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The Complete Book on Biological Waste Treatment and their Utilization

Code	NI251
Format	paperback
Indian Price	₹1675
US Price	\$150
Pages	504
ISBN	9789381039236
Publisher	NIIR PROJECT CONSULTANCY SERVICES

Description

The organic waste stream is composed of waste of a biological origin such as paper and cardboard, food, green and garden waste, animal waste and biosolids and sludges. Organic waste is usually generated as a component of most waste streams. For information on the treatments for managing organic wastes click on the links to the right. Four significant components of this organic, biodegradable stream are from food preparation, agricultural production, livestock manures, and municipal sewage sludge. Organic waste from food sources includes vegetables, fruits, grains, meats, fish, dairy products, etc., and constitutes some 18% of the typical municipal organic waste stream. An average of 1 kg per person per day of organic waste is produced, originating from households, wholesalers & processors, restaurants, and institutions. Urban centers are the major generators of organic food waste. Agricultural waste includes waste made up of those materials such as manure and animal output, in either solid or liquid form from poultry or other livestock operations. It also includes harvest remains from grain, oilseed, vegetable, and orchard crops. Increase in biological waste has led to the increase in biological waste management technology. Waste management is the collection, transport, processing or disposal, managing and monitoring of waste materials.

The book includes organic waste for biological treatment, organic waste forms and treatment strategies, transformation of liquid manure into a solid, modeling of agricultural waste treatments, utilization of Indian waste in livestock feeds etc. This book also explains the different types of organic wastes like waste from tomato, jute, cotton, agro-industries, dehydration process of onion, piggeries, poultry, milk parlour etc. This book describes the methods how organic waste can be converted into useful products like oxalic acid, oxytetracycline, humic acids etc. The book is highly recommended to new entrepreneurs, existing units who wants to get more information of organic waste treatment.

Content

1. Organic Waste for Biological Treatment

Introduction, Physiological basis for Hazardous Organic Compound Degradation, Anaerobic Versus Aerobic Transformations, Examples of Hazardous Waste Amenable to Biological Treatment, Petroleum Components, Beta Oxidation, Aromatic Hydrocarbons, Halogenated Compounds, Halogenated Alkanes and Alkanoic Acids, Halogenated Aromatic and Polycyclic Aromatic Compounds, Biodegradation by Mixed Populations, Conclusions

2. Organic Waste Forms and Treatment Strategies

Overview Of Biological Remediation And Waste Treatment Processes, In Situ Treatment, Bioreactor Designs, Examples of Biological Treatment Processes, Treatment of Liquid Wastes, In Situ Treatment for the Remediation of Surface and

Groundwater, Bioreactor Treatment of Contaminated Water, Treatment of Solids, In Situ Treatment for the Remediation of Contaminated Soils, Soil Composting and Land Treatment, Bioreactors for the Treatment of Solids, Treatment of Gases, A Summary

3. Transformation of Liquid Manure into a Solid

Possible Processes for Manufacturing Solids from Wet Manure, Methodology of the Selected Process and Design of Plant, Tests of the Plant, Producing the mixture for composting, Producing the pellets, Composting, Drying, Qualities of the Product, Mechanical stability, Odour, Pathogen destruction, Fertiliser, Evaluation of the Process

4. Tomato Waste Water Treatment

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5. Oxalic Acid From Jute Stick

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6. Digestion of Cotton Processing Waste

Methods , Substrate, Analytical methods, Batch fermentation, Bench-scale studies, Experimental plant studies, Gas analysis, Results and Discussion

7. Properties of Sorghum Stalk

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8. Fermentation of Fish Waste

Methods, Fish, Sample preparation, Inoculum, Analytical methods, Microbiological examination, Statistical analysis, Experiment 1 , Experiment 2, Experiment 3, Experiment 4, Experiment 5, Results and Discussion

9. Agro-Industrial Wastes

Methods, Results and Discussion

10. Bioconversion of Pretreated Wheat Straw and Sunflower Stalks to Ethanol

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11. Modelling of Agricultural Waste Treatments

