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

Judul Karya Ilmiah	:	Regenerated silica gel as stationary phase on vacuum column chromatography to purify temulawak's extracts		
Jumlah Penulis	:	4 Orang (**Bambang Cahyono**, Ratna Dewi Maduwu, Widayat, and Meiny Suzery)		
Status Pengusul	:	Penulis ke-1		
Identitas Prosiding	:	a. Judul Prosiding	:	INTERNATIONAL CONFERENCE OF CHEMICAL AND MATERIAL ENGINEERING (ICCME) 2015: Green Technology for Sustainable Chemical Products and Processes
		b. ISBN/ISSN	:	978-0-7354-1346-7
		c. Thn Terbit, Tempat Pelaks.	:	2015, Semarang - Indonesia
		d. Penerbit/Organiser	:	AIP Publishing LLC
		e. Alamat Repository/Web	:	https://aip.scitation.org/doi/abs/10.1063/1.4938376
		Alamat Artikel	:	https://doc-pak.undip.ac.id/1866/1/1.4938376.pdf
		f. Terindeks di (jika ada)	:	Scopus

Kategori Publikasi Makalah (beri ✓pada kategori yang tepat) : [√] *Prosiding* Forum Ilmiah Internasional
[ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi prosiding (10%)	2,00	2,00	2,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	6,00	6,00	6,00
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	6,00	6,00	6,00
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	6,00	6,00	6,00
Total = (100%)	**20,00**	**20,00**	**20,00**
Nilai Pengusul = (60% x 20,00) = 12,00			

Semarang, 23 Maret 2020

Reviewer 2

Prof. Dr. Heri Sutanto, S.Si., M.Si.
NIP. 197502151998021001
Unit : Dep. Fisika, FSM UNDIP

Reviewer 1

Prof. Dr. Hadiyanto, S.T., M.Sc.
NIP. 197510281999031004
Unit Kerja : Teknik Kimia FT UNDIP

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

Judul Karya Ilmiah	:	Regenerated silica gel as stationary phase on vacuum column chromatography to purify temulawak's extracts		
Jumlah Penulis	:	4 Orang (**Bambang Cahyono**, Ratna Dewi Maduwu, Widayat, and Meiny Suzery)		
Status Pengusul	:	Penulis ke-1		
Identitas Prosiding	:	a. Judul Prosiding	:	INTERNATIONAL CONFERENCE OF CHEMICAL AND MATERIAL ENGINEERING (ICCME) 2015: Green Technology for Sustainable Chemical Products and Processes
		b. ISBN/ISSN	:	978-0-7354-1346-7
		c. Thn Terbit, Tempat Pelaks.	:	2015, Semarang - Indonesia
		d. Penerbit/Organiser	:	AIP Publishing LLC
		e. Alamat Repository/Web	:	https://aip.scitation.org/doi/abs/10.1063/1.4938376
		Alamat Artikel	:	https://doc-pak.undip.ac.id/1866/1/1.4938376.pdf
		f. Terindeks di (jika ada)	:	Scopus

Kategori Publikasi Makalah (beri ✓pada kategori yang tepat) : [√] *Prosiding* Forum Ilmiah Internasional
[ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional [30]	Nasional [ ]	
a. Kelengkapan unsur isi prosiding (10%)	3,00		2,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	9,00		6,00
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9,00		6,00
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		6,00
Total = (100%)	**30,00**		**20,00**
Nilai Pengusul = (60% x 20,00) = 12,00			

Catatan Penilaian Paper oleh Reviewer :

1. **Kesesuaian dan kelengkapan unsur isi paper:**
   Artikel memiliki kelengkapan unsure artikel Ilmiah, sesuai bidang keilmuan
2. **Ruang lingkup dan kedalaman pembahasan:**
   Ruang lingkup dan kedalaman pembahasan dilakukan dengan baik
3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**
   Metodologi cukup baik, kemuktahiran dilihat dengan referensi yang cukup
4. **Kelengkapan unsur dan kualitas terbitan:**
   Kualitas penerbit cukup baik, terindeks scopus

Semarang, 23 Maret 2020

Reviewer 1

Prof. Dr. Hadiyanto, S.T., M.Sc.
NIP. 197510281999031004
Unit Kerja : Teknik Kimia FT UNDIP

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

Judul Karya Ilmiah	:	Regenerated silica gel as stationary phase on vacuum column chromatography to purify temulawak's extracts		
Jumlah Penulis	:	4 Orang (**Bambang Cahyono**, Ratna Dewi Maduwu, Widayat, and Meiny Suzery)		
Status Pengusul	:	Penulis ke-1		
Identitas Prosiding	:	a. Judul Prosiding	:	INTERNATIONAL CONFERENCE OF CHEMICAL AND MATERIAL ENGINEERING (ICCME) 2015: Green Technology for Sustainable Chemical Products and Processes
		b. ISBN/ISSN	:	978-0-7354-1346-7
		c. Thn Terbit, Tempat Pelaks.	:	2015, Semarang - Indonesia
		d. Penerbit/Organiser	:	AIP Publishing LLC
		e. Alamat Repository/Web	:	https://aip.scitation.org/doi/abs/10.1063/1.4938376
		Alamat Artikel	:	https://doc-pak.undip.ac.id/1866/1/1.4938376.pdf
		f. Terindeks di (jika ada)	:	Scopus

