



NEWSLETTER

January-March
2020

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**NATIONAL SUGAR INSTITUTE
KANPUR-208017(U.P.) INDIA**



The pandemic of COVID-19 has affected the Indian as well as global sugar prices. Till 15th March 2020, the country has already produced about 21.5 million tonnes of sugar and looks forward toward export of sugar to the extent of 6.0 million tonnes for reducing sugar stocks in the country.

The export of sugar is also likely to get affected due to fall in international prices and also on account of supply chain disruptions at various ports. Under

the present situation it seems an arduous task but lower sugar production in Thailand by around 5.0 million tonnes and increased demand for 600 IU raw sugar at concessional import duty from Indonesia and depreciation in rupee may help the sugar exports to pick up in near future. The Indian Sugar Industry has seen significant B Heavy molasses diversion for producing more ethanol at the cost of sugar, the economics being in favour.

It is heartening to see sugar mills entering into healthcare activities in this crises with sugar industry in U.P. leading the way by producing over 45% of the total sanitizer being manufactured in the state.

Stay Safe.

**Narendra Mohan
Director**

SIGNING OF MEMORANDUM OF UNDERSTANDING:

1. A MOU was signed with National Sugar Development Council, Nigeria at Indian High Commission, Abuja, Nigeria on 29th January 2020.



Institute besides advising NSDC, Nigeria on setting up a Sugar Institute at Nigeria and shall also conduct training programmes for their faculty. The institute faculty shall also deliver expert lectures from time to time.

2. Memorandum of Understanding between National Sugar Institute, Kanpur and Indian Institute of Millets Research, Hyderabad, was signed on 11th February, 2020 for conducting trials on cultivation of various varieties of "Sweet Sorghum" and for assessing the potential of ethanol production in the institute's Nano-Distillery.



SEMINARS & CONFERENCES:

1. Director, NSI, attended seminar on "**Recent Advanced Technologies in Analytical Chemistry**" at DG Collage, Kanpur on 17th January, 2020 as Chief Guest & highlighted the importance of instruments in achieving higher degree of accuracy and precise analysis.



2. Director, NSI, attended a seminar on "**Waste Management- Role of Chemistry**" on 22nd January, 2020 at DAV College, Kanpur & delivered a lecture on Waste Minimization &

Value Addition. He touched upon all areas of waste generation i.e. municipal, agricultural and industria.



TRAINING PROGRAMME ORGANIZED:

Sponsored by the CPCB, five days training programme on **"Cleaner Technologies for Effluent Management"** was organized from 20th to 24th January, 2020 at the institute.



Officers of various Pollution Control Board's and other organizations participated in the programme which was inaugurated by Smt.

Neelima Katiyar, Hon'ble Minister of State, Higher Education, Science & Technology, Government of Uttar Pradesh. Theoretical as well as practical exposure on the subject matter was provided to the participants.

MEETING WITH BRAZILIAN DELEGATION:

Indian delegation headed by Hon'ble Minister of Consumer Affairs, Food & Public Distribution, Government of India, Shri Ram Vilas Paswan had a meeting with delegation from Brazil headed by Ms. Tereza Cristina, Hon'ble Minister of Agriculture, Livestock and Supply. Fruitful discussions on bio-energy from sugar factories and on innovative technologies for exploiting its potential were held during the meeting. Prof. Narendra Mohan, Director also participated in the meeting.



RESEARCH:

1. Studies on isolation of Lignin from sugar industry based biomass and development of the process for the conversion of derived lignin and fermentable sugar to value-added product - The authentic/standard sample has been procured and some experimental work related to its characterization via FTIR and TLC experiments has been performed. The work is being carried out in order to establish a protocol towards identification and characterization of target

compound that is to be derived from sugarcane bagasse.

2. Studies on access of bioplastic as polyethylene substitute from sugarcane bagasse

- The literature survey has been completed. Organic Chemistry division has made a work plan for future work and compilation of list of required materials is under progress.

3. Studies on Production/Isolation of C5-Sugar Alcohol/Sugar using by-product resources of sugar industry-

Experiments are under progress towards evaluating the ethanol yield from pure xylose and bagasse hydrolysate.

