

NEWSLETTER

October – December, 2018



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

Visit us at:

<http://www.nsi.gov.in>

Contact: nsikanpur@nic.in



**Narendra Mohan
(Director)**

India's sugar production increased by 7 per cent to 110.52 lakh tonnes in the first quarter of sugar season 2018-19 as mills in Maharashtra and Karnataka started operations early. As on December 31, 2018, 501 sugar mills started operations in this country and produced 110.52 lakh tonnes of sugar, as compared to 103.56 lakh

tonnes produced by 505 sugar mills during the same period of preceding crushing season. Although the sugar production during the current sugar season is expected to be lower than last season, but will be higher considerably than the domestic consumption.

On the other hand, India's sugar exports have become tougher due to strengthening of rupee and falling global sugar prices making shipments unattractive despite a government push for overseas sales. Lower shipments could support global prices that fell more than 20 percent in 2018, but fewer exports could also increase stocks making it troublesome for the sugar industry. News regarding B Heavy molasses diversion has been received from few factories now which is a good sign and I hope industry will make now arduous efforts to harness the unexploited potential of by-products.

Wishing you a very Happy New Year 2019

➤ 49TH CONVOCATION ORGANIZED:

The 49th Convocation of National Sugar Institute, Kanpur was held on 5th October 2018. Shri C.R. Chaudhary, Hon'ble Minister of State, Ministry of Consumer Affairs, Food & Public Distribution and Commerce & Industry, Government of India graced the occasion as Chief Guest. Shri Devendra Singh "Bhole", Hon'ble Member of Parliament also graced the function as Guest of Honour. Shri Suresh Kumar Vashishta, IAS, Joint Secretary (Sugar & Administration) Ministry of Consumer Affairs, Food & Public Distribution, Department of Food & Public Distribution New Delhi presided over the function.



During the Convocation Diploma's & Certificates were given to 413 students of 2016 & 2017 batch. 05 Gold Medal's & 40 other awards were also given on the occasion.

➤ INAUGURATION OF SPECIAL SUGAR DIVISION:

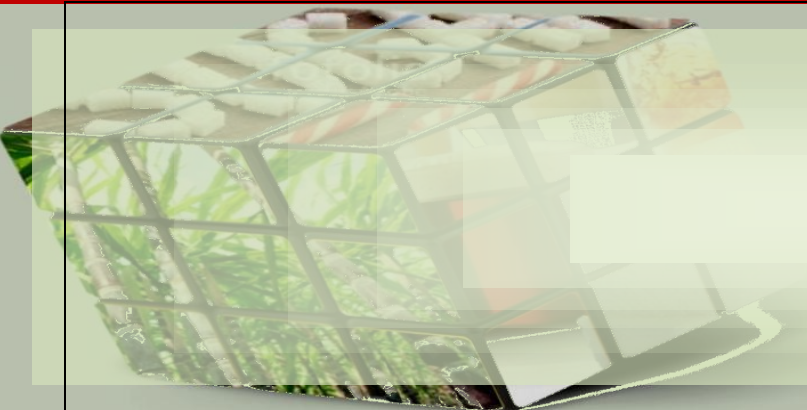
Shri C.R. Chaudhary, Hon'ble Minister of State, Ministry of Consumer Affairs, Food & Public Distribution and Commerce & Industry, Government of India inaugurated the newly constructed Special Sugar Division. This will facilitate the students of various courses to get training for the production of different kind of Flavored & other special sugars.



The division has been established with the financial support extended by Dr. G.S.C. Rao, CMD, Global Cane Sugar Services Pvt. Ltd., & an alumni of the institute.

➤ TRAINING PROGRAMME ORGANIZED:

Fifth phase of three days training programme on "Effluent Treatment Plant Operation & Laboratory Analysis" for 68 technical personnel conducted during the period.



➤ SEMINAR ORGANIZED:

1. National Seminar on **"Techno-economic Viability of Sugarcane Juice and B-Heavy Molasses as Alternate Feed Stock for Ethanol Production"** was organized jointly with The Sugar Technologists' Association of India on 16th October 2018 at NSI, Kanpur. Papers relating to differential pricing policy for ethanol & relative economics of ethanol production from conventional route, B-Heavy molasses & cane juices were presented.



2. From 26th to 28th October 2018, Institute took part in **"Krishi Kumbh"** organized at Indian Institute Sugarcane Research, Lucknow. Display of solar seed treatment unit, electro-coagulation based effluent treatment unit, bio gas unit and many more institute activities was made during the event.