Kategori Publikasi Makalah (beri ✓pada kategori yang tepat) : [√] *Prosiding* Forum Ilmiah Internasional
[ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional [30]	Nasional [ ]	
a. Kelengkapan unsur isi prosiding (10%)	3,00		2,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	9,00		6,00
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9,00		6,00
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		6,00
Total = (100%)	**30,00**		**20,00**
Nilai Pengusul = (60% x 20,00) = 12,00			

Catatan Penilaian Paper oleh Reviewer :

1. **Kesesuaian dan kelengkapan unsur isi paper:**
   Paper telah ditulis sesuai Guide line dari AIP Publish dan lengkap

2. **Ruang lingkup dan kedalaman pembahasan:**
   Topik artikel masuk dalam lingkup prosiding AIP. Hasil-hasil sudah dibahas dengan baik

3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**
   Hasil penelitian pada artikel didukung 16 referensi dengan 81,3 % mutakhir. Data disajikan dalam 5 gambar hasil sesuai metode eksp

4. **Kelengkapan unsur dan kualitas terbitan:**
   Artikel / Publish AIP bereputasi kategori prosiding dan terindeks dalam scopus, Sjr 0.18 (2018) Kualitas terbitan baik.

Semarang, 23 Maret 2020

Reviewer 2

Prof. Dr. Heri Sutanto, S.Si., M.Si.
NIP. 197502151998021001
Unit : Dep. Fisika, FSM UNDIP

Certificate

DEPARTMENT OF CHEMICAL ENGINEERING DIPONEGORO UNIVERSITY
proudly certifies

Ratna Dewi Maduwu

who has successfully accomplished his/her role
as

Presenter

In the 2nd INTERNATIONAL CONFERENCE ON CHEMICAL AND MATERIAL ENGINEERING 2015 (2nd ICCME 2015)
Grand Candi Hotel, Semarang, Indonesia, September 29-30th, 2015
In conjunction with
The Golden Jubilee (50th) of Department of Chemical Engineering, Faculty of Engineering, Diponegoro University

On behalf of Dean of Faculty of Engineering,
Vice Dean for Academic Affairs
Diponegoro University

Dr. Budiyono

The 2nd ICCME 2015
Organizing Committee Chairwoman

Dr. –Ing. Silviana

Document details

‹ Back to results | ‹ Previous 20 of 22 Next ›

Export Download Print E-mail Save to PDF Add to List More... ›

View at Publisher

AIP Conference Proceedings
Volume 1699, 29 December 2015, Article number 060022
2nd International Conference of Chemical and Material Engineering: Green Technology for Sustainable Chemical Products and Processes, ICCME 2015; Semarang; Indonesia; 29 September 2015 through 30 September 2015; Code 117825

Regenerated silica gel as stationary phase on vacuum column chromatography to purify temulawak's extracts (Conference Paper)

Cahyono, B., Maduwu, R.D., Widayat, Suzery, M.

Organic Chemistry Laboratory, Departement of Chemistry, Diponegoro University, Jln Prof. Soedharto SH, Tembalang, Semarang, 50275, Indonesia

Abstract

View references (16)

Commercial silica gel only used once by many researchers and affected high cost for purification process, also less support the green chemistry program. This research focused in regeneration silica gel that used purification of temulawak's extracts (Curcuma xanthorrhiza Roxb) by vacuum column chromatography. Sample extracts (contains 10.1195±0.5971% of curcuminoids) was purified by vacuum column chromatography (pressure: 45?kPa, column: 100mm on length and 16mm on diameter). Ethanol 96% and acetone were compared as eluent. The amount of solvent and yield of curcuminoids used as indicator purification. The silica gel was regenerated with heating in 600°C for 8 hours The silica gels were analyzed by IR spectroscopy and X-ray diffraction. Furthermore, regenerated silica gel was used as the stationary phase in vacuum column chromatography under the same conditions with the previous purification. All the purification experiments were performed in three repetitions. Based on regression equation, $y=0.132x+0.0011$ ($r^2=0.9997$) the yield of curcuminoids on purified products using ethanol as the eluent was improved 4.26% (to 14.3724±0.5749%) and by acetone was improved 3,03% (to 13.1450 ±0.6318%). The IR spectrum of both silica gel showed the same vibration profile and also there were three crystallinity peaks missing on its X-ray diffraction. Regenerated silica gel has the same performance with new silica gel in purification of temulawak's extract: by ethanol has increased 4.08% (14.1947±0.7415%) and 2.93% (13.0447±0.4822) by acetone. In addition, all purification products showed similar TLC profiles. Purification using regenerated silica gel as the adsorbent on vacuum column chromatography has exactly same potential with the new silica gel.

SciVal Topic Prominence

Topic: Nanomagnetics | Curcuma | Oxidative stress

Prominence percentile: 26.509

ISSN: 0094243X
ISBN: 978-073541346-7
Source Type: Conference Proceeding
Original language: English

DOI: 10.1063/1.4938376
Document Type: Conference Paper
Volume Editors: Iskandar F.,Hadiyanto,Budiman A.,Nur H.,Ismadji S.
Sponsors:
Publisher: American Institute of Physics Inc.

