Karnataka & Managing Director, Bheema Shankar Sahakari Sakhar Karkhana visited the institute on 2nd March, 2017 to discuss the issues relating modernization cum expansion and setting of co-generation facilities at M/s Bheema Shankar SSK Ltd.

3. Mr. Pankaj Rastogi, Chief Operating Officer, Dalmia Bharat Sugar & Industries Ltd., New Delhi visited the institute to discuss the issues relating to improvement in the

technical efficiency of Dalmia Group Sugar Factories.

FARMERS VISIT:

A group of Sugarcane farmers from Ganna Kisan Sansthan Prashikshan Kendra, Varanasi visited the institute on 22nd March, 2017 to seek information on newly developed sugarcane varieties, intercropping and on drip irrigation.



CONSULTANCY:

During January to March, 2017 consultancy services were provided to the following:

Global.....

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

India.....

1. M/s Riga Sugar Company Ltd., Dhanuka Gram P.O. Riga, Distt-Sitamarhi, Bihar.

2. M/s Mahamaya Sahakari Shakkar Karkhana, Ambikapur, Surajpur, Chhattisgarh.

3. M/s Dalmia Bharat Sugar & Industries Ltd. Unit- Jawaharpur, Shahjahanpur, U.P.

4. M/s Tamil Nadu Sugar Corporation Ltd., Chennai.

5. M/s HPCL Bio fuels Ltd., Unit Sagauli, East Champaran, Bihar.

6. M/s G.M. Sugar & Energy Ltd., Sangur Haveri, Karnataka.

7. M/s Bargarh Cooperative Sugar Mills Ltd., Tora, Bargarh, Odisha.

8. M/s Uttarakhand Cooperative Sugar Factories Federation, Dehradun, Uttarkhand.

9. M/s Dalmia Bharat Sugar & Industries Ltd. Unit- Nigohi, Shahjahanpur, U.P.

10. M/s Dhampur Sugar Mills Ltd. unit-Dhampur, Bijnor, U. P.

11. M/s Harinagar Sugar Mills Ltd., Harinagar, West Champaran, Bihar.

12. M/s Shri Bhima Shankara S.S.K. Distt-Vijaypur, Karnataka.

13. M/s Dalmia Bharat Sugar & Industries Ltd. Unit- Ramgarh, Sitapur, U.P.

हिंदी कार्यशाला:

सरकारी कामकाज में राजभाषा के रूप में हिंदी के प्रति जागरूकता लाने तथा उसके उत्तरोत्तर विकास हेतु संस्थान में 21 मार्च, 2017 को हिन्दी कार्यशाला का आयोजन किया गया जिसमें संस्थान के निदेशक ने सभी विभागाध्यक्षों को निर्देशित किया कि सभी अपने अधीनस्थ कर्मचारियों को हिन्दी में कार्य करने को प्रेरित करें जिससे कि राजभाषा विभाग के निर्देशों का पालन सुनिश्चित किया जा सके।



HOLI MILAN:

Old Boy's Association of the institute organized Holi Milan at the Institute on 19th March, 2017 in association with NSI Officer's & Technical Staff Welfare Association. A Kavi samelan was also organized on this occasion. Many alumni of the institute up to 1968 batch

attended the function and shared their old memories.



EXPERIMENTAL SUGAR FACTORY:

The 100 TCD vacuum pan sugar factory is the unique feature of the Institute for providing first hand technical training to the 1st year student of Sugar Technology & Sugar Engineering Course and carrying out pilot scale trials.

The Experimental Sugar Factory started this year crushing season from 3rd February, 2017 & closed on 10th March, 2017. During the season, few new process equipments e.g. Rotary screen for raw juice screening, Lotus Roll and continuous centrifugals were also made.



REPUBLIC DAY:

The Institute celebrated 68th Republic Day on 26th January, 2017. On this occasion, Shri Narendra Mohan, Director hoisted the National Flag and took the salute from the security guards. Highlighting the commendable work carried out by the institute for teaching and training facilities, he called upon the staff and students of the institute work in a mission mode so that the institute may achieve the greater heights.



NATIONAL SAFETY DAY:

National Safety Day was observed at Experimental Sugar Factory on 4th March, 2017. Awareness was created amongst workers as how to get prevented from the industrial accidents.





The students also sought knowledge about the institute courses and carrier in sugar and alcohol industry.



SHOPPING COMPLEX:

Shopping complex of the Institute made functional on 9th February, 2017 with opening of snacks bar & laundry shop. With more shops for utility items, medicines etc. to come up soon, it shall help the students and staff in meeting their daily needs.



VIDEO CONFERENCING:

The institute participated in the video conferencing on 10th January, 2017 through with Hon'ble President of India addressed students and faculty members of various universities, Technical institutions and institutions of higher learning on the topic "Building a Humane and Happy Society."

VISIT OF STUDENTS FROM ENGINEERING & OTHER COLLEGES:

The students from various engineering and other colleges visited the institute's Experimental Sugar Factory and laboratories to learn about the manufacture of sugar and ethanol.



NATIONAL SUGAR INSTITUTE, KANPUR

An ISO 9001:2015 Certified Institute
A Premier Institute of Government of India

Admission Notice - 2017

<ul style="list-style-type: none"> ☑☑ Job Oriented Courses ☑☑ Emphasis on Skill Development ☑☑ Almatater of students from more than 15 Countries 	<ul style="list-style-type: none"> ☑☑ Attractive Scholarships & Stipends ☑☑ Opportunities for overseas employment ☑☑ Alumini placed at higher Positions Globally
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National Sugar Institute, Kanpur, Ministry of Consumer Affairs, Food and Public Distribution, Government of India for following Course invites **applications** from eligible candidates who wish to seek admission for the academic session 2017-18.