3. Institute jointly with Co-generation Association of India organized **"One day meet on Ethanol for Promotion of Distillery/Ethanol Projects"** on 31st October 2018 at Kanpur in which large number of delegates from Uttar Pradesh, Bihar, Uttarakhand & Haryana participated.



➤ EXTENSION LECTURES:

1. Shri B.H. Shrikanth (Chief Consultant) Sciencia Industrial Project Consultants, Pune delivered a lecture on **"Ethanol-An Eco-friendly Green Chemical Industry for Sustainable Auto Fuel and Energy Security"** on 11th October, 2018 at the institute for the benefit of students as well as faculty.



2. Shri Amit Kumar (Director & Sr. Consultant), Shabda Risk Assessment & Consultancy Services, New Delhi made a Presentation on **"Risk Prevention for best Out Comes in Indian Sugar Industry"** highlighting the profit center model for the sugar industry on 28th November, 2018 at the institute.

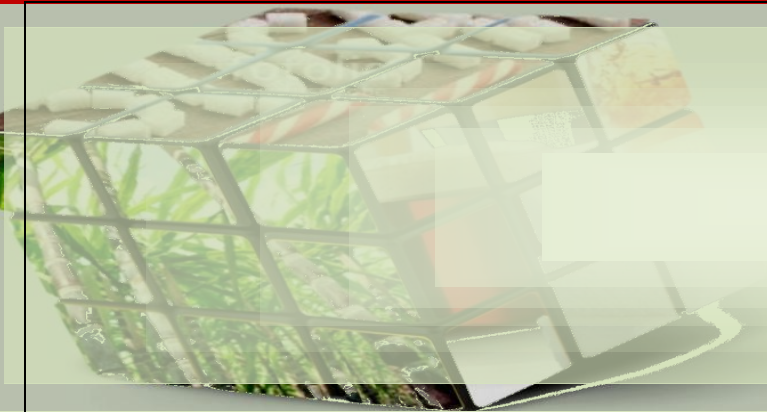


➤ RESEARCH:

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. Preparation to take up field trials is going on by carrying out mass multiplication of different bio-fertilizers viz, PSB, Azatobacter & Rhizobium.



2. **Utilization of bagasse as dietary fiber-** Studies on characteristics of bagasse as food supplements have been initiated. Comparative study of Physical parameters viz; Swelling Power, Solubility Index, Water Absorption Capacity of commercial available product (from abroad) and own samples treated with different concentration of Alkali like Control; 0.1N, 0.25N, 0.5N, 0.75N & 1N. Results revealed that Swelling Power, Solubility Index, Water Absorption Capacity & Oil Absorption Capacity of even Control & 0.1N treatment was far better than the commercial product.



Emulsification capacity, Chemical analysis namely: lignin, hemi-cellulose and cellulose and Microbial load will also be checked. To match the texture, large quantity of bagasse (1Kg each) will be grinded, treated, washed, dried and then tested.



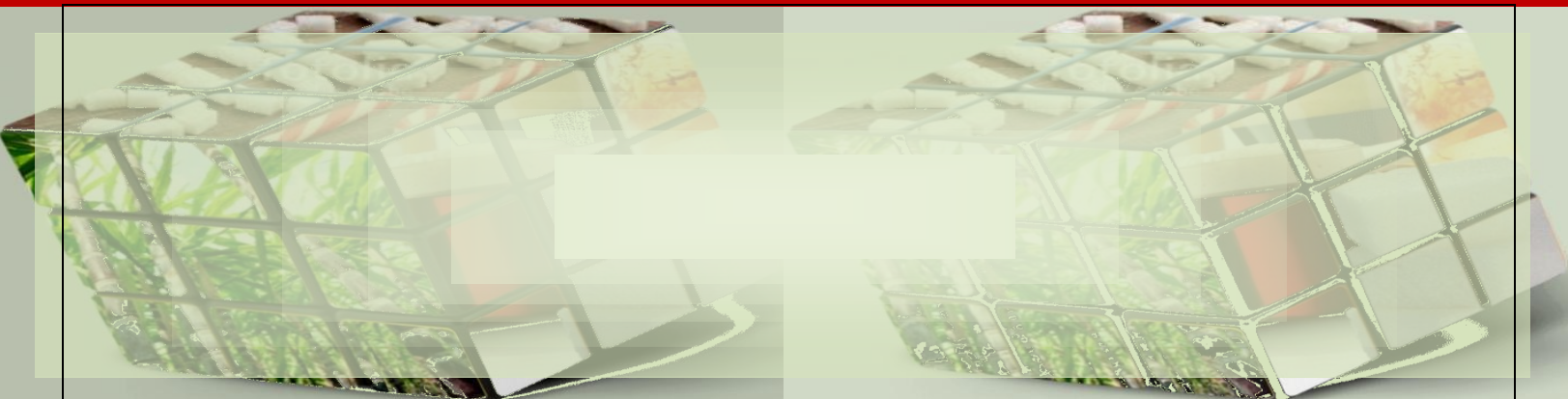
3. Filter Cake to CNG -With an aim to utilize the filter cake for production of Bio-CNG, different combinations of filter cake, farm yard manure and spent wash were initially tried on laboratory scale & then a small pilot plant was developed. Patent applications on "Production of Bio-CNG from Filter cake" shall be filed shortly.



