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

Judul (Artikel)	:	Numerical Solution of 2-D Pollutant Distribution Model Based on Advection-Diffusion Mechanism in Waste Stabilization Ponds. Penulis : Gitta Agnes Putri, **Sunarsih,** Susilo Haryanto			
Jumlah Penulis	:	3 orang			
Status Pengusul	:	~~Penulis pertama~~/penulis kedua/~~penulis korespondensi~~			
Identitas Jurnal Ilmiah	:	a.	Nama Prosiding	:	Advanced Science Letters
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		c.	Volume,nomor, bulan tahun	:	Volume 23, Number 7 pp. 6541-6544 (4). July 2017
		d.	Penerbit	:	American Scientific Publishers
		e.	DOI artikel (jika ada)	:	https://doi.org/10.1166/asl.2017.9677.
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Semarang, 14-9-2018

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Diskusi tidak membandingkan hasil-hasil terdahulu di referensi, metodologi cukup baik.
Kualitas penerbit kurang. Terdapat 3 referensi kedaluwarsa (lebih dari 10 terakhir) dari 10 referensi yang digunakan.

Semarang, 14-8-2018

Reviewer I

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Total = (100%)	20,00			14
Nilai Pengusul = 40%X1/2X 14=2,8				

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Advanced Science Letters
Volume 23, Issue 7, July 2017, Pages 6541-6544

Numerical solution of 2-D pollutant distribution model based on advection-diffusion mechanism in waste stabilization ponds (Article)

Putri, G.A., Sunarsih, Hariyanto, S.

Department of Mathematics, Faculty of Science and Mathematics, Diponegoro University, Semarang, 50275, Indonesia

Abstract

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This paper presents solution of Biochemical Oxygen Demand (BOD) concentration distribution model in waste stabilization ponds on the surface (2-D) based on the advection-diffusion mechanism of some cases. This model is represented in second-order partial differential equations. The purpose of this paper is investigate the BOD distribution design in waste stabilization ponds of some cases. One of the numerical methods that can be used to solve the model in the form of partial differential equations are finite difference method. Finite difference method consists of several schemes. The scheme is expected to provide good results is a Forward Time Central Space scheme. The initial step in this method is the process of discretization using finite difference forward to derivative of time and finite difference central to derivative of space. The discrete equation will be substituted into the partial differential equations. The results show that a decrease in the concentration of BOD every time caused by the movement of pollutants (advection and diffusion). It can be seen from the numerical simulation of all cases. © 2017 American Scientific Publishers All rights reserved.

SciVal Topic Prominence

Topic: Biochemical oxygen demand | Water quality | Dissolved oxygen

Prominence percentile: 69.885

Author keywords

Advection-diffusion | Biochemical oxygen demand | Finite difference | Forward time central space | Waste stabilization ponds

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RESEARCH ARTICLE

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Advanced Science Letters
Vol. 23, 6428–6431, 2017

Contribution of Economic Sector and Agricultural Development to Support Food Security in North Sumatra Province

Fahmi W. Kifli[1,*] and Arif Umami[2]

[1]*Departement of Agribusiness, Faculty of Agriculture INSTIPER, Yogyakarta, Indonesia*
[2]*Departement of Agrotechnology, Faculty of Agriculture INSTIPER, Yogyakarta, Indonesia*

The agricultural sector has a huge potential considering Indonesia as an agricultural country. In addition, Indonesia has abundant natural and human resources. Therefore, it needs to get support and be given serious consideration. The agricultural sector has a role and contribution in national development as a provider of employment, food producers, foreign exchange, provider of raw materials for the industrial sector, provider of employment and a safety valve during the economic crisis. Over time, the dynamics of Indonesian governance gave autonomy (decentralization) to regions. This study aimed to assess the pattern and structure of regional economic growth in North Sumatra by comparing between economic growth rate and regional income per economic sector with growth rate and national income. Klassen Typology analysis was used to identify the development of the regional economy by their pattern and structure of economic growth in North Sumatra. Results of these studies explained characteristics of North Sumatra province's growth as a basis to describe the structure and growth pattern of each economic sector by using the data of Gross Regional Domestic Product (GRDP) of North Sumatra province and Gross Domestic Product (GDP) of Indonesia from 1999 to 2014 at 2000 Constant Basic Prices (CBP2000). Based on Klassen Typology Analysis showed that the average percentage of GRDP growth in the agricultural sector in North Sumatra province was higher than average percentage of GDP agricultural growth at national level. This research found also that average contribution of the agricultural sector in North Sumatra province was higher than the average contribution of the agricultural sector at National level. It showed that the agricultural sector in the advanced category and is growing rapidly.