Source details

AIP Conference Proceedings

Scopus coverage years: from 1973 to 1978, from 1983 to 1984, 1993, from 2000 to 2001, from 2003 to Present

ISSN: 0094-243X E-ISSN: 1551-7616

Subject area: Physics and Astronomy: General Physics and Astronomy

Source type: Conference Proceeding

CiteScore 2020
0.7

SJR 2020
0.177

SNIP 2020
0.314

View all documents > | Set document alert | Save to source list

CiteScore | CiteScore rank & trend | Scopus content coverage

Improved CiteScore methodology

CiteScore 2020 counts the citations received in 2017-2020 to articles, reviews, conference papers, book chapters and data papers published in 2017-2020, and divides this by the number of publications published in 2017-2020. Learn more >

CiteScore 2020

$$0.7 = \frac{33{,}397 \text{ Citations } 2017 - 2020}{46{,}758 \text{ Documents } 2017 - 2020}$$

Calculated on 05 May, 2021

CiteScoreTracker 2021

$$0.8 = \frac{33{,}254 \text{ Citations to date}}{42{,}830 \text{ Documents to date}}$$

Last updated on 07 February, 2022 • Updated monthly

CiteScore rank 2020

Category	Rank	Percentile
Physics and Astronomy └ General Physics and Astronomy	#192/233	17th

View CiteScore methodology > | CiteScore FAQ > | Add CiteScore to your site

No Access
Published Online: 29 December 2015

Preface: International Conference on Chemical and Material Engineering (ICCME) 2015

AIP Conference Proceedings **1699**, 010001 (2015); https://doi.org/10.1063/1.4938284

KEYNOTE SPEAKERS

1. **Prof. Choi Kwang-Hwan (NTU Korea)**
2. **Prof. Dr. Shinichiro Kawasaki** (National Institute of Advanced Industrial Science and Technology(AIST), Japan): http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=16480363400
3. **Dr. Eng Ferry Iskandar** (Institute Technology Bandung): http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6602257221
4. **Prof. Dr.rer.nat. Heru Susanto** (Diponegoro University): http://www.scopus.com/authid/detail.url?authorId=15835800800
5. **Prof. Dr. Sugeng Triwahyono** (Universiti Teknologi Malaysia): http://www.scopus.com/authid/detail.url?authorId=55223262000

Registration Fees and Payment

Category	Early Bird Payment	Normal Payment
Reguler presenter	IDR 1,750,000	IDR 2,000,000
Student presenter	IDR 1,500,000	IDR 1,750,000
International presenter	USD 250	USD 300
Participant	IDR 1,250,000	IDR 1,500,000
Additional paper	USD 50/paper (IDR 600,000)	USD 50/paper (IDR 600,000)
Cancelation fee	USD 50 (IDR 600,000)	No refund

Registration fee must be transfered to:

- Account holder: Rektor Universitas Diponegoro
- Account number: 0033664282
- Bank name : PT. Bank BNI (Persero)
- Bank address: Tembalang Semarang Branch Indonesia
- Swift Code: BNINIDJA

Conference Venue

GRAND CANDI HOTEL (The Gallery Hotel)

Jl. Sisingamangaraja No. 16, Semarang 50232, Central Java, Indonesia
Phone: +62-24-8416222, Fax: +62-24-8415111, Website: http://www.grandcandihotel.com

Contact Us

The 2nd International Conference on Chemical and Material Engineering 2015

Department of Chemical Engineering, Diponegoro University
Jl. Prof. H. Soedarto, SH, Kampus Undip Tembalang, Semarang 50275-Indonesia Phone: (62-24) 7460058, Fax: (62-24) 76480675
Email: iccme2015@che.undip.ac.id
Website: http://iccme2015.undip.ac.id

Conference Publications

Selected papers from this conference will be published in several Scopus-indexed journals after peer-reviewed process depending on field of the journals after the conference. The selected papers will be distributed to publish in:

- ***Bulletin of Chemical Reaction Engineering and Catalysis*** (ISSN 1978-2993, indexed by Scopus)
- ***American Institute of Physics (AIP) Conference Proceedings*** (ISSN: 0094-243X/E-ISSN: 1551-7616, indexed by Scopus)

Other accepted papers will be published in an ISBN-registered proceeding (978-602-097-281-7).

Preface: International Conference on Chemical and Material Engineering (ICCME) 2015 September 29-30, 2015

We are very pleased to introduce the proceedings of The 2nd International Conference on Chemical and Material Engineering (ICCME) 2015. The conference has been conducted by Chemical Engineering Department, Diponegoro University in Semarang on 29-30 September 2015, in conjunction with The Golden Jubilee (50th) of the Department of Chemical Engineering, Diponegoro University. The 200 scientific participants have participated in the conference, and had many fruitful discussions and exchanges that contributed to the success of the conference. Participants from six countries made the conference truly international in scope.