4. Studies on the feasibility of utilization of sugarcane bagasse as a potential feedstock to access cosmetic ingredients -Study aims at valorization of pentose sugar of bagasse. The synthesized and isolated compound under this research problem is being analyzed for characterization and some results are awaited.

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 results of the characterization of bagasse & trash derived products obtained during preliminary experiments performed in a proto type SS pot are awaited. Additionally, feasibility and merits of developed method in a bio-refinery concept is under investigation along with the preliminary economic analysis of the valorization of 100 kg bagasse into surfactant and other products in the India context. In order to access the bagasse derived surfactant up to few grams, the batch reactions have been put and isolation of the desired

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 isolation of products formed during the optimization of the reaction conditions for the synthesis of xylitol from sugarcane trash has been completed.



Few experiments have been performed to access xylitol from xylan-isolated from bagasse. The initially isolated compound is being analyzed and some results are still awaited.

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 feed stocks. The literature survey on the topic has been completed. The isolation and characterization of cellulose (to be used as raw material) from bagasse is under progress.



8. Mechanical Clarification of Juice –This research scheme has been taken up with a view to eliminate the use of sulphur in sugarcane juice clarification for production of white sugar.

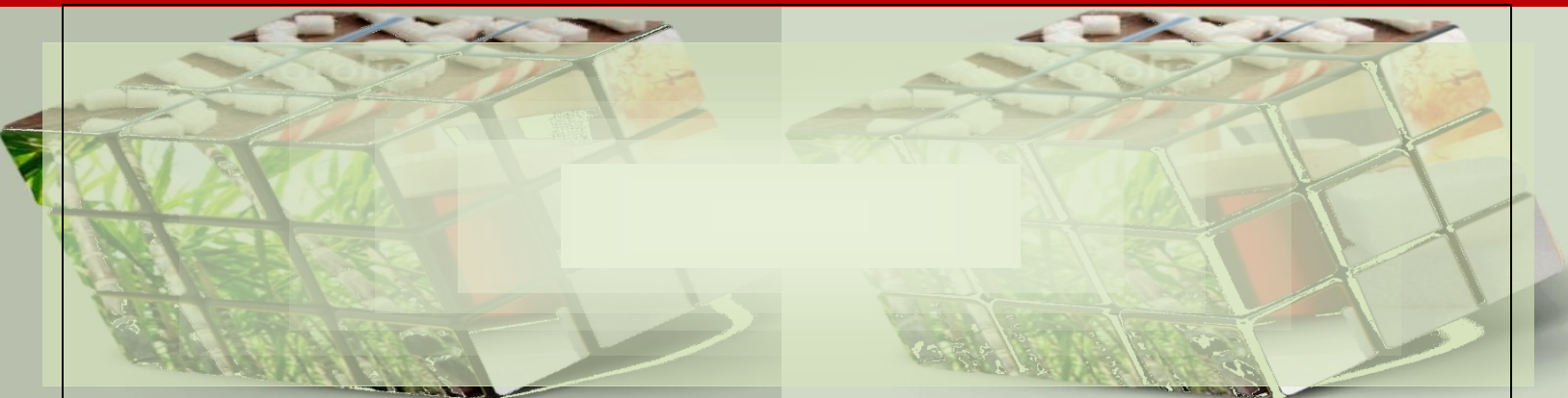
Experiments with cane juice have been conducted with application of different flocculant dose & centrifugation times. Encouraging results have been observed. Further experiments with heat treatments are in progress.