4. Studies on pot-efficient synthesis of alkyl levulinates (Als) using sugarcane bagasse derived cellulose

- As per plan, the work related to enhancing the product yield had to be started, but due to pandemic the work could not be taken up further.

5. Mechanical Clarification of Juice

- To validate the data generated during the experiments conducted during crushing season 2018-19, various set of experiments were conducted at laboratory and Experimental Sugar Factory during 2019-20. The compilation of the results obtained during the experiments are in progress.

6. Role of Hydroxyapatite (HAp) in cane juice clarification

- Literature Survey on the topic is under progress. Side by side, an action plan is being prepared for laboratory scale trials.

7. Development of Super Short Retention Time Clarifier

- Based on the experience gathered earlier, modifications in the design of

the Clarifier were carried out and further trials conducted during the present crushing season at ESF. Results obtained from the trial are under compilation.

8. Boiler RO/DM water heating by Concentrated Solar Thermal (CST) system

- The project proposal/technical specifications and indent have been finalized. The e-tendering process has been initiated.

9. To study the impact on performance of mechanically coupled twin induction motor drives for Shredder/Fibrizer having unequal sharing of load and to design & develop dedicated drive for the application

Project approved with the components/equipments. Process for procurement of material is in progress and further studies shall be taken up thereafter in the Experimental Sugar Factory.

12. Studies on deterioration patterns on different sugars

- Sugar samples of raw, plantation white and refined sugars were analyzed for parameters such as colour, ash, pol, pH, RS, SO₂, turbidity as per plan of work.

RESEARCH PAPERS:

1. A research paper on “**Direct Use of Sugarcane Bagasse Derived Hemicellulose Hydrolysate for the Synthesis of C-glycosyl Derivatives by the Lubineau Reaction**” by V.P. Srivastava has presented at the 26th ISCB International Conference (ISCB-2020) @ Nirma University, Ahmedabad on 24th January, 2020.

2. A research paper on “**Bio-refinery Process for Valorization of Sugarcane Biomass: from Constituents Sugars and Lignols to Value Added Products**” by V.P. Srivastava, Tushar

Mihsra & N. Mohan published in the proceeding of 2nd International Conference and Exhibition on “Sustainability – Innovation and Diversification in Sugar and Allied Industry” held on 31st January to 2nd February, 2020 at Vasantdada Sugar Institute, Pune, Maharashtra.

3. A research paper on “**New Ventures of Value-Addition in Jaggery Processing for a Dynamic Sugar Industry**” by Narendra Mohan & Anushak Agarwal published in International Journal of Engineering Research & Technology (IJERT) volume-9, January, 2020.

4. A research paper on “**Innovative Technique for Effluent Treatment in Sugar Industry**” by Vanistha Shukla, Amresh Pratap Singh & Narendra Mohan published in the proceedings of National Seminar on Waste Management: Role of Chemistry on 22nd January, 2020 at DAV College, Kanpur.

5. A research paper on “**Recent Trends & Market Status for Sugar Alcohols (Polyols) – A Revolution in Sweetener Sector**” by Narendra Mohan published in International Journal of Science Research January, 2020.

6. A research paper on “**Quality Control in Sugar Industry – A Need of Hour**” by Narendra Mohan & Anushka Agarwal was presented in All India Seminar on “Advances in Sugar Grading and Food Safety Standards to Produce Quality Sugar” held on 22nd February, 2020 at Belgavi, Karnataka.

7. A research paper on “**Bioenergy from Filter cake in Indian Sugar Industry**” by Narendra Mohan & Sanjay Awasthi published in International Journal for Scientific Research and Development, Vol. – VII, issue 12, February, 2020.

CONSULTANCY:

During January-March, 2020 consultancy services were provided to the following:

