LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul (Artikel)	:	Numerical Solution of Distribution Model 2-D of Concentration on Chemical Oxygen Demand in Waste Stabilization Ponds. Penulis : **Sunarsih**, Farikhin, Anies, Henna Rya			
Jumlah Penulis	:	4 orang			
Status Pengusul	:	Penulis pertama/~~penulis ketiga~~/~~penulis korespondensi~~			
Identitas Jurnal Ilmiah	:	a.	Nama Prosiding	:	Advanced Science Letters Akses
		b.	Nomor ISSN/ISBN	:	19366612, 19367317
		c.	Volume,nomor, bulan tahun	:	Volume 23, Number 3 pp. 2273-2276(4), March 2017
		d.	Penerbit	:	American Scientific Publishers
		e.	DOI artikel (jika ada)	:	https://doi.org/10.1166/asl.2017.8721
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Nilai Pengusul = 60%*.....-	8.33	8,4	8,36

Semarang, 24-9-2018

Reviewer II

Prof. Dr. Edy Soewono
NIP. 195206261980031003
Unit kerja : FMIPA ITB

Reviewer I

Prof. Dr. Widowati, M.Si.
NIP. 196902141994032002
Unit Kerja FSM Undip

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Semarang, 14-8-2018

Reviewer I

Prof. Dr. Widowati, MSi
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Unit kerja : Departemen Matematika , FSM UNDIP

LEMBAR
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d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	6,00			4,67
Total = (100%)	20,00			14
Nilai Pengusul = 60%*14 =8,4				

Catatan penilaian artikel oleh Reviewer:

Topik kajian sesuai dengan judul artikel, makalah mengkaji model distribusi COD pada aliran WWTP.
Solusi numerik diperoleh melalui metoda finite difference.
Kebaruan ditunjukkan pada aplikasi masalah real di Sewon Bantul.
Makalah terbit di journal International yang terindeks di Scopus.

Bandung, 31/5 2018
Reviewer II

Prof. Dr. Edy Soewono
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Advanced Science Letters
Volume 23, Issue 3, March 2017, Pages 2273-2276

Numerical solution of distribution model 2-D of concentration on chemical oxygen demand in waste stabilization ponds (Article)

Sunarsih [a,b], Farikhin[a,b], Rya, H.[b], Anies[b]

[a] Department of Mathematics, Faculty of Science and Mathematics, Diponegoro University, Semarang, 50275, Indonesia
[b] Diponegoro University, Semarang, 50241, Indonesia

Abstract

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This paper presents solution of Chemical Oxygen Demand (COD) concentration distribution model on the surface waste stabilization ponds based on the advection-diffusion mechanism. This model is represented in second-order partial differential equations. The purpose of this paper is investigate the COD distribution design in waste stabilization ponds using field data obtained. Collection of field data was carried out in the Waste Water Treatment Plant (WWTP) Sewon, Bantul. Numerical method used for solution this model is finite difference method with Dufort Frankel scheme. The initial step in this method is process discretization by the finite difference schemes are used. The discrete equation will be substituted into the partial differential equations. Furthermore, the calculation will be completed with the help of MATLAB program. The results show that there was a mass transfer of pollutants each time followed by an increase and decrease in mass. This shows that there is a advection and diffusion process in waste stabilization ponds.

SciVal Topic Prominence

Topic: Calcium Signaling | Calcium | Calcium oscillation

Prominence percentile: 77.347

Author keywords

Advection-Diffusion | Dufort Frankel | Finite Difference | Waste Stabilization Ponds

ISSN: 19366612
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- Registration Payment Deadline : July 10, 2016
- Conference Day : October 11- 12, 2016

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RESEARCH ARTICLE

Advanced Science Letters
Vol. 23, 2336–2339, 2017

Analysis of Management System of Solid Waste: Cases Study at Hasanuddin University-Campus

Amar Sharaf Eldin Khair Timan[1,*], DidiRukmana[2], and NurjannahNurdin[3]

[1]*Department of Geography, Omdurman Islamic University, Republic of Sudan*
[2]*Department of Agribusiness, Faculty of Agriculture, Hasanuddin University, Indonesia*
[3]*Department of Marine Science and Fisheries Hasanuddin University, Indonesia*