In this conference, it had been presented 125 abstracts which were selected from 175 registered abstracts and these presentations formed the heart of the conference and provided ample opportunity for discussion in the scope of green technology for sustainable chemical products and processes. The abstracts were split almost equally between the four main conference areas, i.e., Food and Bioprocess Engineering (FBE), Material and Science Development (MSD), Process and System Engineering (PSE) and Separation and Purification Engineering (SPE). Prior to the abstract presentations, there were four plenary speakers had been presented: Prof. Choi Kwang-Hwan from Pukyong National University (PKNU) Korea, Prof. Dr. Shin-Ichiro Kawasaki from National Institute of Advanced Industrial Science and Technology (AIST) Japan, Prof. Sugeng Triwahyono from University Technology Malaysia, Prof. Heru Susanto from Diponegoro University. These speakers gave high valuable impact to the conference and brought new research idea to the participants.

This proceeding consists of 96 full-text papers which have been selected from the presented abstract. The selection was conducted and reviewed by scientific committee. We kindly express our acknowledge to Prof. Hadi Nur (Ibnu Sina Institute Malaysia), Prof. Arief Budiman (UGM Indonesia) Dr Ferry Iskandar (ITB Bandung), Dr Hadiyanto (Diponegoro University), Dr Suryadi Ismadji (Widya Mandala Universty, Surabaya) who gave valuable review and comments on the papers.

Finally, it is appropriate that we record our thanks to Advisory Board of conference, our fellow members of the Organizing Committee and supporting funds from Institute of Research and Community Services, Diponegoro University. We are also indebted to those who served as chairmen/women during the parallel sessions. Without their support, the conference could not have been the success that it was. We also acknowledge the authors themselves, without whose expert input there would have been no successful conference. The continuing success of this conference series means that planning can now proceed with confidence for the next event.

Hadiyanto, Hadi Nur, Arief Budiman, Ferry Iskandar, Suryadi Ismadji
Editor

International Conference of Chemical and Material Engineering(ICCME) 2015
AIP Conf. Proc. 1699, 010001-1–010001-3; doi: 10.1063/1.4938284

ICCME 2015

International Conference on
CHEMICAL AND MATERIAL ENGINEERING 2015
Website: http://iccme2015.undip.ac.id

Organizing Team

Scientific Commitee

Dr. Hadiyanto Hadiyanto, Department of Chemical Engineering, Diponegoro University, Indonesia
Dr. Kamarza Mulia, Department of Chemical Engineering, University of Indonesia, Indonesia
Dr. Kuwat Triyana, FMIPA, Gadjah Mada University, Indonesia
Dr.Eng. Risa Suryana, FMIPA, Sebelas Maret State University, Indonesia
Dr. Agus Purwanto, Department of Chemical Engineering, Sebelas Maret State University, Indonesia
Dr. Istadi Istadi, Department of Chemical Engineering, Diponegoro University, Indonesia
Dr. Suryadi Ismadji, Department of Chemical Engineering, Universitas Widya Mandala, Indonesia
Prof. Dr.Ing. Marcus Petermann, Ruhr University Bochum, Germany
Dr.Eng. Ferry Iskandar, FMIPA, Institut Teknologi Bandung, Indonesia
Prof. Dr.rer.nat. Heru Susanto, Department of Chemical Engineering, Diponegoro University, Indonesia
Prof. Dr. Purwanto Purwanto, School of Postgraduate Studies Diponegoro University, Indonesia
Prof. Dr.Eng. Khairur Rijal, Institut Teknologi Bandung, Indonesia
Prof. Dr. H.J. Heeres, Groningen University, Netherlands
Prof. Dr. Lakshminarayanan Samavedham, National University of Singapore, Singapore
Prof. Dr. Hadi Nur, Ibnu Sina Institute for Fundamental Science, Universiti Teknologi Malaysia, Malaysia
Prof. Dr. Arif Budiman, Department of Chemical Engineering, Gadjah Mada University, Indonesia

Chair Person

Dr.Ing. Silviana Silviana, Department of Chemical Engineering, Diponegoro University, Indonesia

Co-Chair Person

Dr. Andri Cahyo Kumoro, Department of Chemical Engineering, Diponegoro University, Indonesia

Secretary and Secretariat

Dr. Nita Aryanti, Department of Chemical Engineering, Diponegoro University, Indonesia
Noer Abyor Handayani, Department of Chemical Engineering, Diponegoro University, Indonesia

Sponsors

- Lembaga Penelitian dan Pengabdian kepada Masyarakat (LPPM), Universitas Diponegoro

Sources of Support

Table of Contents

INTERNATIONAL CONFERENCE OF CHEMICAL AND MATERIAL ENGINEERING (ICCME) 2015: Green Technology for Sustainable Chemical Products and Processes

PREV NEXT

Conference date: 29–30 September 2015
Location: Semarang, Indonesia
ISBN: 978-0-7354-1346-7
Editors: , Hadi Nur, Arief Budiman, Ferry Iskandar and Suryadi Ismadji
Volume number: 1699
Published: Dec 29, 2015

DISPLAY : 20 50 100 all

BROWSE VOLUMES

No Access . December 2015

Isolation and identification of thermophilic and mesophylic proteolytic bacteria from shrimp paste "*Terasi*"

