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➤ GLOBAL PROGRAMME:

1. Three months training programme on Sugar Refining for the IInd batch of Chemical Engineers of M/s Yemen Company for Sugar Refining, Hodeida, Republic of Yemen concluded at the Institute.



Theoretical as well as practical training was imparted to the trainees during the period on various techniques of raw melt clarification, concentration and crystallization.

2. Three weeks training programme for the distillery personnel of M/s Army Welfare Project Ltd., Bhutan on Boiler Operations, Boiler Water Management, Quality Control and Distillery Operations conducted at the Institute. Theoretical as well as practical training was imparted to the trainees on aspects of Boiler operations, Boiler water management, Quality control and on various distillery operations.



Industrial visit to molasses and grain based distilleries and a Brewery was also organized for giving better exposure to the trainees about the operation of various unit operations.

➤ **INSTITUTE TO HELP ETHIOPIAN SUGAR CORPORATION:**

1. Officials from Ethiopian Sugar Corporation visited Institute on 24-25th April, 2017 and signed a MOU for seeking institute assistance in building a "Sugar Academy", conducting short duration training programme, consultancy on capacity expansion and improvement in technical efficiency of existing plants.



The Ethiopian Sugar Corporation shall also seek institute help in setting up new integrated sugar complexes so as to cope up with their domestic requirements.

➤ **ENTRANCE EXAMINATION:**

Entrance examination for admission to various Post Graduate Diploma & Certificate Courses viz. Sugar Technology, Alcohol Technology Sugar Boiling, Sugar Engineering, Quality Control, Sugarcane Productivity & Maturity Management, Industrial Instrumentation & Process Automation and Sugar Boiling was conducted on 11th June, 2017 at six centers, namely, Kanpur, New Delhi, Patna, Chennai, Kolkata & Pune. Results of all the courses have been declared.



Institute has re-structured & up-graded two courses from the academic session 2017-18 i.e. Diploma in Sugarcane Productivity & Maturity Management and Diploma in Industrial Instrumentation & Process Automation.

➤ **SEMINARS/CONFERENCES:**

1. Two days National Seminar jointly organized by NSI-CSA University of Agril. & Technology on "Integrated approach for enhancing sugarcane & farm productivity by adopting improved cultivation and analytical practices" on 6-7th April, 2017 at NSI, Kanpur. Shri Ashok Kumar, Asstt. Prof. Agriculture Chemistry presented paper on "Site specific nutrient management for maximization of crop yield and sustaining soil health" during the seminar.



2. One day National Workshop of "Reduction in Bagasse Moisture-Technological Options" organized by National Sugar Institute on 17th April, 2017 at NSI Kanpur. The delegates from Tamil Nadu, Maharashtra, Karnataka, Bihar, M.P., Punjab, Haryana, Uttarakhand, Gujarat, Andhra Pradesh, New Delhi and U.P attended the seminar. Shri D. Swain Prof. of Sugar Engineering presented paper on "Moisture Reduction in Bagasse Technological Options" during the seminar. During the seminar comparative study with respect to reduction in steam consumption vs reduction in bagasse moisture was also presented. Various technology providers, KCP Chennai & JPMA, Pune also presented details of their technology for reducing moisture % bagasse during milling.



3. One day National Seminar jointly organized by NSI-JPMA on "Sustainability of Sugar Industry-Management of Resources" on 20th April, 2017 at Pune. Shri Narendra Mohan, Director, NSI, Shri D. Swain Prof. of Sugar Engineering, Dr. A. Bajpai Prof. of Sugar Technology and Shri Vinay Kumar, Asstt. Prof. Sugar Engineering presented papers on "Cane Sugar Industry- Latest Trends for Sustainability" and "Utilization of Existing Electrical Installation to Reduce Breakdown Time and to save Initial Cost in New Installations" during the seminar.



4. Shri Narendra Mohan, Director, National Sugar Institute and Shri Vinay Kumar, Asstt. Prof. Sugar Engineering attended the 6th Technical Seminar organized by U.P. Distillers Association on "Modernization and Improvements in Distillery Industry" on 28th April, 2017 at Noida. Shri Vinay Kumar presented paper on "Zero Spent Discharge RSW Evaporation & Incineration Boiler" during the seminar.



