



Narendra Mohan
Director

The sugar production in the country is all set to be the highest ever & is expected to be around 32 million tonnes during the current sugar season 2017-18.

The prices of sugar which went lower, again shown stabilization & firmer as a result of policy interventions by the Central Government with regard to minimum selling price of sugar, creation of buffer stock & monthly release mechanism. The differential pricing policy for ethanol is also going to help the sugar industry looking to the preliminary estimates for sugar production during the next crushing season 2018-19.

Indian sugar industry needs a long term policy, a road map, for increasing its revenues through other sources rather remaining heavily dependent upon sugar. An out of box thinking shall be required to address the issue.

➤ SEMINAR & WORKSHOP ORGANIZED:

1. National Seminar on the important topic of "Modern Technologies for Reducing Effluent Generation in Sugar Processing/Distilleries and Further Treatment to Meet CPCB Norms" was organized by the institute jointly with S. Nijalingappa Sugar Institute at Belagavi on 27th April 2018. Two papers were presented on the related topic by the up-coming Sugar Technologist of the institute.



2. Director, National Sugar Institute attended “Annual Business Meet” organized by M/s EID Parry at Bangalore on 20th April 2018. During the meet, he delivered a lecture on “Sustainability of Indian Sugar Industry –Cost Effective Sugar Production & Beyond”.

3. Director, National Sugar Institute attended two days seminar organized by All India Distiller’s Association (AIDA), New Delhi on 26-27th April 2018, wherein he emphasized upon use of alternate feed stocks for alcohol production to



➤ **RESEARCH:**

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

1. Utilization of Potash Rich ash for production of valuable bio fertilizer–Boiler ash from Incineration Boilers installed in molasses based distilleries can be used as carrier for making bio-fertilizer. The work has been taken up so as to work out different formulation & testing them at field level.

2. Alcohol fermentation by immobilized yeast cells– The study was taken up with a view to use the same yeast for many cycles in fermentation & thereby saving yeast. Since the concentration of yeast is high in immobilized beads there is great reduction in fermentation time. Trial was carried out using immobilized yeast cells on Glass bead and concentration of 20:12 (ratio g), produced very good results up to 9 cycles and the performance was observed to be more or less consistent with Fermentation Efficiency of around 90%.

3. Press Mud to Bio CNG- With an aim to utilize the press mud for production of Bio-CNG, different combinations of press mud, farm yard manure and spent wash were initially tried on laboratory scale. A new set was started at pilot plant scale and it was observed that the production of biogas using a mixture of Press mud & cow dung in the ratio 80:20 improved a lot after about 25 days and there has been continuous production since then.



meet requirement of various sectors & make EB10 a success.

4. National Workshop on “Sugar Industry in Northern India-Road Map for Crushing Season 2018-19” organized at the institute on 26th June 2018 wherein brainstorming on cane price fixation mechanism, diversification, value addition, sugarcane varietal balance, branding of Indian Sugars and on environmental issues were carried out.



Percentage of methane & other gases is continuously being monitored to assess the quantity of Bio-gas.



4. Studies on clarification of cane juice with bagasse derived bio char –The study has been taken up with an aim to utilize the bagasse fly ash in combination with bio char to check its clarification efficiency on cane juice and other sugar liquors. Characterization of fly ash surface area has been taken up.



5. Studies on synthesis of glycosidic surfactants using by-product resources of sugar industry – Studies have been further taken up so as to enhance the yield of bagasse derived polypentosides based surfactant along with reduction in purification steps involved thereof.

The detailed study of Mass and NMR spectra of the surfactant synthesised from sugarcane trash has been done. Further, a proto type formulation of

eco-friendly liquid detergent from sugarcane trash derived surface active agent has been carried out.

Its properties such as pH, surface tension, foam ability & stability, cleaning action via reflectance measurement are under evaluation.

6. Studies on Production/isolation of C5-Sugar Alcohol/Sugar using by-product resources of sugar industry–The studies aim basically at deriving a low calorie sweetener from bagasse for which an up to date literature survey on the topic has been completed. The isolation and identification of products formed during the optimization of the reaction conditions for the synthesis of xylitol from bagasse are under process. The isolation and identification of products formed during the optimization of the reaction conditions for the synthesis of xylitol from bagasse has been completed. A fresh batch of reaction has been put to access xylitol from sugarcane trash and isolation and identification of the products formed in the reaction mixture is under process.

