

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH: JURNAL ILMIAH
Bukti artikel: C-22

Judul Karya Ilmiah (Artikel) : Effects of Additional Polyvinyl Alcohol (PVA) on the Physiochemical Properties of Chitosan-Glutaraldehyde-Gelatine Bioplastic
 Jumlah Penulis : 3 Orang Penulis anggota
 Nama Penulis : Muh. Jufri, Retno Ariadi Lusiana, Nor Basid Adiwibawa Prasetya

Identitas Jurnal Ilmiah

i. Nama Jurnal : Jurnal Kimia Sains dan Aplikasi
 j. Nomor ISSN : 1410-8917
 k. Volume, No, Bulan, Tahun : Vol. 25 issue 3, hal 130-136. Tahun 2022
 l. Penerbit : Fakultas Sains dan Matematika Universitas Diponegoro
 m. DOI artikel (jika ada) : <https://doi.org/10.14710/jksa.25.3.130-136>
 n. URL Jurnal : <https://ejournal.undip.ac.id/index.php/ksa/article/view/43652>
 o. Alamat web jurnal : <https://ejournal.undip.ac.id/index.php/ksa>
 p. Indexing : Science and Technology Index (SINTA, S2), DOAJ (Directory of Open Access Journal), Google Scholar, Neliti.com, BASE (Bielefeld Academic Search Engine), Indonesian One Search, Crossref, Ifindr, WorldCat, Dimensions, PKPIndex, Garuda - Garba Rujukan Digital, Cassi - A Cas Solution, Microsoft Academic, ROAD: the Directory of Open Access scholarly Resources, Scilit, Harvard Library, Sherpa Romeo, Semantic Scholar

Kategori Publikasi Jurnal Ilmiah : ☐ Jurnal Ilmiah Internasional Bereputasi
 (beri Ppada kategori yang tepat) ☐ Jurnal Ilmiah Internasional
☒ v Jurnal Ilmiah Nasional Terakreditasi (Sinta 2) mulai Vol.21 No. 4 (2018) hingga Vol. 26 No. 3 (2023)
☐ Jurnal Ilmiah Nasional Terindeks DOAJ
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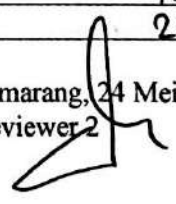
Komponen yang Dinilai	Nilai Maksimal Jurnal Ilmiah	Nilai Akhir Yang Diperoleh
	Jurnal Ilmiah Nasional Terakreditasi (25)	
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b. Ruang lingkup dan kedalaman pembahasan (30%)	7,5	7,3
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	7,5	7,35
d. Kelengkapan unsur dan kualitas penerbit (30%)	7,5	7,35
Total = (100%)	25	24,45

Reviewer 1


Prof. Drs. Gunawan, M.Si., Ph.D.
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 Jabatan Fungsional: Guru Besar
 Bidang Ilmu: Kimia

Semarang, 24 Mei 2023

Reviewer 2


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 Jabatan Fungsional: Guru Besar
 Bidang Ilmu: Kimia

Bukti artikel: C-22

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Kategori Publikasi Jurnal Ilmiah (beri Ppada kategori yang tepat)

☐	Jurnal Ilmiah Internasional Bereputasi
☐	Jurnal Ilmiah Internasional
☒	Jurnal Ilmiah Nasional Terakreditasi (Sinta 2) mulai Vol.21 No. 4 (2018) hingga Vol. 26 No. 3 (2023)
☐	Jurnal Ilmiah Nasional Terindeks DOAJ
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Hasil Penilaian *Peer Review* :

Komponen yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
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b. Ruang lingkup dan kedalaman pembahasan (30%)	7,2	7,4	7,3
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	7,3	7,4	7,35
d. Kelengkapan unsur dan kualitas penerbit (30%)	7,4	7,3	7,35
Total = (100%)	24,4	24,5	24,45

Reviewer 1

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Jabatan Fungsional: Guru Besar
Bidang Ilmu: Kimia

Semarang, 24 Mei 2023
Reviewer 2

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☐ Jurnal Ilmiah Nasional Tidak terakreditasi

Hasil Penilaian Peer Review:

Komponen yang Dinilai	Nilai Maksimal Jurnal Ilmiah					Nilai Akhir Yang Diperoleh
	Internasional Bereputasi (40)	Internasional (30)	Nasional Terakreditasi (25)	Nasional Terindeks DOAJ dll. (20)	Nasional Tidak Terakreditasi (10)	
a. Kelengkapan unsur isi jurnal (10%)			2,5			2,5
b. Ruang lingkup dan kedalaman pembahasan (30%)			7,5			7,2
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)			7,5			7,3
d. Kelengkapan unsur dan kualitas penerbit (30%)			7,5			7,4
Total = (100%)			25			24,4
Kontribusi Pengusul (Penulis anggota)	$40\% \times 24,4 : 2 = 4,88$					

Komentar Peer Review:

- a. **Kelengkapan dan kesesuaian unsur:** Penulisan paper ini sudah sesuai dengan kaidah penulisan jurnal mencakup unsur judul, penulis, intitusi, abstrak, kata kunci, pendahuluan, metodologi, hasil dan pembahasan, kesimpulan, acknowledgement, dan referensi. Satu bagian dengan bagian lainnya saling berhubungan dan saling melengkapi.
- b. **Ruang lingkup dan kedalaman pembahasan:** Pembahasan artikel secara keseluruhan sudah sesuai dengan topik dan cakupan dari Jurnal Kimia Sains dan Aplikasi. Artikel ini membahas tentang penggunaan pengaruh dari penambahan PVA terhadap sifat bioplastik kitosan-glutaraldehida-gelatin. Sebanyak 31 jurnal digunakan sebagai referensi menunjukkan bahwa cakupan dari artikel ini cukup mendalam. Novelty dari artikel ini merupakan penggunaan PVA untuk meningkatkan ketahan fisik dari bioplastik. Penyajian data didukung dengan 5 figures dan 4 tabel meliputi karakterisasi terkait.
- c. **Kecukupan dan kemutahiran data/informasi dan metodologi:** Penyajian data sangat lengkap dan memberikan informasi terkini melalui gambar spektra FTIR, thermogram TGA/DTG, gambar morfologi dengan SEM. Data yang disajikan memberikan gambaran yang lengkap dan berhubungan terhadap apa yang disampaikan dalam pembahasan terkait sifat fisik dari bioplastic.
- d. **Kelengkapan unsur dan kualitas penerbit:** Jurnal Kimia Sains dan Aplikasi diterbitkan oleh Departemen Kimia Undip dengan akreditasi Sinta 2. Similarity index berdasarkan Turnitin adalah 16% sehingga memiliki orisinalitas baik..

Semarang, 16 Mei 2023
Reviewer 1



Prof. Drs. Gunawan, M.Si., Ph.D.
NIP. 196408251991031001

Unit kerja :
Departemen Kimia FSM Undip
Jabatan Fungsional: Guru Besar
Bidang ilmu: Kimia

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Hasil Penilaian Peer Review:

Komponen yang Dinilai	Nilai Maksimal Jurnal Ilmiah = 40					Nilai Akhir Yang Diperoleh
	Internasional Bereputasi (40)	Internasional (30)	Nasional Terakreditasi (25)	Nasional Terindeks DOAJ dll. (20)	Nasional Tidak Terakreditasi (10)	
a. Kelengkapan unsur isi jurnal (10%)			2,5			2,4
b. Ruang lingkup dan kedalaman pembahasan (30%)			7,5			7,4
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)			7,5			7,4
d. Kelengkapan unsur dan kualitas penerbit (30%)			7,5			7,3
Total = (100%)			25			24,5
Kontribusi Pengusul (Penulis anggota)	$40\% \times 24,5 : 2 = 4,9$					

Komentar Peer Review:

- a. **Kelengkapan dan kesesuaian unsur:** Artikel ini disusun berdasarkan guideline yang ada. Objektif dari paper ini dijabarkan dengan baik dalam paper ini. Setiap bagian disampaikan dengan alur yang baik dan runut.
- b. **Ruang lingkup dan kedalaman pembahasan:** Artikel ini membahas tentang pengaruh penambahan Polivinil alkohol terhadap sifat fisikokimia komposit bioplastik kitosan-glutaraldehyd/gelatin. Variasi yang dilakukan sebanyak tiga konsentrasi PVA ditambahkan. PVA dengan sifat-sifatnya pada nilai tambah pada bioplastik yang disintesis dipelajari secara komprehensif.
- c. **Kecukupan dan kemutahiran data/informasi dan metodologi:** Data yang disajikan dalam paper ini meliputi data karakterisasi komposit menggunakan FTIR, ketahanan termal dengan TGA-DTG, dan morfologi permukaan dengan SEM. Novelty yang dihasilkan adalah penambahan PVA meningkatkan hidrofobisitas, ketahanan pH, fleksibilitas dan sifat antibakteri bioplastik namun menurunkan biodegradabilitas. Metodologi penelitian didesain dengan langkah yang baik dan mutakhir dan didukung dengan referensi terkini yang berusia tidak lebih dari 10 tahun.
- d. **Kelengkapan unsur dan kualitas penerbit:** Jurnal Kimia Sains dan Aplikasi diterbitkan oleh Departemen Kimia Undip dan termasuk dalam kategori jurnal Sinta 2. Similarity indeks dari paper ini cukup rendah, yaitu sebesar 16% yang mengindikasikan tidak ada plagiarisme.