5. Shri Narendra Mohan, Director, National Sugar Institute addressed STAI Seminar as

Guest of honour & delivered lecture on "Comparative Evaluation of Carbonation & Phosphatation process keeping in view Industrial uses of Sugar" during the seminar held on 19th May, 2017 at Gangtok, Sikkim.



6. Director, National Sugar Institute also addressed, interactive Session organized by UPSMA at Lucknow on "Adequacy of ETP to meet CPCB guidelines." He tried to put factual situation before the gathering and efforts required to be carried out by the Sugar industry keeping in view the CPCB/SPCB guidelines. He emphasized upon formulating separate norms for discharge from conventional standalone sugar plants, sugar plants with high pressure co-generation & from sugar refineries.



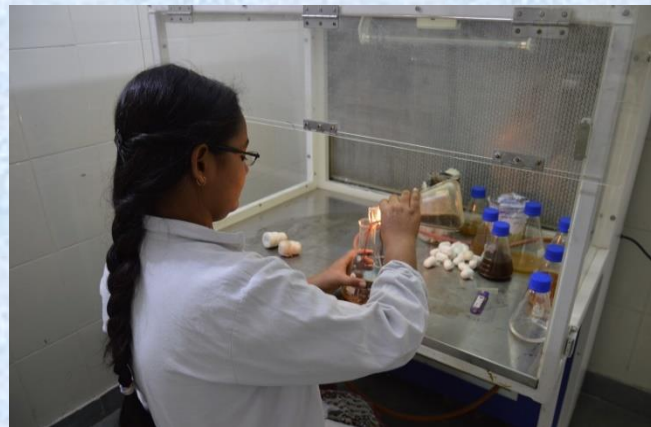
➤ RESEARCH:

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

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

biochemical tests for identification of bacterial strains were carried out with the isolated and purified strains. The tests included catalase production, production of nitrite from nitrate, growth on different sugars, liquefaction of gelatine, starch hydrolysis, indole production, citrate utilization Methyl Red Voges Proskeur test (MRVP) etc. These tests were performed with 0 to 21 days old cultures. The tests for 28 days old strains have also been set for further evaluation.

2. Isolation and purification of yeast strains from saccharine materials and their performance for fermentative production of alcohol- The yeast strain isolated from spoiled sugar cane juice produced best results when diluted molasses was fermented by this strain with a fermentation value of 91.7% and ethanol yield of 218 l/ton. The yeast isolated from rotten grapes also produced good results. The yeasts isolated from other saccharine materials did not give satisfactory performance. Initial work has been completed and thesis prepared by a research scholar.



3. Production of invert syrup from Cane Juice- The study with cane juice has been completed and the analysis for pH, Brix, F:G ratio, acidity, % inversion etc. have been carried out with stored syrup to assess change in quality upon storage. The results showed no major variations in parameters upon storage. Attempts were made to produce invert syrup from sugar beet variety LS-6 juice also but the same were not successful due to darkening of

the extracted juice and problems associated with juice extraction.



4. Studies on clarification of cane juice with bagasse derived biochar- The performance of bio char towards treating sugar cane juice is under investigation.



5. Studies on synthesis of glycosidic surfactants using by-product resources of sugar industry-

i. With aim to enhance the yield of bagasse derived polypentosides based surfactant along with reducing the purification steps involved thereof, following experiments have been performed:

a. Decrystallization of sugarcane bagasse followed its glycosilation.

b. Distillation of decanol under reduced pressure from mother liquor obtained from hydrolysis followed by glycosilation of bagasse derived pentoses.

ii. The communicated paper entitled “Use of sugarcane bagasse as potential renewable feedstock for production of a bio-detergent” has been accepted towards its publications/presentation in 75th STAI Annual Convention and International Sugar Expo 2017 and the preparation of related power point presentation is under process.



6. Improvement in Sugar Quality by clarification of intermediate boiling house products- Experiments were carried out with B & C-Double Cured Sugar melt using different doses of phosphoric acid and hydrogen peroxide. Centrifugation of melt was also carried out to remove suspended impurities & significant removal of colour and turbidity was achieved. Experiments on the samples collected during 2016-17 season have been completed. Compilation & analysis of data collected is in progress. Further plan of work will be decided on the basis of the results of data analysis during the fourth coming crushing season.