Sl. No.	Course offered	Eligibility	No. of Seats	Mode of Selection
1.	[ANSI (ST)] P.G. Diploma in Sugar Technology	B.Sc. with Chemistry. Physics & Mathematics or Bachelor Degree in Chemical. Engineering.	6 9	Admission Test
2.	[ANSI (SE)] P.G. Diploma in Sugar Engineering	Bachelor's Degree or A.M.I.E (from The Institution of Engineers,India) in Mechanical / Production / Electrical./ Electrical & Electronics	2 8	Admission Test
3.	[DIFAT] P. G. Diploma in Industrial Fermentation and Alcohol Technology	B.Sc. with Chemistry / Applied Chemistry./ Industrial Chemistry/Bio-Chemistry. as one of the subject. or B.Tech. in Bio-Technology./ Chemical Engg.or Bio-Chemical Engg.	2 8	Admission Test
4.	[DSPMM] P.G. Diploma in Sugarcane Productivity &	B.Sc/ B.Sc.Agriculture	1 8	Admission Test
5.	[DIIPA] P.G.Diploma in Industrial Instrumentation & Process Automation	Bachelor's Degree or A.M.I.E (from The Institution of Engineers,India) in Electronics & Instrumentation/Electronics/Instrumentation/ Electrical & Electronics/ Applied Electronics & Instrumentation.	1 5	Admission Test
6.	[SBCC] Sugar Boiling Certificate Course	Matriculate/ High School with Science/ Agriculture Exp:- One season (of minimum 90 days) experience of pan-operation in a vacuum pan sugar factory along with nomination	5 7	Admission Test
7.	[SECC] Sugar Engineering Certificate Course	Diploma in Engineering Mechanical / Production / Electrical./ Electrical & Electronics.	1 5	Admission Test
8.	[CCQC] Certificate Course in Quality Control	12 th Standard in Science (Physics, Chemistry and Mathematics).	1 5	Admission Test
9.	F.N.S.I. in Sugar Technology/ Sugar Chemistry	ANSI(ST) for FNSI in Sugar Technology/Sugar Chemistry, ANSI(SE) for FNSI in Sugar Engg.& DIFAT for FNSI in Fermentation Technology. Application for F.N.S.I. in Sugar Technology & Sugar Engineering should be sponsored by a sugar factory for carrying out the research pertaining to this course. Similarly, application for F.N.S.I. in Fermentation Technology should be sponsored by a distillery or brewery industry for carrying out the research work pertaining to this course. Unsponsored applications would be rejected.	As per requirement of faculty	Personal Interview
10.	F.N.S.I. in Sugar Engineering			
11.	F.N.S.I. in Fermentation Technology			

For courses at Sl. No 1, 2,3,4,5,7 & 8 above, Final year appearing candidates may also apply.

For applying On-line, visit our website at <http://nsi.gov.in> and follow the instructions.

For reservation of seats in different courses –refer N.S.I. prospectus.

IMPORTANT DATES AND INFORMATION FOR ON-LINE APPLICATION

On- line submission of application forms	From Monday, 20 th March 2017 (10.30 A.M)
Last date for submission of On-line Applications	Friday 5 th May 2017 (5.00 PM)
Last date for receipt of downloaded print outs of duly filled & signed application forms at NSI Kanpur.	Monday 15 th May 2017 (5.00 PM)

IMPORTANT DATES AND INFORMATION FOR OFF LINE APPLICATION

Sale of application form and syllabus against cash payment	From Monday, 20 th March 2017 (10.30 A.M) to Friday 5 th May 2017 (5.00 PM)
Last date for receipt of Money Order at NSI Kanpur for Sale of application form and syllabus against money order	Friday 21 st April 2017 (5.00 PM)
Last date for receipt of duly filled application form by hand or by registered post at NSI Kanpur	Friday 5 th May 2017 (5.00 PM)

IMPORTANT DATES AND INFORMATION FOR ON-LINE & OFF LINE APPLICATION

Application Fee –For all candidates except SC/ST	Rs. 1000/-
Application Fee – For SC /ST Candidates	Rs. 800/-
Application fee to be sent in the form of DD drawn in favour of	“Director, National Sugar Institute” payable at Kanpur
Downloading of Admit Cards from web site by all applicants	From Wednesday 31 st May 2017 onwards (10.30 A.M)
Admission Test for ANSI (ST), ANSI (SE), DIFAT,SBCC SECC, DSPMM, DIIPA & CCQC	11 th June 2017 (Sunday) to be held at Chennai , Delhi , Kanpur, Kolkata, Patna & Pune
Foreign Category quota	Admission on basis of merit in eligibility Qualifications only & no entrance test.
Address for all Correspondence/ sending Money Order /submission of on line & off line application form by Reg. Post.	Director, National Sugar Institute, Kalyanpur, Kanpur-208017 E-Mail: nsikanpur@nic.in
For further details and Prospectus visit.	website: http://nsi.gov.in
Help line	+91-512-2573613 (Dr Jahar Singh)

NOTE:-

1. For offline application Prospectus and Application form may be obtained from Education section of NSI Kanpur against the payment of Rs. 200/- in cash to the cashier NSI or by post against the payment of Rs. 250/- by Money order to the Director NSI Kanpur 208017.
2. All rights for change in the above schedule are reserved with the Institute and can be changed any time without giving any notice to anyone.