9. Use of Brine reject in Final Molasses – Brine recovery and disposal of brine reject is an area of concern from environment angle. Fresh sample of brine reject and molasses have been procured and further experiments are being conducted to assess the effect of brine reject on molasses quality upon storage.

10. Settling test at inclined surface - Modified drawing has been developed and procurement of the material is under progress for the fabrication of clarifier so as to conduct pilot scale trials during the crushing season of Experimental Sugar Factory.

➤ RESEARCH PAPERS:

1. "Economy of Ethanol Production" by N. Mohan and D. Swain presented in National Seminar on "Techno-economic Viability of Sugarcane Juice and B-Heavy Molasses as Alternate Feed Stock for Ethanol Production" organized on 16th October 2018 at NSI, Kanpur.



2. “Final Molasses Vs B-Heavy and juice” presented by Shri D. Swain in “One day meet on Ethanol for Promotion of Distillery/Ethanol Projects” jointly organized with Co-generation Association of India on 31st October 2018 at Kanpur.

3. “Quality Standards & Packaging Requirements for Sugar in Indian and Global Scenario” by Anushka Agarwal & Narendra Mohan sent for publication in Sugar Technology-An International Journal of Sugar Crops and related industries.

4. “Effect of Potassium Application on Nutrient Uptake, Yield and Quality of Sugarcane & Sustainable Soil Health” by Narendra Mohan, Ashok Kumar & Lokesh Babar sent for publication in International Journal of Green Farming.

5. “Integrated Nutrient Management for Maximum Economic Yield of Sugar Beet and Sustainable Soil Health” by Ashok Kumar & Lokesh Babar sent for publication in Agrica – An International Journal of Plant Science Researches.

6. “A Reduced Switch Count Hybrid Fifteen-Level Inverter for an Open-End Winding Induction Motor (OEWIM) Drive” by Anoop Kumar Kanaujia & Sanjiv Kumar presented during 8th IEEE International Conference on power Electronics (IICPE-2018) held on December 13-15th 2018 at Jaipur.

7. “Biomass Energy for Economic & Environmental Sustainability in India” by Narendra Mohan & Anoop Kumar Kanaujia sent for publication in Sugar Technology-An International Journal of Sugar Crops and related industries.

8. “Water and Effluent Management in Indian Sugar Factories – A Novel Approach” by Narendra Mohan, Mahendra Kumar Yadav & Amresh Pratap Singh sent for publication in ISSCT Congress 2019.

9. “An Efficient Static Rotor-Resistance Control for the Motors of Preparatory Devices of a Sugar Factory” by Vinay Kumar presented in 33rd Indian Engineering Congress held on 22nd December, 2018 at Udaipur.

10. “Sugar Production to Meet Health Concerns and Consumer Preferences” by Anushka Agarwal & Narendra Mohan sent for publication in American Journal of Food, Nutrition and Health.

11. “Bio-energy & Efficiency- Key Factors for the Sustainability of Indian Sugar Industry” by Narendra Mohan & D. Swain sent for publication in ISSCT Congress 2019.

12. “Ethanol from B-Heavy Molasses for Sustainability of Indian Sugar Industry” by Narendra Mohan, D. Swain & Seema Paroha sent for publication in ISSCT Congress 2019.