7. Studies on pot efficient synthesis of alkyl levulinates (Als) using sugarcane bagasse derived cellulose –Biomass conversion into useful chemicals, materials and fuels emerged as a promising alternative toward replacing the current production of most of these commodities and specialty products from petroleum feedstocks. Alkyl levulinate (AL), is as useful as a levulinic acid derivative in many fields, such as medicines, solvent, organic chemistry, fragrance and furthermore it can be directly used as additives for gasoline and diesel, due to its excellent performances, such as high lubricity, flashpoint stability, non-toxic and better flow properties under cold condition.

Based on such potential, direct production of alkyl levulinate (AL) from sugarcane bagasse in a catalytic cascade reaction will be evaluated following bio-refinery concept.

8. Improvement in Sugar Quality by clarification of intermediate boiling house products- In order to improve sugar quality laboratory experiments were conducted in two commercial sugar factories carrying out physico-chemical clarification of intermediate process liquors. Analysis work of samples collected from different factories has been completed. Research paper has been sent for publication in proceeding of Annual Convention of STAI to be held in August 2018 at Indore.



9. Settling test at inclined surface.-Analytical data as a result of experiment conducted on a prototype at The Experimental Sugar Factory revealed that the turbidity and colour reduction to be around 35% & 20% respectively from raw juice to clear juice during the trial of SSRT clarifier. Further experiments shall be taken up from the inferences drawn.



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

Based on the research work carried out at the institute, following papers were published or sent for publication in various proceedings/reputed journals:

1. **“Effluent Generation & Treatment in Indian Sugar Industry-An Overview”** by Mahendra Yadav, J.P. Srivastava & Narendra Mohan, presented during national seminar organized by National Sugar Institute & S. Nijalingappa Sugar Institute on 27th April, 2018 at Belagavi, Karnataka.
2. **“Treatment of Sugar Factory Effluent by Electro Coagulation Process to Meet CPCB requirements”** by Vimlesh Mishra, Amresh Pratap, Mahendra Yadav & Narendra Mohan, presented during National Seminar organized by National Sugar Institute & S. Nijalingappa Sugar Institute on 27th April, 2018 at Belagavi, Karnataka.
3. **“Ethanol Production Opportunities & Challenges”** by Narendra Mohan, presented during All India Seminar organized by All India Distillers Association (AIDA) at New Delhi on 26-27th April 2018.
4. **“Sustainability of Indian Sugar Industry –Cost Effective Sugar Production & Beyond”** by Narendra Mohan, during the Annual Business Meet organized by M/s EID Parry at Bangalore, on 20th April 2018.
5. **“Isolation of Yeast Strain from Spoilt Sugarcane Juice”** by Vinitanjali Banerjee, Santosh Kumar & Narendra Mohan sent for publication in the proceedings of 76th Annual Convention of The Sugar Technologist’s Association of India to be held from 20th -22nd August 2018 at Indore.
6. **“Development of an Effluent Treatment Process for Plantation White Sugar Factories to meet CPCB Requirements”** by Neelam Dixit,

Amresh Pratap & Narendra Mohan sent for publication in the proceedings of 6th Annual Symposium of Bhartiya Sugar, to be held at Kolhapur on 14-15th July 2018.

7. **“Multi-Level Inverter based Topologies for Sugar Mill Drive Applications”** by Anoop Kumar Kanaujia, Sanjiv Kumar & D. Swain sent for publication in the proceedings of 76th Annual Convention of The Sugar Technologist’s Association of India to be held from 20th -22nd August 2018 at Indore.

8. **“Sugarcane Price Determination in India-Need for a Hybrid Formula”** by Narendra Mohan, D.Swain & Priyanka Singh sent for publication in the proceedings of 76th Annual Convention of The Sugar Technologist’s Association of India to be held from 20th -22nd August 2018 at Indore.

9. **“A Study on Working of Vertical Continuous Pan for Raw Masecuite Boiling”** by Narendra Mohan, Ashutosh Bajpai and Subhash Chandra sent for publication in 76th Annual Convention of The Sugar Technologist’s Association of India to be held from 20th -22nd August 2018 at Indore.

10. **“Valorization of Sugarcane trash as a Potential Raw Material in Formulation of Eco-Friendly Liquid Detergent”** by Narendra Mohan, Vishnu P. Srivastava and Anushka Agarwal sent of publication in the proceedings of 64th Annual Convention of The Deccan Sugar Technologists Association to be held on 28-29th July 2018 at Gandhinagar, Gujarat.

11. **“Treatment of Sugar Factory Effluent by a Novel Process”** by Amresh P. Singh, Mahendra kr. Yadav and Narendra Mohan sent for publication in 48th Annual Convention of SISSTA to be held in Aug 2018.