Semarang, 15 Mei 2023
Reviewer 2



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DOI: <https://doi.org/10.14710/jksa.25.3.130-136> (<https://doi.org/10.14710/jksa.25.3.130-136>)  Check for updates

Effects of Additional Polyvinyl Alcohol (PVA) on the Physiochemical Properties of Chitosan-Glutaraldehyde-Gelatine Bioplastic

Muh Jufri (<https://scholar.google.com/scholar?q=Muh+Jufri>), Retno Ariadi Lusiana (<https://scholar.google.com/scholar?q=Retno+Ariadi+Lusiana>)  

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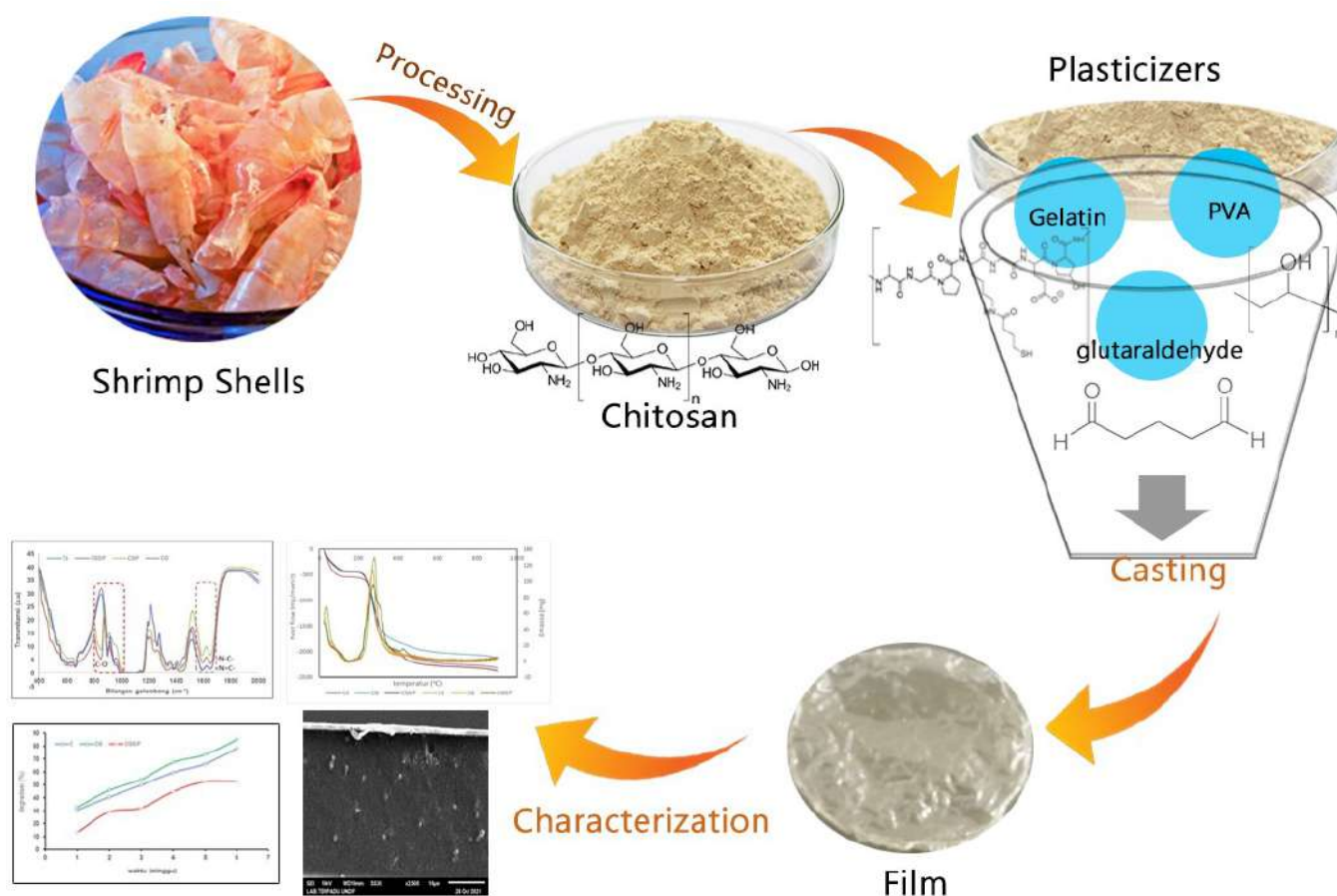
Chemistry Department, Faculty of Sciences and Mathematics, Diponegoro University, Jl. Prof. Soedarto, SH., Tembalang, Semarang 50271, Indonesia