7. Settling test at inclined surface- The New inclined surface clarifier for juice settling is under study. The literature survey has been done and a small model for the experiment is under construction for the actual assessment of mud removal & quality parameters of clear juice. Trials on this new design clarifier will be carried out on laboratory scale first.

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

1. **“Site specific nutrient management for maximization of crop yield and sustaining soil health”** by Narendra Mohan & Ashok Kumar presented during all India seminar on “Integrated approach for enhancing sugarcane & farm productivity by adopting improved cultivation and analytical practices”, jointly organized by NSI-CSA Agri. & Technical University on 6-7th April, 2017 at NSI, Kanpur.

2. **“Moisture Reduction in Bagasse Technological Options”** by Narendra Mohan & D. Swain presented during National Workshop on “Reduction in Bagasse Moisture-Technological Options” organized by National Sugar Institute on 17th April, 2017 at NSI Kanpur.

3. **“Utilization of Existing Electrical Installation to Reduce Breakdown Time and to save Initial Cost in New Installations”** by Narendra Mohan & Vinay Kumar and **“Cane Sugar Industry- Latest Trends for Sustainability”** by Narendra Mohan & A. Bajpai presented during the National Seminar jointly organized by NSI-JPMA on “Sustainability of Sugar Industry-Management of Resources” on 20th April, 2017 at Pune.

4. **“Cane Sugar Industry: Latest Trends for a Greener Tomorrow”** by Narendra Mohan & Ashutosh Bajpai published in the proceedings of annual convention of NISSTA held on 12-13th May 2017, at Lucknow.

5. **“Comparative study of Natural & Chemical flocculants on cane juice clarification”** by Narendra Mohan, Dr. (Mrs.) Chitra Yadav & Ashish Kumar Shukla presented during the annual convention of NISSTA held on 12-13 May 2017, at Lucknow.

6. **“Effect of the Potassium, Zine Nutrition on Agronomic and Biochemical Traits of Sweet Sorghum (Sorghum bicolor L.) Genotype on Ethanol Production”** by Narendra Mohan,

Ashok Kumar and Lokesh Babar presented during the annual convention of NISSTA held on 12-13th May 2017, at Lucknow.

7. **“Comparative Evaluation of Carbonation & Phosphatation Process Keeping In View Industrial Uses of Sugar”** by Narendra Mohan presented during the National seminar organized by STAI, New Delhi on 19th May, 2017 at Gangtok, Sikkim.

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

9. **“Sugarcane Juice Utilization: Expeditious Green Synthesis of Graphene”** by Narendra Mohan & Vishnu Prabhakar 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 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.

11. **“Sugar Quality Determination Keeping in view uses of Sugar”** by Narendra Mohan accepted for publication in 63rd Annual Convention of DSTA to be held on 14-15th July at Belgavi, Karnataka.

12. **“Use of Sugarcane Bagasse as Potential Renewable Feedstock for Production of Bio-Detergent”** by Narendra Mohan, Vishnu P. Srivastava & Anushka Agarwal accepted for publication in 75th Annual Convention of STAI to be held on 3-5th August 2017, at Kochi, Kerala.

13. **“Latest Trends in Evaporator cleaning”** by Narendra Mohan & Ashutosh Bajpai accepted for publication in 75th Annual

Convention of STAI to be held on 3-5th August 2017, at Kochi, Kerla.

14. “A Study on Comparative Advantages of Bagasse Moisture Reduction Vs. Reduction of Steam Consumption % Cane” by Narendra Mohan, D. Swain & Anoop Kumar Kanaujia accepted for publication in 75th Annual Convention of STAI to be held on 3-5th August 2017, at Kochi, Kerla.

15. “Comprehensive study of Suchem DT14-Bio-additive for vapor condensate treatment- Post MEE for distillery” by Santosh Kumar, Seema Paroha & Srikanteshwara accepted for publication in 75th Annual Convention of STAI to be held on 3-5 August 2017, at Kochi, Kerla.

16. “Icing Sugar: Forays the Indian Sugar Market” by Jahar Singh & Vivek Pratap Singh sent for publication in Cooperative Sugar.