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Keywords: GDP, GRDP, Klassen Typology, Economic Sectors.

1. INTRODUCTION

Discussing agricultural sector will always be attractive and relevant, theoretically and empirically. Australia agricultural sector has played an important role for nation states such as America, Japan. Furthermore, agriculture still becomes the most important part of those developed countries in terms of economic development. It is mirrored in several policies in which they do protection toward the agricultural sector, so it is still desirable for stakeholders.

Agricultural sector played important role in the development of nation-state, include in Indonesia. It plays a significant role as a safety valve when economic crisis happened in 1997–1998. At that time, the agricultural sector was the only one sector which still existed (although it was retarded) than other sectors. Again, the developed countries, America, Japan, and Australia had their development by the development of agricultural sector first. It also rises up through agricultural mechanization in Japan. Besides, that country implemented the conducive policy for the agricultural sector, such as acquired producers to increase their productivity and develop infrastructure in villages and also their industrial sector.

Economists[3, 9, 11] stated how important and strategic the agricultural sector in economic development, for instance, it can labor market for the industrial sectors, food producers, potential market for industrial sector output, nation income, material producers, and employment. These roles still cannot be substituted by other sectors.[13] The national economic development had begun from 1945 when Indonesia proclaimed its freedom. At those time, there had been so much improvement and differentiation. For instance, an economic structural transformation happened which was signed by the decreasing national agricultural market. In 1970, Gross Domestic Product (GDP) of the agricultural sector was 45%. It still decreased to 27% in 9 years (1979). In the next twenty years, agricultural sector market decreased

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RESEARCH ARTICLE

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Advanced Science Letters
Vol. 23, 6435–6437, 2017

Ethnobotany of Medicinal Plants in the Vunatui Clan of the Tolai Society in East New Britain Province, Papua New Guinea

Felicitas Bureng[1,*], Jumari[2,*], and Jafron Wasiq Hidayat[2]

[1]*Kokopo P.O. Box 140, East New Britain, Papua New Guinea*
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Traditional knowledge of medicinal plant use in many regions of Papua New Guinea (PNG) and the East New Britain Province is poorly described. The main aim of this research was to identify the plants used as medicinal plant in the Vunatui clan of the Tolai society in East New Britain, PNG and determine the type of disease or conditions being treated by these plants and how the plants are being prepared. Data collection was undertaken through participatory exploration method. Result shown that there were about 52 species of medicinal plants collected in this research. Many different medicinal plants were applied to cure various diseases such as headache, sores, cuts, wounds, cough, fever, diarrhea, stomachache, injuries, skin infections and many others. Different methods of preparation were used including crushing, heating, squeezing but the most common method used was infusion.

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1. INTRODUCTION

Rural communities in Papua New Guinea (PNG) depend very much on traditional plants for their health needs. PNG has at least 800 ethnic traditions characterized by distinct languages.[1] Vunatui clan is one of the many ethnic groups in Papua New Guinea that is still using traditional medicinal plants as a means to heal different conditions and diseases. In the meantime, East New Britain Province is extraordinarily rich in plant and cultural diversities and there is a long tradition of plant use for health needs.[5] Each cultural group or Vunatarai is rich in their knowledge about what type of plants and how they are used for treating illnesses.[2] Therefore this research aims to identify the diversity of the plants as well as to discover the traditional medicinal plants and the indigenous knowledge used by the Vunatui people in order to conserve and preserve the biological and indigenous knowledge and even the biodiversity for future generation.

2. EXPERIMENTAL DETAILS

This research was conducted around the settlement of Vunatui Society. Vunatui Clan is made up of people who live along the coastal areas of the Rabaul District located between latitudes 4° 11′5″ South and longitude 152° 8′37″ East along the coastal area of the Northern side of East New Britain Province in Papua New Guinea. Semi structural oral interview were conducted with 3 key informants to obtain as much information as possible concerning the medicinal plants and ways of treatment. The key informants were traditional doctor called 'TenaDawai.'

