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Semarang, Oktober 2022
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Prof. Dr. Ir. Sri Tadjono, M.S.
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Catatan Penilaian artikel oleh Reviewer :

1. Kesesuaian dan kelengkapan unsur isi jurnal:

Artikel menyajikan potensi SCGC sebagai haunch untuk mengalihkan lokasi sendi plastis. Penyajian isi artikel runtut dan logis; mulai dengan latar belakang hingga studi kasus aplikasi SCGC sebagai haunch dan pengukuran kinerjanya. Abstrak memberikan gambaran yang utuh; demikian juga kesimpulannya.

2. Ruang lingkup dan kedalaman pembahasan:

Artikel diangkat dari studi kasus perkuatan join dengan haunch menggunakan material SCGC pada struktur eksisting. Efektivitas haunch dianalisis dari kinerjanya dalam menurunkan lendutan. Studi dapat diperluas dengan mengukur kinerja berdasarkan parameter lain.

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Data yang diperlukan untuk menganalisis kinerja haunch telah mencukupi untuk ruang lingkup studi yang dibahas. Metode yang digunakan untuk menggali data sudah cukup baik.

4. Kelengkapan unsur dan kualitas terbitan:

Jurnal memenuhi syarat sebagai jurnal internasional bereputasi dilihat dari ragam editor dan penulis.

Surakarta, Oktober 2021
Reviewer 1



Prof. Stefanus Adi Kristiawan, S.T., M.Sc., Ph.D.
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3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Hubungan antara tulangan haunch dengan kolom dan balok eksisting yang mestinya berpengaruh pada kekuatan dan perilaku struktur retrofit tidak dijelaskan. Kecepatan loading dan unloading tidak dijelaskan. 30 dari 40 pustaka terbitan 5 tahun terakhir.

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Semarang, Oktober 2021

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Self-compacting-geopolymer-concrete (Scgc) retrofitted haunch

[Purwanto^a](#), [Han A.^a](#), [Ekaputri J.J.^b](#), [Nuroji^a](#), [Prasetya B.H.^c](#) [Save all to author list](#)^a Structural Laboratory of Civil Engineering, Diponegoro University, Semarang, Indonesia^b Civil Engineering Department, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia^c Master Program in Civil Engineering, Diponegoro University, Semarang, Indonesia**Abstract**[Author keywords](#)[SciVal Topics](#)[Funding details](#)**Abstract**

Retrofitting methods are widely used to reinforce existing concrete structures and frames. Strengthening becomes necessary when building codes mandate a higher load carrying capacity originated from, for example, changes in earthquake zone mapping. A haunch conclusively relocates the formation of plastic hinges away from the beam-column-joint. Geopolymer concrete is an environmentally friendly material, based on fly ash. Utilizing a haunch with this material is effectual and sustainable. The low workability of geopolymer concrete was in this study improved by adding a superplasticizer, which effectiveness was trigger by the presence of low volume Portland cement and water creating a Self-Compacting-Geopolymer-Concrete (SCGC). This SCGC ensured easy fabrication in the field, and improved the compaction and homogeneousness of the haunch . A full-scale experiment based on water-loading was conducted on an existing building to analyze the behavior of a SCGC haunch . The research concluded that the SCGC resulted in a high-performance haunch with good compatibility to the structure, the integrity of the haunch and the structure was maintained up to working-loading conditions. The load carrying capacity and the serviceability greatly improved. Analytical comparison to the prismatic section showed that the SCGC haunch reduced the deflection at mid-span to 77%. © 2021 Praise Worthy Prize S.r.l.-All rights reserved.

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Mathematical and Numerical Modeling of Algal Oils Transesterification

Abderrahmane El Kaihal⁽¹⁾, Kamal Gueraoui^(2*), Moad Mahboub⁽³⁾, Samir Men-La-Yakhaf⁽⁴⁾, Mohamed Taibi⁽⁵⁾, F. Kifani-Sahban⁽⁶⁾, Merlin Simo Tagne⁽⁷⁾

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 - (7) University of Lorraine LERMAB, France
- (*) Corresponding author

DOI: <https://doi.org/10.15866/irea.v9i4.19181>

Abstract

Biodiesel from algal oils is close to petroleum-based diesel thanks to its physico-chemical characteristics, its use in diesel engines, without the need for a major modification. This paper deals with a mathematical modeling and a numerical simulation of the transesterification reaction of lipids extracted from micro-algae in order to produce a biodiesel. A numerical model has been developed in order to simulate the consumption of reagents, the evolution of reaction intermediates and the formation of products. The model is based on the Euler and Runge-Kutta methods. The system of equation established from the different reactions that take place during the trans-esterification has been solved using a numerical code written in FORTRAN. The simulation gives the evolution of the relative concentrations of reactants, intermediates and products of the reaction as a function of time. The proposed mathematical model has predicted the trend of concentration of compounds transesterification in a microreactor very well and it has been used for further process optimization. The duration of the reagent consumption and product formation reactions is shorter when equation resolution is done by the Runge-Kutta method. The results obtained by the latter are close to the ones that can be found in literature.

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Keywords

Transesterification; Algal Oils; Biodiesel; Numerical Model; Range-Kutta Method; Euler Method; Chemical Kinetics

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Synthesis of Memristive Structures Based on Composite Oxides with Agglomerates of Nanoparticles

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Abstract

This study is concerned with the creation of a promising element base for smart systems based on memristive technologies. A review of the methods for the synthesis of memristive structures based on chalcogenides, metal oxides, and polymers is carried out. A method for the synthesis of a memristive structure based on metal oxides (in particular, TiO₂ and Al₂O₃) is proposed. The effect of various combinations of contact material, as well as thicknesses, structure, and location of the film layers constituting the resistive layer on the parameters of the synthesized structure, is analyzed. A solution to one of the main problems of memristive systems in terms of obtaining a stable nanometer structure of element films capable of providing a long-term stable channel in a resistive layer of a memristor with a stable current-voltage characteristic is proposed. In order to obtain a similar effect, films with a homogeneous structure having a stoichiometric composition of the sprayed substances and a minimum level of mechanical stresses are required. These requirements can be obtained using the method of magnetron sputtering. Control over the deposition rate makes it possible to obtain more dense or loose film structures. This fact affects the threshold switching resistance in the resistive channel. The proposed method opens up the prospects of creating miniature memory cells of a new generation with an information volume of about 1000 times that of classical memory elements and an unlimited switching resource.

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Keywords

Memristor; Smart-Systems; Magnetron Sputtering; Nanometer Structure; TiO₂ Film; Al₂O₃ Film

Full Text:

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