Solid waste is becoming a global problem and causing a major challenge in the world today. The study aims to assist in creating clean University environment condition and to clarify the seriousness in managing of solid waste due to solid waste caused some negative effect on the environment which may result in the occurrence of some environmental problems if proper management is not implemented. The study used some methods and approaches which includes SPSS to display the data, further observation, GPS and GIS to obtain different maps. The result reveals that in the area of study there are large amount of solid waste including inorganic, organic and hazardous solid waste. In the system of waste transportation, it is indicated that there is an incompatibility between the daily production of solid waste and the transport capacity. The daily production of solid waste is 23.67 Kg/day while the capacity is 14,800.15 Kg. the capacity of waste disposal is big to accommodate the daily production of solid waste.

Keywords: Solid Waste, Management System, University.

1. INTRODUCTION

Solid waste is unwanted or the useless solid materials generated from combined residential, industrial and commercial activities in a given area. It may be categorized according to its origin (domestic, industrial, commercial, construction or institutional) according to its contents (organic material, glass, metal, plastic paper etc.).[1]

Management of solid waste (MSW) can reduces or eliminates adverse impacts on the environment and human health and supports economic development and improved quality of life. A number of processes are involved in effectively managing waste for a municipality. These include monitoring, collection, transport, processing, recycling and disposal.[2]

Solid-waste management is a major challenge in urban areas throughout the world. Without an effective and efficient solid-waste management program, the waste generated from various human activities, both industrial and domestic, can result in health hazards and have a negative impact on the environment. Understanding the waste generated, the availability of resources, and the environmental conditions of a particular society are important to developing an appropriate waste-management system.[3]

Management of solid waste (MSW) can reduces or eliminates adverse impacts on the environment and human health and supports economic development and improved quality of life. A number of processes are involved in effectively managing waste for a municipality. These include monitoring, collection, transport, processing, recycling and disposal.[4]

There are considerable number of reasons for the selection of this topic and choosing Hasanuddin University. With regard to selection of the topic it has been seen that solid waste management is becoming a global problem and causing a major challenge in the world today. The collection of solid waste is one of the problems faced by the population and the environment contributed through the increase of the population that leads to accumulation of solid waste quantities.

Hasanuddin University (UNHAS) is being chosen to carry out the research because the University is the being seen as the World-class University and the largest in Eastern Indonesia. Also the University is committed to become evergreen in Indonesia in terms of reducing carbon emission with 26% by 2020. According to these reasons, Hasanuddin University would have no solid waste in its environments and would have good solid waste management systems.

The main purpose of the study assist to make the university environment clean (create clean environment conditions), through analysis the system of management and clarifying the seriousness of solid waste.

*Author to whom correspondence should be addressed.

 1936-6612/2017/23/2336/004 doi:10.1166/asl.2017.8756

RESEARCH ARTICLE

Advanced Science Letters
Vol. 23, 2367–2369, 2017

Technical and Economic Analysis of Organic Rankine Cycle System Using Low-Temperature Source to Generate Electricity in Ship

Akram Faisal[1,2,*], Taufik Fajar Nugroho[1], and Wolfgang Busse[2]

[1]*Department of Marine Engineering, Institut Teknologi Sepuluh Nopember, Surabaya 60111, Indonesia*
[2]*Department of Maritime Studies, Hochschule Wismar, Wismar 23966, Germany*

Increasing requirements on the economic efficiency and environmental compliance of sea transportation are drawing a larger attention on emission, energy efficiency and fuel consumption of seagoing ships. Waste Heat Recovery (WHR) is one of the solutions to meet these requirements. WHR systems utilizing high temperature sources such as exhaust gas boilers are state of the art and installation in cooling water system is not yet utilized for WHR. One opportunity is the installation of an Organic Rankine Cycle (ORC) system to recover the low-temperature waste heat emitted by the ship machinery plant. The authors have analysed the technical and economic feasibility of an ORC installation in the jacket cooling water system of a 7900 kW main engine on a container ship. The system uses R-134a as refrigerant and consists of four main components. Fuel saving potentials and necessary investment costs have been contrasted in order to determine the return on investment. Objective was to quantify the amount of electrical power which can be generated at typical loads of the main engine. The results show that the ORC system would provide an average electrical power of 57,69 kW in the load range 77,5–100% of the main engine. The investment costs would return over a period of 10 years.