R. Murwani, Supriyadi, Subagio, A. Trianto and Ambariyanto

AIP Conference Proceedings **1699**, 030005 (2015); https://doi.org/10.1063/1.4938290

SHOW ABSTRACT

No Access . December 2015

Effects of water blanching on polyphenol reaction kinetics and quality of cocoa beans

A. S. Menon, C. L. Hii, C. L. Law, S. Suzannah and M. Djaeni

AIP Conference Proceedings **1699**, 030006 (2015); https://doi.org/10.1063/1.4938291

SHOW ABSTRACT

No Access . December 2015

Isolation of ethyl acetic based AGF bio-nutrient and its application on the growth of *Capsicum annum L.* plants

Hendrawan, Yaya Sonjaya, Fitri Khoerunnisa, Iqbal Musthapa and Astri Rizki Nurmala

AIP Conference Proceedings **1699**, 030007 (2015); https://doi.org/10.1063/1.4938292

SHOW ABSTRACT

BROWSE VOLUMES

Swelling properties of cassava starch grafted with poly (potassium acrylate-co-acrylamide) superabsorbent hydrogel prepared by ionizing radiation

Dhena Ria Barleany, Fida Ulfiyani, Shafina Istiqomah, Heri Heriyanto, Rahmayetty and Erizal

AIP Conference Proceedings **1699**, 040008 (2015); https://doi.org/10.1063/1.4938323

SHOW ABSTRACT

No Access . December 2015

Synthesis and characterization of composites filtration membranes based on chitosan-poly(ethylene glycol)

Fitri Khoerunnisa, Hendrawan, Yaya Sonjaya and Agnes Putri

AIP Conference Proceedings **1699**, 040009 (2015); https://doi.org/10.1063/1.4938324

SHOW ABSTRACT

No Access . December 2015

Hydrophilic polymer composites synthesized by electrospinning under dense carbon dioxide

Wahyudiono, Koichi Okamoto, Siti Machmudah, Hideki Kanda and Motonobu Goto

AIP Conference Proceedings **1699**, 040010 (2015); https://doi.org/10.1063/1.4938325

SHOW ABSTRACT

BROWSE VOLUMES

No Access . December 2015

The effect of pH on the corrosion behavior of intermetallic compounds $Ni_3(Si,Ti)$ and $Ni_3(Si,Ti)$ + 2Mo in sodium chloride solutions

Gadang Priyotomo, Lutviasari Nuraini and Yasuyuki Kaneno

AIP Conference Proceedings **1699**, 040017 (2015); https://doi.org/10.1063/1.4938332

SHOW ABSTRACT

No Access . December 2015

Chemicals loading in acetylated bamboo assisted by supercritical CO_2 based on phase equilibrium data

Silviana and M. Petermann

AIP Conference Proceedings **1699**, 040018 (2015); https://doi.org/10.1063/1.4938333

SHOW ABSTRACT

No Access . December 2015

Determination of ion mobility in EHD flow zone of plasma generator

Sumariyah, Kusminarto, Arief Hermanto and Pekik Nuswantoro

AIP Conference Proceedings **1699**, 040019 (2015); https://doi.org/10.1063/1.4938334

SHOW ABSTRACT

BROWSE VOLUMES

Flow pattern and mass transfer characteristics of valve tray in absorption process

Siti Nurkhamidah, Ali Altway, Ayu Savitri Wulansari and Evi Fitriyah Khanifah

AIP Conference Proceedings **1699**, 060020 (2015); https://doi.org/10.1063/1.4938374

SHOW ABSTRACT

No Access . December 2015

Thin layer drying of cassava starch using continuous vibrated fluidized bed dryer

Suherman and Rona Trisnaningtyas

AIP Conference Proceedings **1699**, 060021 (2015); https://doi.org/10.1063/1.4938375

SHOW ABSTRACT

No Access . December 2015

Regenerated silica gel as stationary phase on vacuum column chromatography to purify temulawak's extracts

Bambang Cahyono, Ratna Dewi Maduwu, Widayat and Meiny Suzery

AIP Conference Proceedings **1699**, 060022 (2015); https://doi.org/10.1063/1.4938376

SHOW ABSTRACT

No Access . December 2015

BROWSE VOLUMES

Anaerobic sequencing batch reactor in pilot scale for treatment of tofu industry wastewater

Suparni Setyowati Rahayu, Purwanto and Budiyono

AIP Conference Proceedings **1699**, 060026 (2015); https://doi.org/10.1063/1.4938380

SHOW ABSTRACT

No Access . December 2015

The effect of addition Ni and Co on biogas production from fish innards

Agus Hadiyarto, Indra Hutama and Wahid Hasyim

AIP Conference Proceedings **1699**, 060027 (2015); https://doi.org/10.1063/1.4938381

SHOW ABSTRACT

Resources

AUTHOR

LIBRARIAN

ADVERTISER

BROWSE VOLUMES

Regenerated Silica Gel as Stationary Phase on Vacuum Column Chromatography to Purify Temulawak's Extracts