12. **“Ethanol Production: Opportunities & Challenges”** by Narendra Mohan sent for publication in the proceedings of 6th Annual

Symposium of Bhartiya Sugar, to be held at Kolhapur on 14-15th July 2018.

➤ **SOLAR SUGARCANE SEED TREATMENT UNIT DEVELOPED:**

Shri Subhash Chandra Sharma, Commissioner, Kanpur Range released "Solar Sugarcane Seed Treatment Unit" developed by the institute. The unit has been based on “Hot Water Treatment” of Sugarcane Seed.



➤ **SEMINAR ROOM INAUGURATED:**

A newly constructed hi-tech Seminar room having a seating capacity for 50 persons was inaugurated by the Commissioner, Kanpur range.



CONSULTANCY:

During April-June, 2018 consultancy services were provided to the following:

1.	M/s NABARD Consultancy Services Pvt. Ltd., Lucknow, U.P.
2.	M/s State Vigilance Bureau, Rohtak, Haryana.
3.	M/s Dhampur Sugar Mills Ltd., Mansurpur, Distt-Muzaffarnagar, U.P.
4.	M/s Mawana Sugars Works, Mawana, Distt-Meerut, U.P.
5.	M/s Triveni Engineering & Industries Ltd., Kurdwara, Distt-Moradabad, U.P.
6.	M/s The KisanSahkariChini Mills Ltd., Gajraula, Hasanpur, Distt- Amroha, U.P.
7.	M/s The Nandi SahkariSakkareKarkhaneNiyamit, Krishnanagar, Distt- Vijayapur, K.N
8.	M/s Avadh Sugar & Energy Ltd., Hargaon, Distt- Sitapur, U.P.
9.	M/s DSM Sugar Meerganj unit of Dhampur Sugar Mills Ltd., Bareilly, U.P.
10.	M/s Sadguru Sri SriSakharKharkhana Ltd., Unit-02, Pune, Maharashtra.
11.	M/s Dalmia Bharat Sugar & Industries Ltd., Unit- Jawaharpur, Distt- Sitapur, U.P.
12.	M/s GulariaChini Mills Ltd., Distt-Lakhimpur-Kheri, U.P.
13.	M/s KumbhiChini Mills Ltd., Distt-Lakhimpur-Kheri, U.P.
14.	M/s U.P. State Sugar Corporation, Mohiddinpur, Distt- Meerut, U.P.
15.	M/s BalrampurChini Mills Ltd., Balrampur, Distt- Balrampur, U.P.
16.	M/s Panipat Cooperative Sugar Mills Ltd., Panipat, Haryana.
17.	M/s Rauzagaon Chini Mills Ltd., Rauzagaon, Distt- Faizabad, U.P.
18.	M/s Nirani Sugar Mills Ltd., Distt- Bagalkot.
19.	M/s Dalmia Bharat Sugar Industries Ltd., Nigohi, Distt- Sahajahanpur, U.P.
20.	M/s Dalmia Bharat Sugar Industries Ltd., Ramgarh, Distt- Sitapur, U.P.

21.	M/s BalrampurChini Mills Ltd., Unit Haidergarh, Distt.- Barabanki U.P.
22.	M/s Uttam Sugar Mills Ltd., Lillbberheri, Distt.- Haridwar U.K.
23.	M/s Harinagar Sugar Mills Ltd., Harinagar, West Champaran, Bihar.
24.	M/s The Haryana Co-operative Sugar Mills Ltd., BhaliAnandpur, Rohtak.
25.	M/s Triveni Engineering & Industries Ltd., Alco-Chemical complex Bhikki- Bilaspur, Muzzaffarnagar, U.P.
26.	M/s Central Distillery & Breweries Kankerkhera, Meerut Cantt., Meerut, U.P.
27.	M/s Triveni Engineering & Industries Ltd., Sugar Unit – SabitgarhDistt.- Bulandshahr U.P.
28.	M/s KisanShakariChini Mills Ltd., Najibabad, Bijnor, U.P
29.	M/s DSCL Sugar Loni, Hardoi, Shahabad, U.P.
30.	M/s KisanShakariChini Mills Ltd., Powayan, Shahjahanpur, U.P

➤ ANALYTICAL SERVICES:

Analytical services were rendered to following:

1.	M/s The Kisan Sahkari Chini Mills Ltd., Unit-Tilhar, Distt-Shahjhanpur, U.P.
2.	M/s Uttam Sugar Mills Ltd., Khaikheri, Distt-Muzaffarnagar, U.P.
3.	M/s The Palwal Co-operative Sugar Mills Ltd., Palwal, Haryana.
4.	M/s Kisan SahkariChini Mills Ltd., Sampurna Nagar, Distt-Lakhimpur-Kheri, U.P.
5.	M/s Seksaria Biswan Sugar Factory Ltd., Biswan, Distt-Sitapur, U.P.
6.	M/s The Kisan Sahkari Chini Mills Ltd.,