1	M/s Magadh Sugar & Energy Ltd., Unit – Hasanpur Sugar Mills, Distt – Samastipur, Bihar.
2	M/s Bajaj Hindustan Sugar Ltd., Unit – Palia Kalan, Distt – Lakhimpur-Kheri, U.P.
3	M/s Triveni Engineering & Industries Ltd., Unit – Milak Narayanpur, Distt – Rampur, U.P.
4	M/s Oswal Overseas Ltd., Distt – Bareilly, U.P.
5	M/s Triveni Engineering & Industries Ltd., Unit – Chandanpur, Distt – Amroha, U.P.
6	M/s Mawana Sugar Works Ltd., Mawana, Distt – Meerut, U.P.
7	M/s Dalmia Bharat Sugar & Industries Ltd., Sugar Unit – Nigohi, Distt – Shahjahanpur, U.P.
8	M/s Bajaj Hindustan Sugar Ltd., Unit – Barkhera, Distt – Lakhimpur-Kheri, U.P.
9	M/s Bajaj Hindustan Sugar Ltd., Unit – Maqsudpur, Distt – Shahjahanpur, U.P.
10	M/s Dalmia Bharat Sugar & Industries Ltd., Unit – Ninaidevi Sakhar Karkhana, Distt – Sangli, Maharashtra.
11	M/s Wave Sugar Industries Pvt. Ltd., Distt – Bijnor, U.P.
12	M/s National Industrial Corporation Pvt. Ltd., Distt – Moradabad, U.P.’
13	M/s Dalmia Bharat Sugar & Industries Ltd., Shree Datta Sakhar Karkhana, Asurle Purle, Distt – Kolhapur, Maharashtra.

14	M/s Magadh Sugar & Energy Ltd., Unit Narkatiganj, West Champaran, Bihar.
15	M/s The Karnal Co-operative Sugar Mills Ltd., Distt – Karnal, Haryana.
16	M/s Wave Sugar & Industries Ltd., Unit – Bulandshahar, Distt – Bulandshar, U.P.
17	M/s The Seksaria Biswan Sugar Factory Limited, Distt – Sitapur, U.P.
18	M/s Wave Sugar & Industries Ltd., Dhanaura Mandi, Distt – Amroha, U.P.
19	M/s Kisan Sahakari Chini Mills Ltd, Sitarganj, U.S. Nagar, Uttrakhand
20	M/s Uttarakhand Sahakari Chini Mills Sangh Ltd., Dehradun, Uttarakhand.
21	M/s Avadh Sugar & Energy Ltd., Unit – Hargaon, Distt – Sitapur, U.P.
22	M/s Shamnur Sugars Limited, Davangere, Karnataka.
23	M/s Triveni Engineering & Industries Ltd., Distillery Division, Unit – Muzaffaranagar, U.P.
24	M/s Triveni Engineering & Industries Ltd., Unit – Sabitgarh, Distt – Bulandshahr, U.P.
25	M/s Avadh Sugar & Energy Ltd., Seohara, Distt – Bijnor, U.P.
26	M/s Dhampur Sugar Mills Ltd., Unit- Rajpura, Distt-Sambhal. U.P.
27	M/s Triveni Engineering & Industries Ltd., Unit-Raninangal, Distt.-Moradabad, U.P.
28	M/s Dhampur Sugar Mills Ltd., Unit-Dhampur, Distt-Bijnor. U.P.
29	M/s Shree Halasidhanath SSK Ltd., Chikodi, Belgavi, Karnataka.
30	M/s Daurala Sugar Works, Distillery Division, Daurala, Meerut, U.P.
31	M/s Naglamal Sugar Complex, Naglamal, Meerut, U.P.

32	M/s Dalmia Chini Mills, Jawaharpur, Sitapur, U.P.
33	M/s EID Parry Ltd., Sankili, Srikakulam, Andhra Pradesh.
34	M/s DCM Shriram Ltd., Unit- Loni, Hardoi, U.P.
35	M/s Akbarpur Chini Mills, Bhati, Ambedkarnagar, U.P.
36	M/s Balrampur Chini Mills Ltd., Unit – Babhnan, Distt – Gonda, U.P.
37	M/s Balrampur Chini Mills Ltd., Unit – Balrampur, Distt – Gonda, U.P.
38	M/s DSM Sugar Mansurpur, Muzaffarnagar, U.P.
39	M/s DSM Sugar Meerganj, Dist.-Bareilly, U.P.
40	M/s Mankapur Chini Mills Ltd., Mankapur, Gonda, U.P.
41	M/s Kumbhi Chini Mills, Gola-Gokarannath, Lakhimpur-kheri, U.P.
42	M/s Gularia Chini Mills, Gola-Gokarannath, Lakhimpur-kheri, U.P.
43	M/s Rauzagaon Chini Mills, Rauzagaon, Faizabad, U.P.
44	M/s Haidergarh Chini Mills, Haidergarh, Barbanki, U.P.
45	M/s Shankara Sharkara Sankul, Captainganj, Kushinagar, U.P.
46	M/s Tulsipur Sugar Company, Tulsipur, Balrampur, U.P.
47	M/s Kisan Sahakari Chini Mills Ltd., Sathiaon, Azamgarh, U.P.
48	M/s Doiwala Sugar Co. Ltd., Doiwala, Dehradun, Uttrakhand.