Bambang Cahyono, Ratna Dewi Maduwu, Widayat and Meiny Suzery

Organic Chemistry Laboratory, Departement of Chemistry, Diponegoro University
Jln Prof. Soedharto SH, Tembalang, Semarang 50275, Tel / Fax: (024) 7460058

Corresponding authors: bambang_cahyono@undip.ac.id

Abstract. Commercial silica gel only used once by many researchers and affected high cost for purification process, also less support the green chemistry program. This research focused in regeneration silica gel that used purification of temulawak's extracts (Curcuma xanthorrhiza Roxb) by vacuum column chromatography. Sample extracts (contains 10.1195±0.5971% of curcuminoids) was purified by vacuum column chromatography (pressure: 45 kPa, column: 100mm on length and 16mm on diameter). Ethanol 96% and acetone were compared as eluent. The amount of solvent and yield of curcuminoids used as indicator purification. The silica gel was regenerated with heating in 600°C for 8 hours The silica gels were analyzed by IR spectroscopy and X-ray diffraction. Furthermore, regenerated silica gel was used as the stationary phase in vacuum column chromatography under the same conditions with the previous purification. All the purification experiments were performed in three repetitions. Based on regression equation, y=0.132x+0.0011 (r^2=0.9997) the yield of curcuminoids on purified products using ethanol as the eluent was improved 4.26% (to 14.3724±0.5749%) and by acetone was improved 3,03% (to 13.1450 ±0.6318%). The IR spectrum of both silica gel showed the same vibration profile and also there were three crystallinity peaks missing on its X-ray diffraction. Regenerated silica gel has the same performance with new silica gel in purification of temulawak's extract: by ethanol has increased 4.08% (14.1947±0.7415%) and 2.93% (13.0447±0.4822) by acetone. In addition, all purification products showed similar TLC profiles. Purification using regenerated silica gel as the adsorbent on vacuum column chromatography has exactly same potential with the new silica gel.

INTRODUCTION

Column is one apparatus important in chromatography equipment that used separatior compounds. Commonly, the price of column is expensive but the column has operation time very long. If active compound in column un active, column can not used for separation in analysis use chromatography. The column can be modified or developed in accordance with the desired goals. Some equipments, such as preparative HPLC, is one example of development in Industry. The additional of a vacuum on column chromatography has advantages as higher elution rate also shortening the solute and adsorbent contact time[1]. This type of chromatography is still often used in education and research laboratory for the separation of extracts from natural products. Theoretically, this method can be developed in a larger scale.

One of the adsorbent that often used on vacuum column chromatography was silica gel. This material is widely used because it has very inert property, hydrophilic, has a thermal and high mechanical stability, and also relatively not swell in organic solvents[2]. Although this material is widely reported can be synthesized[3,4], but commercial silica gel still remain unreliable, although the price is quite high. Some researchers are still often use this adsorbent once. When it is done, itwill certainly requires a high cost when it should be applied to upper scale.

The objective of this research was to develop column regeneration for purification temulawak's extracts (Curcuma xanthorrhiza Roxb) and analysis with chromatography by using ethanol and acetone as eluent /mobile phase.

International Conference of Chemical and Material Engineering(ICCME) 2015
AIP Conf. Proc. 1699, 060022-1–060022-8; doi: 10.1063/1.4938376

Effects of ater Blanching On Polyphenol Reaction inetics and uality of Cocoa Beans

A.S. Menon[1, a)], C.L. Hii[1,b)], C.L. Law[1,c)], S. Suzannah[2,d)], M. Djaeni[3, e)]

[1] Center for Food and Bio-product Processing, Manufacturing and Industrial Processes Division, Faculty of Engineering, University of Nottingham, Malaysia Campus, Jalan Broga, 43500 Semenyih, Selangor Darul Ehsan, Malaysia,
[2] Malaysian Cocoa Board, Cocoa Innovative and Technology Centre, Lot 12621, Kawasan Perindustrian Nilai, 71800 Nilai, Negeri Sembilan Darul Khusus, Malaysia
[3] Department of Chemical Engineering, Diponegoro University, Jl. Prof. Soedarto, Kampus UNDIP Tembalang, Semarang, Indonesia 50275

[a)] kebx2aso@nottingham.edu.my, [b)]Ching-Lik.Hii@nottingham.edu.my, [c)]Chung-Lim.Law@nottingham.edu.my, [d)]Suzannah@koko.gov.my, [e)]m.djaeni@undip.ac.id

Abstract. Several studies have been reported on the potential health benefits of cocoa polyphenols. However, drying has an inhibitory effect on the substantial recovery of cocoa polyphenols. This is majorly because of the high degradation of polyphenol compounds as well as the enhanced activity of polyphenol oxidases; a pre-cursor for browning of polyphenols during drying. Pre-treatment technique such as water blanching (80° and 90°C for 5 min, 10 min and 15 min exposure times respectively) can inactivate the polyphenol oxidases enzyme and promote high percent of the polyphenol recovery in dried cocoa bean. The degradation kinetics of cocoa polyphenols during hot water blanching are analyzed; The rate constant for the polyphenol degradation after blanching was found to be ranging from 0.0208 to 0.0340 /min. The results for dried fresh cocoa beans showed an optimal level of polyphenol recovery (118 mg GAE/g) when blanched at 90°C for 5 minutes duration. The antioxidant activity is also analyzed using DPPH scavenging assay.