Keywords: Break-Even Point, Economic Analysis, Organic Rankine Cycle, Waste Heat Recovery, Jacket Water Cooling System.

1. INTRODUCTION

Sea transportation is playing a dominant role in world trade. The number and the size of seagoing ships is continuously growing.[1] In line with this development, the installed machinery power onboard ships are ever further increasing, which is raising the importance of fuel saving, energy management and emission control measures. It certainly triggered other related issues concerning the environment that was caused by the emission of ships exhaust gas. IMO (International Maritime Organization) has estimated exhaust emission from ship formed in greenhouse gases (GHG) CO_2 that by 2050 would be reaching 2800 Mt compared to 2015 which only 700 Mt, if there was no treatment to reduce this emissions.[2] IMO has introduced regulations aiming at the reduction of greenhouse gasses, mainly CO_2 and improve the energy efficiency of shipping. One way to improve efficiency onboard ship is the installation of Waste Heat Recovery (WHR) system. While WHR systems for high-temperature heat recovery such as exhaust gas heat utilization are already in place, low attention is paid so far for the utilization of low-temperature waste heat, for example heat from ship machinery cooling systems. The Organic Rankine Cycle (ORC) provides the technical opportunity to recover such heat potentials, which can be used to generate electrical power, thus saving fuel and reducing exhaust gas emissions from diesel generators. The authors have analysed the technical and economic feasibility of an ORC installation in the jacket cooling water system of a 7900 kW main engine on a container ship. The system uses R-134a as refrigerant and consists of evaporator, condenser, pump and steam turbine to generate the electricity.[3] However, the installation of ORC systems in ship machinery plants has technical, operational and financial consequences which have to be duly considered. Objective was to quantify the amount of electrical power which can be generated at typical loads of the main engine, fuel saving potentials and necessary investment costs have been analysed to determine the return on investment.

2. RESEARCH METHOD

Starting with identifying the problem come out with literature study from the previous research and fundamental theories from book, journal, internet and thesis. Collecting the data of engine log book and cooling system drawing from the ship is crucial. After the data has been collected, finding out the important parameters is necessary to do. The ORC system is ready to be

*Author to whom correspondence should be addressed.

Handling and Using Waste Cabbage as Feed Additive on Pellet of Calf Starter and It's Effect to Microbiology Quality

Authors: Mukodiningsih, S[1]; Achmadi, J[1]; Wahyono, F[1]; Utama, C. S[1]; Putri, O. N[1]; Solikhah, S. S[1]; Ohh, S. J[2]
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Waste cabbage is by product of cabbage's outer shells that have been sorted with number about 5–10% wet basis from produce of cabbage. Therefore, if the waste cabbage is not handled optimally, it can cause environmental pollution. Waste cabbage naturally content L*actobacillus sp.* The fermentation is one method that can increase number of L*actobacillus sp* in the waste cabbage. L*actobacillus sp* is a probiotic bacterium as lactic acid bacteria that can suppress gram negative bacteria populations and it can replace antibiotics. On the other hand, the reticulo-rumen completely develops both physically and metabolically a birth, which is optimal in 2–6 weeks age. Feeding calf starter (CS) after birth can promote rumen development. However, young calves tend to easily diarrhea caused by *Escherichia coli* from environment and cause death. Giving antibiotic can suppress *Escherichia coli*, but it has negative effect. For this, the aim of this research was to examine microbiology quality pellets calf starter that added fermented waste cabbage (FWC). The research used completely randomized design with 4 treatments and 5 replications (T0: 100% calf starter+0% FWC, T1: 100% calf starter+2% FWC, T2: 100% calf starter+4% FFWC, T3: 100% calf starter+6% FWC). The materials of calf starter were corn, soybean meal, rice bran, molasses, mineral mix and materials in fermented waste cabbage were cabbage waste, sugar and salt. The parameters measured were total bacteria and lactic acid bacteria. The data were analyzed with descriptive analyze. The results showed that the more addition of fermented waste cabbage, the higher the count of total bacteria and lactic acid bacteria (T0: 0.33×10^6 cfu/g; T1: 0.6×10^6 cfu/g; T2: 0.63×10^6 cfu/g; T3: 0.8×10^7 cfu/g).

Keywords: Calf Starter; Fermented Waste Cabbage; Total Bacteria and Lactic Acid Bacteria

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