	Puranpur, Distt-Pilibhit, U.P.
7.	M/s Ministry of Micro, Small & Medium Enterprises (MSME), Kanpur, U.P.
8.	M/s The Kisan Sahkari Chini Mills Ltd., Mahmoodabad, Distt-Sitapur, U.P.
9.	M/s AGT Foods India Pvt., Ltd., Bhandup, Mumbai, Maharashtra.
10.	M/s The Kisan Sahkari Chini Mills Ltd., Bilaspur, Distt- Rampur, U.P.
11.	M/s Sahakari Khand Udyog Mandal Ltd., Gandevi, Bilimora, Distt- Navsari, Gujarat.
12.	M/s Sarjoo Sahkari Chini Mills Ltd., Belrayan, Kheri, U.P.
13.	M/s Ramala Sahkari Chini Mills Ltd., Ramala, Distt- Bagpat, U.P.
14.	M/s The Kisan Sahkari Chini Mills Ltd., Nanauta, Distt- Saharanpur, U.P.
15.	M/s Kisan Sahkari Chini Mills Ltd., Punwaya, Distt- Shahjahanpur, U.P.
16.	M/s The Kisan Sahkari Chini Mills Ltd., Anoopshahr, Distt- Bulandshahr, U.P.
17.	M/s The Kisan Sahkari Chini Mills Ltd., Badaun, U.P.
18.	M/s Bisalpur Kisan Sahkari Chini Mills Ltd., Bisalpur, Distt- Pilibhit, U.P.
19.	M/s Shri Ganesh Khand Udyog Sahkari Mandli Ltd., Vataria, Distt- Bharuch, Gujarat.
20.	M/s Uttam Sugar Mills Ltd., Unit -Libberheri, Roorkee, Uttarkhand.

➤ EXTENSION LECTURES :

Under the Aegis of Scientific Society of Council of Student's Activities expert lectures were delivered by many eminent Scientists & Technologists.

1. Shri S.P. Tripathi (Technical Consultant), M/s Global Canesugar Services Pvt. Ltd., New Delhi delivered a lecture on "Standard Practices for Clarification House in Plantation White Sugar

Factories" for the benefit of faculty and students on 12th April, 2018.



2. Dr. (Mrs.) Priyanka Singh, Scientific officer UP Council of Sugarcane Research delivered a lecture on "Managing Maturity & Post-Harvest Deterioration" on 13th April, 2018.



3. Dr.M. B. Londhe, Technical Director, M/s Rahi Techno Services, Pune delivered a lecture on "Pan Boiling and Sugar Quality" on 09th May, 2018.



➤ हिंदी कार्यशाला:

सरकारी कामकाज में राजभाषा के रूप में हिन्दी के प्रति जागरूकता लाने तथा उसके उत्तरोत्तर विकास हेतु संस्थान में 04 जून 2018 को हिन्दी कार्यशाला का आयोजन किया गया, निदेशक ने सभी विभागाध्यक्षों को निदेशित किया कि सभी अपने अधीनस्थ कर्मचारियों को हिन्दी में कार्य करने को प्रेरित करें जिससे कि राजभाषा विभाग के निर्देश का पालन सुनिश्चित किया जा सके।



इस कार्यशाला में नव नियुक्त अधिकारियों व कर्मचारियों को राजभाषा में कार्य करने हेतु सरकारी दिशा निर्देशों से भी अवगत कराया गया।

➤ WORLD ENVIRONMENT DAY:

Under the aegis of Council of Students' Activities, Scientific Society celebrated World Environment Day -PARIVESH on the theme "Beat Plastic Pollution" students actively participated in poster, slogan & other competitions. Dr. Sushil Solomon, Vice-Chancellor, CSA University, Kanpur graced the occasion.



Speaking on the occasion, Director, National Sugar Institute, Kanpur called upon the students & staff to make efforts & create awareness so as to have a cleaner & greener sugar industry.

➤ INTERNATIONAL YOGA DAY:

4th National Yoga Day celebrated at the Institute on 21st June, 2018. Staff of the institute performed various Yoga exercised under the watchfuleyes of a Yoga teacher.



➤ ENTRANCE EXAMINATION:

Entrance Examination – 2018 for admission to various courses during academic season 2018-19 was conducted at six centers across the country on 10th June 2018. A new PG Diploma course in "Quality Control & Environment Science" is being introduced from the academic session 2018-19.