Received: 27 Dec 2021; Revised: 11 Mar 2022; Accepted: 23 Mar 2022; Published: 31 Mar 2022.

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How to cite (IEEE): M. Jufri, R. A. Lusiana, and N. B. A. Prasetya, "Effects of Additional Polyvinyl Alcohol (PVA) on the Physiochemical Properties of Chitosan-Glutaraldehyde-Gelatine Bioplastic," *Jurnal Kimia Sains dan Aplikasi*, vol. 25, no. 3, pp. 130-136, Mar. 2022. <https://doi.org/10.14710/jksa.25.3.130-136> (<https://doi.org/10.14710/jksa.25.3.130-136>)

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Abstract

This study investigated the effects of additional PVA on the physicochemical properties of the chitosan-glutaraldehyde/gelatin bioplastic composite. The best results of the bioplastic film were obtained at a concentration of 3% PVA, with a tensile strength value of 3.3 MPa, flexibility reached 54%, a thickness value of 0.24 mm, percentage of inhibition against *E. coli* and *S. aureus* was 21.8% and 8.8% respectively. The FTIR spectrum results showed no change in the wavenumber of the chitosan and gelatin chitosan spectrum with OH, CO, and NH functional groups. The spectrum indicates that only physical interactions occurred. The bioplastics are

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Section: Research Articles

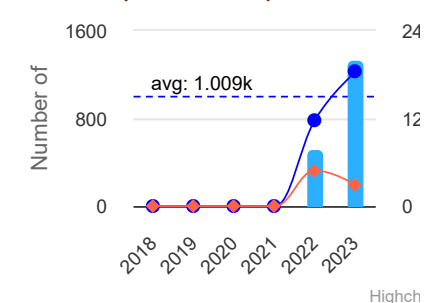
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Statistics:  2018 (#tab-metrics)

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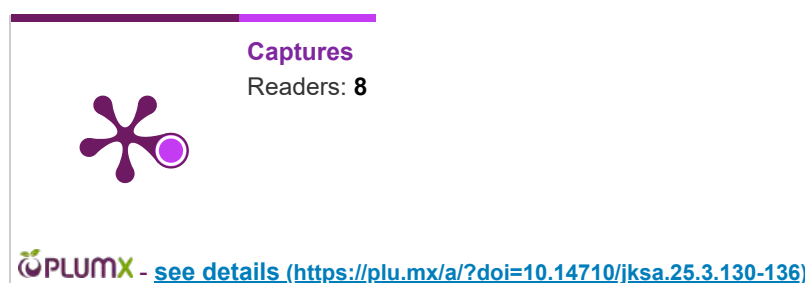
similar in thermal stability and have slight differences in bioplastic morphological contours. The average thickness of the bioplastics is between 0.20–0.26 mm. Based on the Japanese Industrial Standard (JIS), all bioplastics meet the standard thickness, which is < 0.25 mm, excluding chitosan, which has a thickness of 0.26 mm. The addition of PVA into the bioplastics structure increased the hydrophobicity, pH resistance, and flexibility of bioplastics. Meanwhile, additional PVA decreased biodegradability, only degraded by 60% at eight weeks. Based on these data, not all bioplastics can meet the degradation time criteria set by the international bioplastic standard ASTM D-6002, that bioplastics must be 100% degraded within eight weeks. Bioplastics made from chitosan and chitosan-gelatin have been degraded by 90% for 48 weeks. Based on the antibacterial properties, the inclusion of PVA into the bioplastic structure enhances the antibacterial properties.

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Keywords: PVA, bioplastic, physicochemical, biodegradable, antibacterial

Funding: Diponegoro University

Article Metrics:  0 (<https://badge.dimensions.ai/details/doi/10.14710/jksa.25.3.130-136?domain=https://ejournal.undip.ac.id>)



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Jurnal Kimia Sains dan Aplikasi
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