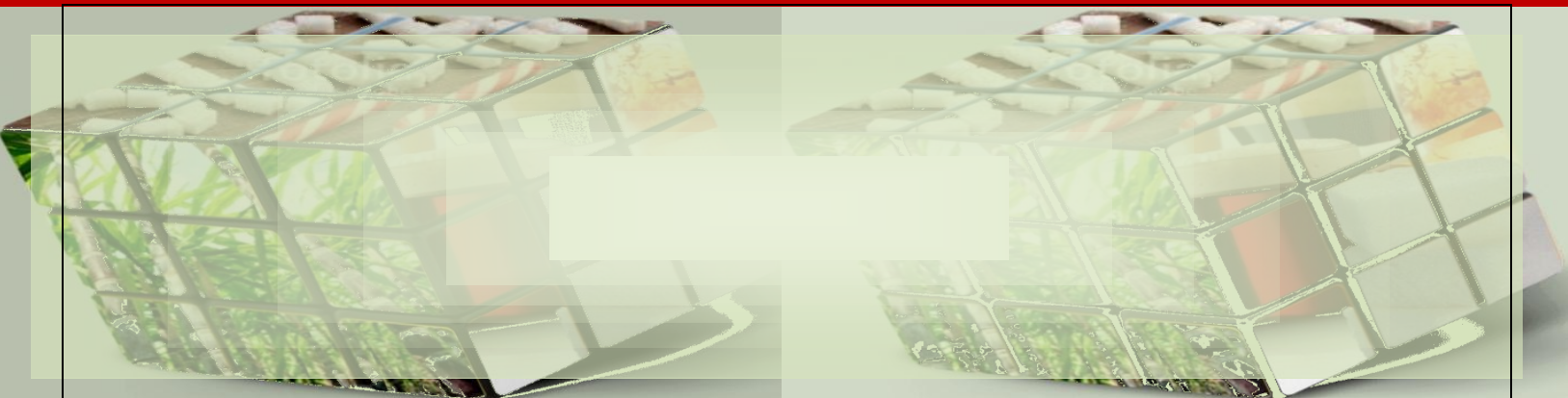
13. “Bio-refinery approach for valorization of sugarcane biomass based xylans to alkyl glycosides” by Narendra Mohan, Dr. V.P. Srivastava & Anushka Agarwal sent for publication in ISSCT Congress 2019.

➤ **CONSULTANCY:**

During October-December, 2018 consultancy services were provided to the following:

1.	M/s MRN Cane Power (India) Ltd., Kallapur, Distt- Bagalkot, Karnataka.
2.	M/s U.P. Co-operative Factories Federation Ltd., Lucknow, U.P.
3.	M/s Mott Mac Donald Pvt. Ltd., Mumbai, Maharashtra.
4.	M/s Kichha Sugar Co-operation Factory Ltd., Distt – U.S. Nagar, Uttarakhand.
5.	M/s Shrivasti Kisan Sahakari Chini Mills Ltd., Nanpara, Distt – Bahraich, U.P.
6.	M/s Kisan Sahakari Chini Mills Ltd., Mahumadabad, Distt – Sitapur, U.P.
7.	M/s Kisan Sahakari Chini Mills Ltd., Ghoshi, Distt – Mau, U.P.
8.	M/s Kisan Sahakari Chini Mills Ltd., Sathiaon, Distt – Azamgarh, U.P.
9.	M/s Sarjoo Sahakari Chini Mills Ltd., Belrayan, Distt - Lakhimpur-Kheri, U.P.
10.	M/s Kisan Sahakari Chini Mills Ltd., Sampurnanagar, Distt – Lakhimpur-Kheri, U.P.

11.	M/s DSCL Sugar, Hariawan, Distt – Hardoi, U.P.
12.	M/s Unnao Distilleries & Breweries Ltd., Shekhpur, Distt – Unnao, U.P.
13.	M/s National Forum of Sugar Consultants, New Delhi.
14.	M/s Doiwala Sugar Company Ltd., Doiwala, Uttarakhand.
15.	M/s Kisan Shakari Chini Mills Ltd., Rudrabilasapur, U.P.
16.	M/s Kisan Shakari Chini Mills Ltd., Distt – Baduan, U.P.
17.	M/s Balrampur Chini Mills Ltd., Unit – Akabarpur, Distt – Ambedkar Nagar, U.P.
18.	M/s Balrampur Chini Mills Ltd., Unit – Mankanpur, Distt – Gonda, U.P.
19.	M/s Tulsipur Sugar Company, Tulsipur, Distt – Balrampur, U.P.
20.	M/s Maizapur Chini Mills Ltd., Distt – Gonda, U.P.
21.	M/s Simbhauli Sugars Ltd., Simbhauli, Distt – Hapur, U.P.
22.	M/s Sadguru Sri Sri Sakhar Karkhana Ltd., Distt – Pune, Maharashtra.
23.	M/s Jind Co-operative Sugar Mills Ltd., Jind, Haryana.



24.	M/s Harinagar Sugar Mills Ltd., West Champaran, Bihar.
25.	M/s U.P. State Sugar Mills Co-operation Ltd., Lucknow, U.P.
26.	M/s Mysore Sugar Company Ltd., Mandya, Karnataka.
27.	M/s Dhampur Sugar Mills Ltd., Meerganj, Distt – Bareilly, U.P.