Besides above, services were rendered to various state governments on related issues.

ANALYTICAL SERVICES:

Analytical services were rendered to following:

1	M/s Daurala Sugar Works Ltd., Daurala, Distt – Meerut, U.P.
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2	M/s Anamika Sugar Mills Pvt. Ltd., Distt – Bulandshahr, U.P.
3	M/s Dhampur Sugar Mills Ltd., Dhampur
4	M/s Kesar Enterprises Ltd., Baheri, Distt – Bareilly, U.P.
5	M/s Dalmia Bharat Sugar & Industries Ltd., Shree Datta Sakhar Karkhana, Asurle Purle, Distt – Kolhapur, Maharashtra.
6	M/s Balrampur Sugar Mills Ltd., Unit – Babhnan, Distt – Basti, U.P.
7	M/s U.P. State Sugar Corporation Ltd., Unit – Mohiuddinpur, Distt – Meerut, U.P.
8	M/s Nanglamal Sugar Complex (Distillery Division), Distt – Meerut, U.P.
9	M/s Dalmia Bharat Sugar Industries Ltd., Unit – Ramgarh, Distt – Sitapur, U.P.
10	M/s Dalmia Bharat Sugar Industries Ltd., Unit – Nigohi, Distt – Shahjahanpur, U.P.
11	M/s The Kisan Sahkari Chini Mills Ltd., Distillery Division, Unit – Sathiaon, Distt – Azamgarh, U.P.
12	M/s Magadh Sugar Energy Ltd., Unit – New Swadeshi Sugar Mills, Distt – West Champaran, Bihar.
13	M/s The Seksaria Biswan Sugar Factory Ltd., Distt – Sitapur, U.P.
14	M/s Balrampur Chini Mills Ltd., Unit – Balrampur, U.P.
15	M/s K.M. Sugar Mills Ltd., Moti Nagar, Faizabad, U.P.
16	M/s The Kisan Sahkari Chini Mills Ltd., Badaun, U.P.
17	M/s Balrampur Chini Mills Ltd., Unit – Mankapur, Distt – Gonda, U.P.
18	M/s Kisan Sahkari Chini Mills Ltd., Distillery Unit, Najibabad, Distt – Bijnor, U.P.
19	M/s Shree Madhi Vibhag Khand Udyog Sahakari Mandali Ltd., Madhi, Gujarat.

20	M/s UY Trienviro Pvt. Ltd., Saresh Bagh, Kanpur, U.P.
21	M/s Bajaj Hindustan Sugar, Unit-Bilai, Distt-Bijnor, U.P.
22	M/s Seksaria Biswan Sugar Factory Ltd., Biswan, Distt.-Sitapur, U.P.
23	M/s माँ महामाया सहकारी शक्कर कारखाना मार्यादित, अम्बिकापुर, छत्तीसगढ,
24	M/s Palwal Co-operative Sugar Mills Ltd., Distt.-Palwal, Haryana.

The samples of sugar, molasses and waste water were analyzed for the desired parameters in the NSI-Analytical Laboratory (NABL Accredited) and other laboratories of the institute.

PREPARATION AND SALE OF SUGAR STANDARDS:

Sale of sugar standards for the sugar season 2019-20 commenced from 1st October, 2019. Bureau of Sugar Standards issued 133 Sugar Standard Grades to 27 sugar factories during January-March, 2020.

OUR OTHER ACTIVITIES:

1. Distribution of cloth bags was made in and around the institute in view of eradicating "Single Use Plastic" from our life was made on 2nd January 2020.



2. Boiler & Cane Carrier Pooja was organized at Experimental Sugar Factory at the institute on 24th January 2020 and thereafter crushing operations of the factory commenced to impart practical training to the students of various courses.



