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Efficient use of sugarcane bioenergy for sustainability of Indian sugar industry

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Although India is regaining its number 2 position as far as sugar production is concerned and during the current crushing season has already produced a little above 30 MMT of sugar from sugarcane, sustainability of the sugar factories has always remained a matter of concern. In last three years, the variation in sugar production has been from about 20.2 MMT to 30 MMT (almost 50%). Such up and down of the sugar production is cyclic in nature distorting the demand-supply equilibrium and at times the downfall in the sugar prices adversely affect the profitability of the sugar factories to such an extent that it becomes impossible for them to make sugarcane price payment. To circumvent the situation to some extent through value addition and to address environmental issues as well, bagasse based cogeneration has gained favor in India. For current production of about 30 MMT of sugar, about 280 MMT of sugar cane is expected to be crushed by the sugar factories. Only about 60% (the stalk) of sugarcane plant is supplied to the factory and balance 40% (the SPR; sugarcane plant residue) remains in the field itself. This 40% on dry mass has considerable amount of bio-energy which is not being used properly and in fact, wasted by way of burning in the fields which also pollutes the atmosphere as indicated by high suspended particulate matter (SPM) values. While efforts are being made for returning 50% of the biomass (SPR), through trash mulching to improve soil fertility and conserve moisture, the remaining 50% of this biomass can be utilized efficiently for production of bioelectricity in the existing cogeneration units along with the bagasse for adding value to the system and providing clean and green form of renewable energy in place of fossil fuel based power generation.

Recent Publications

1. Waste to Resource Published in Proceeding of '75th Annual Convention of Sugar Technologists' Association of India, 2016.
2. Green Energy for the Indian Sugar Industry: a Sustainable Energy Future" published in the proceedings of 'IAPSIT 2018' held at Udan Thoni, Thailand.
3. Biomass Energy; a Step Towards Economic and Environmental Sustainability in India" published in proceedings of 'International Congress on Sugar and Sugarcane Derivatives- Diversification 2017', held at La Habana, Cuba.
4. Role of bagasse drying in controlling Uttar Pradesh Power Crisis" Published in 'Akshaya Urja', August 2015, a publication from Govt. of India, Ministry of New and Renewable Energy.
5. Diversification for Sustainability of the Sugar Industry" presented during the '23rd Asia International Conference' held in November, 2017 at Jakarta, Indonesia.

Biography

Narendra Mohan, after completing his Post-graduation in Sugar Technology carried out his studies further for award of Fellowship of National Sugar Institute. He has a long and distinguished career of working in sugar industry and at the institute. As Director of National Sugar Institute, Kanpur he has carried out exemplary work in bringing a radical change in the academic, research and consultancy activities of the institute and making its presence felt globally. Besides being an excellent, popular and inspiring teacher, he has been a research worker par excellence who has published more than 75 papers in various international and national journals. His passion for innovative work to covert waste to resource resulted in development of many cost effective and environment friendly technologies. He has been conferred with many prestigious awards including Excellence in Science by Hon'ble President of India.

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