➤ ANALYTICAL SERVICES:

Analytical services were rendered to following:

1.	M/s Kisan Sahakari Chini Mills Ltd., Sampurana Nagar, Distt – Lakhimpur-Kehri, U.P.
2.	M/s Dalmia Chini Mills Ltd., Unit – Nigohi, Distt – Saharanpur, U.P.
3.	M/s L.H. Sugar Factories Ltd., Distt – Pilibhit, U.P.
4.	M/s Novel Sugar Ltd., Bankhera, Distt – Pilibhit, U.P.
5.	M/s Dhampur Sugar Mills Ltd., Dhampur, Distt – Bijnor, U.P.
6.	M/s Kisan Sahakari Chini Mills Ltd., Powayan, Distt – Shahjahanpur, U.P.
7.	M/s The Seksaria Biswan Sugar Factory Ltd., Distt – Sitapur, U.P.

8.	M/s DSM Sugar Meerganj, Distt – Bareilly, U.P.
9.	M/s Dhampur Sugar Mills Ltd., Unit – Dhampur, Distt – Bijnor, U.P.
10.	M/s Simbhaul Sugar Ltd., Distt – Ghaziabad, U.P.
11.	M/s Rai Bahadur Narain Singh Sugar Mills Ltd., Laksar, Distt – Haridwar, U.P.
12.	M/s Daurala Sugar Works, Daurala, Distt – Meerut, U.P.
13.	M/s Harinagar Sugar Mills Ltd., Distt – West Champaran, Bihar.
14.	M/s Triveni Engineering & Industries, Unit – Khatauli
15.	M/s Novel Sugar Mills Ltd., Barkhera, Distt – Pilibhit, U.P.
16.	M/s Batala Co-op Sugar Mills, Distt – Gurdaspur, Punjab.

The samples of sugar, molasses, ethanol, waste waters & condensates etc. were analyzed for the desired parameters in the NSI-Analytical Laboratory (NABL Accredited).

➤ PREPARATION AND SALE OF SUGAR STANDARDS:

Sale of sugar standards for the sugar season 2018-19 commenced from 1st October, 2018. Bureau of Sugar Standards issued 1195 Sugar Standard Grades to 241 sugar factories during the period.

➤ OUR OTHER ACTIVITIES:

1. संस्थान में दिनांक 29.10.2018 से 03.11.2018 तक “सतर्कता जागरूकता सप्ताह-2018” का आयोजन किया गया एवं इस अवसर पर दिनांक 29.10.2018 को संस्थानकर्मियों को सतर्कता जागरूकता की शपथ दिलाई गई। इस सप्ताह के दौरान संस्थानकर्मियों एवं छात्रों के लिये निबंध एवं व्याख्यान प्रतियोगितायें आयोजित की गईं।



2. संस्थान में दिनांक 31-10-2018 को अधिकारियों, कर्मचारियों एवं छात्रों को सरदार बल्लभ भाई पटेल के जन्मतिथि के उपलक्ष्य में एकता एवं अखण्डता की शपथ दिलाई गई।



3. संस्थान में दिनांक 26-11-2018 को अधिकारियों, के छात्रों एवं कर्मचारियों द्वारा “संविधान दिवस” पर “प्रस्तावना” पढ़ी गयी।



4. सरकारी कामकाज में राजभाषा के रूप में हिन्दी के प्रति जागरूकता लाने तथा उसके उत्तरोत्तर विकास हेतु संस्थान में 18 दिसम्बर 2018 को हिन्दीकार्यशाला का आयोजन किया गया। इस कार्यालय में संस्थान के नवागतुंग अधिकारियों व कर्मचारियों को राजभाषा में कार्य करने हेतु सरकारी दिशा निर्देशों से अवगत कराते हुए अधिकतम कार्य राजभाषा में करने हेतु प्रेरित किया गया। इस कार्यशाला में शर्करा उद्योग से संबंधित एक हिंदी शब्दकोष बनाने का भी निर्णय लिया गया।



5. Students of “Rama University” Kanpur visited institute on 15th November, 2018. They visited various Laboratories, Nano Brewery; Nano Ethanol Unit & Experimental Sugar Factory situated in the institute and acquires basic knowledge of sugar & ethanol production.



6. A Farewell party for the final year students of various courses was organized on 31st October, 2018 at the institute.



Many cultural activities were organized by the students on this occasion. After several rounds in the competition, Mr. Satyendra Yadav and Ms. Shalini Pal were adjudged as Mr & Ms. National Sugar Institute, Kanpur. Director & faculty members wished the final year students a bright & successful carrier ahead.