17. “Condition based Maintenance – A Methodological Approach” by Sanjay Chauhan & D. Swain sent for publication in Indian Sugar.

18. “Waste to Wealth” by Narendra Mohan & D. Swain accepted for publication in STAI to be held on 3-5th August 2017, at Kochi, Kerla.

19. “A Process for Purification of Sugar Factory Condensates and Effluent using Electro-Coagulation Technique” by Dr. (Mrs.) Seema Paroha, accepted for presentation International Congress on Sugar & Sugarcane Derivatives organized from 26 to 30th June, 2017 at La Habana, Cuba.

20. “Sugar Warehouse Automation: Minimize Loss & Maximize Output” by Shri Brajesh Singh, accepted for the presentation during 75th STAI Annual Convention of STAI to be held on 03-05th August 2017, at Kochi, Kerla.

➤ VISIT OF DIGNITARIES:

The following dignitaries visited NSI laboratories and shown their keen interest on the research work relating to production of Bio-CNG from press mud, detergent from bagasse and on treatment of MEE condensate.

1. Shri R C Singhal, Chief Executive Officer, Seksaria Biswan Sugars, Sitapur, U.P. along with other officials.

2. Shri P.P. Mishra, Advisor, R&D DSCL Sugar Ajbapur.

3. Shri D.K. Sharma, Whole Time Director, Avadh Sugar & Energy Ltd. Hargaon, Sitapur, U.P.

4. Shri G.R. Sadhale, General Manager, Saf Yeast Company Pvt. Ltd., Distt-Hardoi.

5. Mrs. Vinita Kumari Poddar, Confederation of Indian Industry, Lucknow.

6. Shri Yogesh Kumar Singh, Unit Head, Haidergarh Chini Mills. Barabanki, U.P.

7. Shri V.K. Sharma, Executive Vice President (P), Avadh Sugar & Energy Ltd., Unit-Seohara, Bijnore, U.P.

8. Shri Alok Shukla, Deputy Director & Head UP State Office, Confederation of Indian Industry.

9. Shri Sanjay Sharma, Vice President, DSM Sugar, Meeranjanj. Bareilly, U. P.



➤ CONSULTANCY:

During April-June, 2017 consultancy services were provided to the following:

1.	M/s Wave Industries Pvt. Ltd., Dhanaura Mandi, Bijnor, U.P.
2.	M/s Upper Ganges Sugar & Industries Ltd., Seohara, Bijnor, U.P.
3.	M/s Wave Industries Pvt. Ltd., unit-Chandpur, Bijnor, U.P.
4.	M/s D.S.8 Subramaniya Siva Cooperative Sugar Mills Ltd., Gopatapuram, T.N.
5.	M/s Simbhaoli Sugars Ltd., Distillery, Unit- Hapur, U.P.
6.	M/s Simbhaoli Sugars Ltd., unit-Brijnathpur, Distillery, Hapur, U.P.
7.	M/s Triveni Engineering & Industries Ltd., Unit-Khatauli, Muzaffarnagar, U.P.
8.	M/s Dalmia Bharat Sugar & Industries Ltd., Unit- Kolhapur, Maharashtra.
9.	M/s Triveni Engineering & Industries Ltd., unit- Sabitgarh, Hapur, U.P.
10.	M/s Wave Industries Pvt. Ltd., Unit-Amroha, J.P. Nagar, U.P.
11.	M/s Wave Industries Pvt. Ltd., Unit-Saharanpur, U.P.
12.	M/s Wave Industries Pvt. Ltd., Unit-Bijnor, U.P.
13.	M/s Wave Industries Pvt. Ltd., Unit-Bulandshar, U.P.
14.	M/s P B S (Foods) Pvt Ltd., Unit-Chandpur, Bijnor, U.P.
15.	M/s Sasamusa Sugar Works Pvt. Ltd. Gopalganj, Bihar
16.	M/s Mylar Sugar Ltd., Gokul Road, Hubli, Karnataka
17.	M/s Dharamapuri District Coop Sugar Mills Ltd. TamilNadu
18.	M/s Panipat Coop Sugar Mills, Panipat,