3. RESULTS AND DISCUSSION

There were about 50 plant species were used as traditional medicine by the indigenous people of the Vunatui Clan. The medicinal plant species identified existed in the mid-forest and a long the coastal areas where the clan is located. There were 28 different Family of plants. Table I shown the different families and the total number of species of each family. The family with highest number of reported medicinal plant species was Fabaceae with 10 species (20%), followed Euphorbiaceae of 6 species (12%) and Zingiberaceae of 4 (8%). These two families (Fabaceae and Euphorbiaceae) are consistent to Epstein[3] who work in Marakwet Community in Kenya and the people of Tripura DepBarma Clan tribe Moulvibazar district, Bangladesh.[4]

The herbs as medicinal plants were mostly trees that include 19 species, then herbs of 16 species, 10 species of shrubs and vines of 5 species. Whereas part of the plant used were largely leaf (38 species), follower by sap (11 species), bark (7 species) and stem or stalk (6 species). According to Ref. [5] study in East Sepik Province Study, leave was plant part that utilize relatively predominant, followed sap and bark.[5] Study in Garhwal

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RESEARCH ARTICLE

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Structural Transformation of Polystyrene Nanosphere Produce Positive and Negative Resists by Controlled Laser Exposure

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Laser treated polystyrene (PS) thin films were explored for simple, robust, and low-cost polymer based electronic applications. Polystyrene nanospheres of 500 nm were drop coated on silicon wafer before laser treatment was introduced to systematical investigated the structural transformation of treated PS. The relationship between the parameters used and the structural changes of PS, especially for its surface chemistry and the morphological, structural properties were characterized with Attenuated total-reflection Fourier transform infrared spectroscopy (ATR-FTIR), X-ray diffraction (XRD) and Field emission electron microscopy (FESEM). It was revealed that the morphological changes observed in the laser treated PS films were the dominant factor for the improvement of modified PS that can be used to tailor functional polymer such as organic light-emitting diodes (OLED), carbonaceous nanostructure, graphene, graphene oxide. Zwitter characteristic of the PS can be clearly observed during laser irradiation; over exposure of laser could be used to tailor different materials on the surface of the PS.

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1. INTRODUCTION

Currently there is great interest in developing low cost semiconductor devices by using polymer as precursor. Polymers are large molecules composed of repeating subunits. Such materials are used as electrolytes, dielectrics, semiconductors and have provided significant advantages in replacing the conventional inorganic ones for the same kind of applications. These advantages include high specific energy, high energy density, flexibility, high ionic conductivity or good isolation, wide thermal and electrochemical stability windows, solvent-free condition and easy processing, low weight, and most important costs efficiency.[1] Polymers are often exposed in radiation environments to various kinds of radiations such as laser, gamma rays, X-rays, electrons, photonic and ions, which may affect the chemical structure and physical properties of these materials by atomic or molecular excitation and ionization, resulting in the capture of chemical bonds, intermolecular cross-linking, formation of free radicals and unsaturated bonds, etc. These processes cause defects in the polymer matrices, which are responsible for most of the changes observed in the physico-chemical properties of polymers.[2] Because polymer surface modification has become an actively studied area recently[1] polystyrene (PS) is widely used polymer in biotechnologies and microfluidic devices, also one of the most important polymers, as it exhibits many good properties, such as good process ability, rigidity, low water absorbability, transparency, and that it can be produced at low cost.

The PS films have wide applications and are mainly employed in surface protection of metals, optical biosensor, and humidity sensor, coatings for biomaterials and barrier films for pharmaceutical packaging. While for PS films, seldom reports have been made on the nanostructure and optical properties of PS films by laser induced CVD.[3] Moreover, PS has a simple chemical structure that consists of both unsaturated aromatic ring and saturated aliphatic chain. Therefore, study on surface modification of PS, especially the chemical reactions occurred at the unsaturated and saturated bonds, is helpful for better understanding the related mechanisms, and for rationally tuning the surface properties of polymeric materials.[4] Although different treatment methods can be used for polymer surface modification, such as the electron beam irradiation[5,6] plasma treatment[7] ion beam treatment[8,9] and laser irradiation[10,11,12–16] laser irradiation is a non-contact clean technique compared with other surface treatment methods. Among the thermoplastic polymer like polystyrene are continues to be a widely used industrial polymer because of its multiple

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