Keywords: COCOA, POLYPHENOL, DRYING, WATER BLANCHING, QUALITY

INTRODUCTION

Cocoa is an important commodity which finds in application in food, pharmaceutical and cosmetic industries. There has been varied research going on the medical benefits of cocoa polyphenols. The polyphenol content in cocoa is found to be more than red wine and green tea [1]. The health benefits of cocoa polyphenols ranges from anti-atherosclerotic, anticariogenic, anticarcinogenic, antidepressant, antihypertensive, antiinflammatory, antimutagenic, antiproliferative and antiradical properties to cardioprotective effects [2]. Three distinguished groups of polyphenols present in cocoa beans namely proanthocyanidins (58%), catechins (37%) and anthocyanins (4%) [3]. Typically, the cocoa polyphenols contents are about 6 to 8% by weight of a dried fermented cocoa bean. The

International Conference of Chemical and Material Engineering(ICCME) 2015
AIP Conf. Proc. 1699, 030006-1–030006-7; doi: 10.1063/1.4938291

Hydrophilic Polymer Composites Synthesi ed by Electrospinning under Dense Carbon Dioxide

Wahyudiono[1, a)], Koichi Okamoto[1, b)], Siti Machmudah[2, c)], Hideki Kanda[1, d)] and Motonobu Goto[1, e)]

[1]Department of Chemical Engineering, Nagoya University, Furo-cho, Chikusa-ku, Nagoya, 464-8603, Japan.
[2]Department of Chemical Engineering, Sepuluh Nopember Institute of Technology, Kampus ITS Sukolilo, Surabaya 60111, Indonesia

[a)]Corresponding author: wahyudiono@b.mbox.nagoya-u.ac.jp
[b)]okamoto.koichi@g.mbox.nagoya-u.ac.jp
[c)]machmudah@chem-eng.its.ac.id
[d)]kanda@nuce.nagoya-u.ac.jp
[e)]mgoto@nuce.nagoya-u.ac.jp

Abstract. Electrospinning technique is feasible in some applications, it has attracted more attention in recent years. Various polymers have been successfully electrospun into ultrafine fibers in solvent solution and some in melt form. In this work, polyvinylpyrrolidone (PVP) as a hydrophilic polymer would be synthesized by electrospinning under dense carbon dioxide (CO_2). The experiments were performed at 40 ^oC and 5 MPa. During the electrospinning process, the applied voltage was 10 17 kV and the distance of nozzle and collector was 8 cm. The concentration of PVP solution as a major component was 4 wt%. The results showed that the fibers surface morphology from PVP which blended with poly L-lactide acid (PLLA) were smooth with hollow core fibers at 5 MPa. At the same conditions, PVP-carbon nanotube was also successfully generated into electrospun fiber products with diameter 2 μm.

eywords: Electrospinning, Polyvinylpyrrolidone (PVP), Hollow fibers; Dense CO_2, Polymer blends

INTRODUCTION

Polyvinylpyrrolidone (PVP) is a water-soluble polymer made from the monomer N-vinylpyrrolidone. Due to PVP has hydrophilic as well as hydrophobic functional groups, this polymer could soluble in various organic solvents. PVP was a nonionic water-soluble polymer and its viscosity in aqueous solution is not affected by electrolytes. Therefore, it allows to use this polymer in a variety of fields-of-use owing to following its advantageous characteristics. PVP is an environmental friendly synthetic polymer, biocompatibility, and widely used in biomedical, biochemical, food, textile, and other fields [1]. Similar to PVP, poly L-lactide acid (PLLA), polymer derived from lactic acid, is also biocompatible and environmental degradable and has wide applications [2]. This polymer was composed and derived from renewable resources mainly starch and sugar, so that PLLA seemed to be a promising material to reduce the environmental solid waste disposal problem. The most interesting aspect of PLLA is its biocompatibility with respect to biomedical applications that results non-toxic or non-carcinogenic effects in local tissues. However, PLLA is a hydrophobic polymer causing to the certain limitation of its applications. Generally, PLLA was modified with PVP in organic solvents to hinder its hydrophobicity property.

International Conference of Chemical and Material Engineering(ICCME) 2015
AIP Conf. Proc. 1699, 040010-1–040010-7; doi: 10.1063/1.4938325

Chemicals Loading in Acetylated Bamboo Assisted by Supercritical CO_2 Based on Phase Equilibrium Data

Silviana[1, a)] and M. Petermann[2, b)]

Department of Chemical Engineering Faculty of Engineering Diponegoro niversity l Prof Sudarto SH Kampus Tem alang Semarang ndonesia
Particle Technology Department of Mecahnical Engineering Ruhr niversity Bochum niversitaetstrasse Bochum ermany

a silviana undip ac id
petermann fvt ru de

Abstract. Indonesia has a large tropical forest. However, the deforestation still appears annually and vastly. This reason drives a use of bamboo as wood alternative. Recently, there are many modifications of bamboo in order to prolong the shelf life. Unfortunately, the processes need more chemicals and time. Based on wood modification, esterifying of bamboo was undertaken in present of a dense gas, i.e. supercritical CO_2. Calculation of chemicals loading referred to ASTM D1413-99 by using the phase equilibrium data at optimum condition by a statistical design. The results showed that the acetylation of bamboo assisted by supercritical CO_2 required 14.73 kg acetic anhydride/m^3 of bamboo for a treatment of one hour.