	Haryana.
19.	M/s Sonipat Coop Sugar Mills, Sonipat, Haryana
20.	M/s Kumbhi Chini Mills Ltd., Unit of BCML, Lakhimpur-Kheri, U.P
21.	M/s Avadh Sugar Energy Ltd., Unit-Seohara, Bijnor, U.P.
22.	M/s Rai Bahadur Narain Singh Sugar Mills Ltd., Laksar, Haridwar, Uttarakhand
23.	M/s Akbarpur Chini Mills Ltd., Unit of BCML, Ambedkar Nagar, U.P.
24.	M/s Gularia Chini Mills Ltd., Unit of BCML, Lakhimpur-Kheri, U.P.
25.	M/s Rauzagaon Chini Mills Ltd., Unit of BCML, Barabanki, U.P.
26.	M/s Haidergarh Chini Mills Ltd., Unit of BCML, Barabanki, U.P.
27.	M/s Dewan Sugar Mills Ltd., Moradabad, U.P.
28.	M/s Rosa Sugar Works, Shahjahanpur, U.P.
29.	M/s Wave Distillery, Aligarh, U.P.
30.	M/s Uttam Sugar Mills Ltd., Unit-Barkatpur, Bijnor, U.P.
31.	M/s Uttam Sugar Mills Ltd., Unit-Libberheri, Roorkee, Uttarakhand.
32.	M/s Harinagar Sugar Mills Ltd., West Champaran, Bihar.
33.	M/s New Swadeshi Sugar Mills Ltd., Narkatiaganj, West Champaran, Bihar.
34.	M/s Parle Biscuits Pvt. Ltd. (Sugar Division), Parsendi, Bahraich, U.P.
35.	M/s Bharat Sugar Mills Ltd., Unit-Sidhaulia, Saran, Bihar.
36.	M/s Dalmia Bharat Sugar Industries Ltd., Unit-Nigohi, U.P.
37.	M/s Avadh Sugar & Energy Ltd., Unit-Hargaon, Sitapur, U.P.
38.	M/s DSCL Sugar, Unit-Loni, Hardoi, U.P.

39.	M/s DSCL Sugar, Unit- Hariawan, Hardoi, U.P.
40.	M/s DSCL Sugar, Unit- Rupapur, Hardoi, U.P.
41.	M/s DSCL Sugar, Unit- Ajbapur, Lakhimpur-Kheri, U.P.
42.	M/s Maizapur Chini Mills Ltd., Unit of BCML, Gonda, U.P.
43.	M/s Dwarikesh Sugar Industries Ltd., Bijnor, U.P.
44.	M/s Avadh Sugar & Energy Ltd., Unit-Hata, Kushinagar, U.P.



A “Nukkad Natak” was also organized on this occasion to create awareness about importance of personal hygiene & its affect on human health.

➤ SWACHHTA PAKHWADA:

Swachhta Pakhwada was observed from 16th to 31th May 2017 at the Institute, as per schedule. Various activities like tree plantation, cleaning activities in & around surroundings, inspiring the primary school students about the importance of cleaning, conducting a drawing competition on Swachhta in a nearby primary school were carried out. An essay/Poem competition and Blood Donation Camp was also organized at the institute.



➤ हिंदी कार्यशाला :

सरकारी कामकाज में हिंदी का अधिक से अधिक प्रयोग कर राजभाषा विभाग के निर्देशों का पालन करने के उद्देश्य से दि. 15.06.2017 को संस्थान के सेमीनार हॉल में हिंदी कार्यशाला का आयोजन किया गया, जिसमें संस्थान के 37 अधिकारियों एवं कर्मचारियों ने भाग लिया।



50TH ADVISORY BOARD MEETING:

50th Advisory Board Meeting of the Institute was held on 16th June, 2017 under the Chairmanship of Joint Secretary (Sugar & Administration), Government of India. The board while expressing satisfaction on the working of the institute, stressed for undertaking more collaborative research projects for developing technologies for value addition through better by-product utilization. He called upon the staff of the institute to work on developing cost effective technologies for improving farm & factory productivities after validation & taking almost care in transfer of such technologies from “Lab to Land”. He also visited various laboratories, classrooms, factory, farm and hostels taking keen interest in the present activities of the institute.



➤ INTERNATIONAL YOGA DAY



Institute celebrated International Yoga Day on 21st June, 2017. On the occasion, faculty, staff and students participated in Yoga programme organized at the Institute.