Chemical Reactor Theory, Microbial Kinetics, Model Implementation, Extension of the Previous Model to Digestion

12. Utilization of Waste of Dehydrated Onion

Methods, Isolation of Yeasts, Maintenance of strains, Preparation of onion juice from waste products of the dehydrated onion industry , Fermentation media, Tests of C and

N sources, etc., Onion juice media, Analytical methods, Results and Discussion, Production of fodder yeast in a laboratory medium, Production of fodder yeast in an onion juice medium

13. Palm Oil Mill Effluent Disposal on Land

Methods and Results, Infiltration tests, Small-scale trials of the general effects of application of sludge (POMS) to land Trial1, Application to give Specific Benefits to Land, Mulching effect (Trial 3), Restoring rintailings (Trial 4), Commercially Practical Methods and Optimum Input Rates for Application to Oil Palms, Preliminary trials, Long-term experiments (Trial 7), Discussion

14. Studies on Beef-Cattle Manure Slurry

Model Development, Materials, Methods , Measurement of rheological properties, Apparatus and procedure, Results and Discussion, Temperature and total solids effect on limiting viscosity, η_0 , Temperature and TS effect on K'' , Summary and Conclusions

15. Meat Meal and Algae for Calves

Methods , Results and Discussion, Performance of calves, Nutritive value of the ration

16. Manures and Sewage Sludges for Algal Growth

Materials and Methods, Collection and treatment of samples of sludge and manure, Analysis of the wastes, Preparation of media for cultivation of algae, Analysis of properties of waste extracts, Cultivation of algae in various media, Analysis of properties of waste-grown algae, Results, Properties of the wastes, Properties of the waste extracts, Growth rates of algae in various waste extracts, Oven-dried weight of harvested algae, Chlorophyll content of harvested algae, Heavy metal content of harvested algae, Discussion

17. Management and Treatment of Wastes from Large Piggeries

Typical Production Plant Layout and Sewerage, Wastewater Characteristics, Agricultural Applicability of Wastewaters, Wastewater Treatment for Stream Disposal, Efficiency of Wastewater Treatment, Primary treatment, Secondary treatment, Tertiary treatment, Economics of Treatment and Conclusions

18. Tower Digestion of Pig Waste

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19. Nutritive Value of Poultry Waste

Methods, Results and Discussion

20. Digestion of Rabbit and Pig Waste

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21. Chemical Composition of Palm Oil Mill Effluent

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22. Humic Substances from Composed Barks

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23. Humic Substances From Decomposing Bark

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24. Particle Size and Tomato Waste Digestion

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25. Humic Acids on Hydrolysis of Potato Protein

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27. Production of Oxytetracycline

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28. Use of Manure in Fish Farming

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31. Utilization of Indian Wastes in Livestock Feeds

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32. Methane from Cattle Waste

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Results, Discussion , Methane yield, Temperature effect

33. Treatment of Milking Parlour Wastewater

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34. Indicators of Pig Slurry Odours

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35. Pig Liquid Manure

Materials and Methods, Results, Discussion

36. UASB Treatment of Wastes

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37. Digestion of Poultry Litter

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38. Beef-Cattle Manure Slurries

Material, Methods, Apparatus, Computational procedure, Modified Reynolds Number, Results, Comparing capillary and rotational viscometer results, The $f=NRe$ correlation for cattle manure slurries, Summary and Conclusions,

About Niir

NIIR Project Consultancy Services (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. Its various services are: Pre-feasibility study, New Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Preparation of Project Profiles and Pre-Investment and Pre-Feasibility Studies, Market Surveys and Studies, Preparation of Techno-Economic Feasibility Reports, Identification and Selection of Plant and Machinery, Manufacturing Process and/or Equipment required, General Guidance, Technical and Commercial Counseling for setting up new industrial projects and industry. NPCS also publishes various technology books, directories, databases,

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