eywords: acetylation, bamboo, chemicals loading, supercritical CO_2

INTRODUCTION

Bamboo with the ecological benefits regards as well as auspicious material due to increasing natural resources demand with circumscribed supply. It is a sustainable material due to the high-carbon capture in the biomass, the fast growing of the plants, and it is abundantly available in Asia. Indonesia has around 135 species of bamboo [1-3]. Therefore, it would be nice to reduce the devastation of tropical forest where about 0.5 million ha are annually deforested, by the use of bamboo [4]. As consequences many research activities are trying to substitute wood with other ligno-cellulous materials, such as bamboo. Hitherto, the modification of bamboo has been conducted based on wood modification in order to extend the shelf life concerning to the durability aspect [5].

The acetylation using acetic anhydride is an accustomed chemical treatment of wood for over 50 years. The acetylation of the bamboo species Dendrocalamus asper is already reported [6]. In this work, the acetylation is supported with a surface modification using microwaves leading to increase liquid uptake. In this research bamboo modification through acetylation assisted by scCO2 without a catalyst is based upon the acetylation of wood using supercritical carbon dioxide [7].

The use of carbon dioxide in chemicals processing gained from waste gas of industries is considered as sustainable. Thus, in the context of the principles of green chemistry [8], scCO2 acts as an environmentally benign reaction medium for chemical synthesis. The density and solvent power of CO2 correspond to those of liquid, while its compressibility and transport properties are similar to a gas [9]. Therefore, scCO2 is used as auxiliary media for

International Conference of Chemical and Material Engineering(ICCME) 2015
AIP Conf. Proc. 1699, 040018-1–040018-6; doi: 10.1063/1.4938333

Effect of Silica Particle si e in Cellulose Membrane for Desalination Process

Siti Nurkhamidah[1,)], Yeni Rahmawati[1], Fadlilatul Taufany[1], I Made Pendi Adi Merta[1], Deffry Danius Dwi Putra[1], and Eamor M. Woo[2]

[1]*Department of Chemical Engineering Faculty of ndustrial Technology Sepuluh opem er nstutute of Technology Kampus TS Sukolilo Sura aya ndonesia*
Department of Chemical Engineering ational Cheng Kung niversity Tainan Taiwan

[)] Corresponding author: nurkhamidah@chem-eng.its.ac.id

Abstract. Development of desalination technologies is very important for fulfilling future water demand. The objective of this research is to synthesis membrane for desalination process from cellulose acetate (CA) by blending with polyethylene glycol (PEG) and silica resulting CA/PEG/Silica composite membrane. In this study, the synthesis and characterization of composite membrane is attempt where membrane performance is investigated for reverse osmosis desalination of saline water. CA/PEG membrane with ratio 80/20 (wt%) was modified with three different particle sizes of silica: 0.007, 0.02, and 60 μm. Composite membranes were characterized for their hydrophilicity, functional groups and permeation properties. The experiment results show that hydrophilicity of CA/PEG membrane increases after the addition of silica as shown by the decreasing of contact angle and the increasing of silanol group. Hydrophilicity of composite membrane increases with the decreasing of particle size of silica. The best performance membrane is obtained by using silica with particle size of 0.02 μm.

eywords: cellulose, PEG, silica, membrane, reverse osmosis.

INTRODUCTION

The need for fresh clean water is growing rapidly due to the world population growth that imposes larger demands of water supply for domestic use, agriculture, and industry. Another reason is deterioration of fresh water supplies: aquifers, the largest fresh water resource, are being contaminated constantly by industrial and agricultural activities, as well as by intrusions of seawater or saline water due to overuse. Rivers and lakes (surface water resources) are also in threat. Hence, there is a strong need to increase fresh water availability either by recycling waste water or by production of fresh water from seawater [1]. The need to increase fresh water supply and more extensive water treatment drove the advancement of new water technologies and the maturity of existing ones, in all fields of water: desalination and ion removal by reverse osmosis (RO), disinfection techniques by catalysts and by biological treatment, decontamination, new filtration techniques, and monitoring of water quality. Desalination is a general term for methods to remove salt from salty water to produce fresh water.

For membrane technologies, the development of the first high-flux anisotropic acetate cellulose (CA) RO membranes via immersion precipitation by Loeb and Sourirajan [2] was one of the most critical breakthroughs in desalination. Today, extensive knowledge exists on how to tailor' the membrane s pore structure including its cross-section morphology by the selection of polymer, solvents and non-solvents, additives, precipitation time, bath temperature and other parameters during immersion precipitation [3 9]. For example, different casting conditions and post-treatments were proposed to improve the water flux and salt rejection of the CA membranes [10 15].

International Conference of Chemical and Material Engineering(ICCME) 2015
AIP Conf. Proc. 1699, 060019-1–060019-5; doi: 10.1063/1.4938373