During the year, trials on bagasse drying using flue gases of boiler, waste water treatment through electro-coagulation technique were also conducted.



3. "KRISHAK SAMVAAD" was organized on 24th January 2020 at the institute for providing



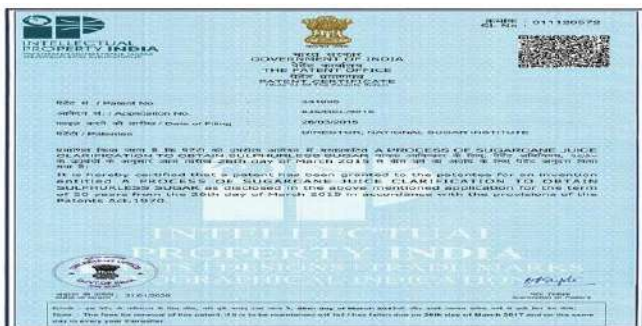
platform to create awareness among farmers about new sugarcane varieties, planting methods from bud chip to trench planting, methods of irrigation including micro-irrigation and on inter-cropping.

4. The Institute celebrated 71st Republic Day on 26th January, 2020. On this occasion, Shri Narendra Mohan, Director hoisted the National Flag and took the salute from the security guards. Awards were also given to the winners of various competitions organized during Swachhta and Satarkata Pakhwada's.

5. Mini Sugar Refinery (10 TPD) inaugurated on 7th February, 2020 at National Sugar Institute, Kanpur. Ion-exchange and Active carbon + membrane filter have been installed to give better exposure to students on working of Sugar Refinery.



6. Patent on “A Process of Sugarcane Juice Clarification to obtain Sulphurless Sugar” has been granted by Indian Patent Office on 12th February, 2020. The patent is about an innovative technique of clarifying the sugarcane juice using carbon di-oxide from the fermenters of distilleries.



7. Swachhta oath was administered to staff and students during the “Swachhta Pakhwada” which was organized at the institute from 16th February 2020 onwards. Besides, tree plantation, organizing essay & painting competitions, a Nukkad Natak on swachhta was also organized involving staff & students.



8. Students of Sheiling House School visited the institute on their educational tour and took keen interest to learn process of flavored sugar production and sugar quality standardization on 6th March, 2020. They also went around the institute to see the plantation white, ethanol and beer production facilities available at the institute.



9. “International Women’s Day” was celebrated on 9th March, 2020. Various competitions were organized for the lady officials of the institute and prizes were distributed. On this occasion a documentary on empowerment of women was also shown.



10. सरकारी कामकाज में राजभाषा के रूप में हिन्दी के प्रति जागरूकता लाने तथा उसके उत्तरोत्तर विकास हेतु संस्थान में 19 मार्च, 2020 को हिन्दी कार्यशाला का आयोजन किया गया।



11. National Sugar Institute called upon the sugar industry to come forward for production of alcohol based sanitizers required to fight against Covid-19 and leading from the front, prepared it at the institute itself.

NATIONAL SUGAR INSTITUTE..... demonstrated production of good quality sanitizer using molasses from own Experimental Sugar Factory to produce alcohol at Nano Alcohol Unit...blending with hydrogen peroxide, glycerol, aloe vera extract and rose water... National Sugar Institute...always for serving the humanity....



FELICITATIONS:

1. "Innovative Academic Leader of the Year 2020" award was given by Ms Meenakshi Lekhi, Member of Parliament and National Spokesperson of BJP to Prof. Narendra Mohan, Director, NSI, Kanpur, during the 2nd National



Education Excellence Conclave organized by Integrated Chambers of Commerce & Industry at New Delhi, on 24th February, 2020.

2. Director attended National Conference on "Technological Approaches for Enhancement of Employment and Income in Agriculture" at Rama University, Kanpur and Conferred with "Honorary Fellowship Award 2020" during the conference on 3rd March, 2020.



3. "Bio-refinery process for valorization of sugarcane biomass: from constituent sugars and lignols to value added product" by Prof. Narendra Mohan, Dr. V.P. Srivastava and Mr. Tushar Mishra was conferred first prize in poster presentation during the 2nd International Conference & Exhibition at VSI, Pune.