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**Editor
Prof. Ashish Nayyar**



**Swami Keshvanand Institute of Technology,
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Table of Contents

SCOPE OF RENEWABLE ENERGY UTILIZATION IN INDIA	1
SCENARIO OF COOLING SYSTEMS POWERED BY SOLAR ENERGY IN INDIA	6
SPEED CONTROL OF DC MOTOR USING ANDROID APPLICATION AND RF	12
SOLAR ENERGY DEVELOPMENT, TRENDS AND INITIATIVES IN CONTEXT OF INDIAN AND RAJASTHAN STATE GOVERNMENT	17
INVENTORY MANAGEMENT OF RESIDENTIAL SOLAR PANELS	26
ZNO/MGO/ITO STRUCTURED SOLAR CELL FOR ULTRAVIOLET PHOTO DETECTOR APPLICATION	33
ELECTRICAL CHARACTERISTICS OF CDS/CDTE BASED INORGANIC SOLAR CELLS: EFFECT OF CDS LAYER THICKNESS	39
A REVIEW ON PERFORMANCE ENHANCEMENT METHODS FOR SOLAR STILLS	44
NEW PROSPECT AND HORIZON FOR RENEWABLE ENERGY IN INDIA	52
INVESTIGATION OF THE EFFECTS OF TERNARY DIESEL-ADDITIVES BLENDS ON VCR DIESEL ENGINE	60
COMPARISON OF MECHANICAL BEHAVIOUR OF PP COMPOSITES FABRICATED BY PLASTIC INJECTION MOULDING	65
DESIGN AND SIMULATION OF 3D PRINTED HOVERCRAFT AS A RESUPPLY VEHICLE WITH CFD	71
ELECTRIC POWER GENERATION USING HYBRID SYSTEM-A REVIEW PAPER	80
WIRELESS POWER TRANSMISSION	87
ANAEROBIC CO DIGESTION OF FOOD WASTE: A REVIEW ON SUSTAINABLE APPROACH FOR FOOD WASTE MANAGEMENT AND PRODUCTION OF BIOENERGY	97
FABRICATION AND TESTING OF BANANA FIBRE REINFORCEMENT POLYMER COMPOSITES	103
SELECTION OF OPTIMUM PARAMETERS FOR ELECTRO-CHEMICAL MACHINING (ECM) USING GENETIC ALGORITHM	116
CONVERSION OF PLASTIC WASTE TO FUEL BY PYROLYSIS: A REVIEW	121

ANAEROBIC CO DIGESTION OF FOOD WASTE A REVIEW ON SUSTAINABLE APPROACH FOR FOOD WASTE MANAGEMENT AND PRODUCTION OF BIOENERGY

Poonam Ojha

Department of Chemistry, Swami Keshvanand Institute of Technology,
Management and Gramothan Jaipur-302017 (India)

Corresponding Author Email: pnmojha@gmail.com

Abstract

As the world population is increasing a critical problem of food wastage and its accumulation is also increasing. The exponential growth in food waste results in various issues like environmental pollution, health risk, and scarcity of dumping land. Today world has focused much towards energy efficiency, use of renewable resources of energy and controlling environmental pollution. So, we are developing new economical opportunities for disposal and degradation of organic waste material. In this context anaerobic digestion of solid organic waste for production of biogas gas gives a biochemical process of developing renewable sources of energy. Further Anaerobic Codigestion process results in improvement of yield of biogas. In general, solid waste management focuses only on disposal options instead of harnessing waste for recovering energy, so the use of anaerobic codigestion method of treatment municipal organic waste is a sustainable method of generating renewable energy and in this manner, it also helps the society in overcoming a big issue of managing the solid waste and thus reduces environmental pollution.

INTRODUCTION

Food systems are intense sources of energy. But no energy is recovered from food waste besides this, the bulk solid waste that is disposed in landfills and allowed to decompose in uncontrolled manner. This gives a huge amount of greenhouse gases like methane to atmosphere. Waste with high water content and high nutritional value is perfect if digested through anaerobic method of digestion, however fruits and vegetable waste are easily biodegradable on its own(1).

When two or more organic wastes are digested together, it is known as Co-digestion or concurrent treatment of a mixture of various organic biodegradable wastes. This method gives excellent process for correct disposal and treatment of municipal solid waste. Conventionally anaerobic digestion was carried out using single substrate. Commonly it is used for digestion of domestic sludge, but now by addition of co substrates it not only gives synergistic effect to digestion medium but also has increased the yield of biogas (2).

The process of digestion is carried out with wide varieties of anaerobic operations. It is clear from literature that varieties of wastes are treated in same digester where municipal sewage sludge is digested. Organic parts of municipal solid waste commonly known as OFMS that can be drawn from landfills in the form of leachate are administered successfully. And this disposal of OFMSWs by means of anaerobic codigestion is found to be best possible treatment of such type of ways and it is carried out in many countries. Among food processing waste, vegetable wastes, agriculture and plant wastes are found to be highly biodegradable and can be used for degradation via anaerobic co-digestion system. They have high percentage of readily biodegradable COD that improves the performance of anaerobic system (3).

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Renewable energy and sustainable development are the key technologies to offer solutions to the ever-increasing environmental pollutions and depleting conventional fuel reserves. With an aim to discuss the state of art technologies pertaining to the renewable energy domain, RTU (ATU) TEQIP III Sponsored 3rd International Conference on New and Renewable Energy Resources for Sustainable Future (ICONRER-2021) was organized by the Department of Mechanical Engineering, Swami Keshvanand Institute of Technology, Management and Gramothan, Jaipur in collaboration with Rajasthan Technical University and Department of Mechanical Engineering, Assiut University, Assiut (Egypt) from February 11 to 13, 2021. ICONRER is a series of the conference started in 2017 and it was 3rd event of that series.



Swami Keshvanand Institute of Technology, Management & Gramothan

Ramnagar, Jagatpura, Jaipur-302017, Rajasthan

Tel. : +91-0141- 3500300, 5160400, 2759609, 2752165 & 2752167 | Fax: +91-0141-2759555

Website: www.skit.ac.in | E-mail: info@skit.ac.in

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