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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH: JURNAL ILMIAH

Judul Publikasi Ilmiah (Artikel) : Encapsulation of Vitamin C in Sesame Liposomes: Computational and Experimental Studies

Jumlah Penulis : 5 orang

Status Pengusul : penulis utama

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a. Nama Jurnal Ilmiah: : Open Chemistry

b. Nomor ISBN /ISSN : ISSN: 23915420

c. Volume, Nomor, Bulan, Tahun : Volume 17, Issue 1, 24 August 2019, Pages 537-543

d. Penerbit : De Gruyter.

e. DOI artikel (jika ada) : <https://doi.org/10.1515/chem-2019-0061>

f. Alamat web jurnal : <https://www.degruyter.com/view/j/chem.2019.17.issue-1/issue-files/chem.2019.17.issue-1.xml>

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e. Jumlah Halaman : 7 halaman

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	(30)			
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b. Ruang lingkup dan kedalaman pembahasan (30%)	9			8.5
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9			9.0
d. Kelengkapan unsur dan kualitas penerbit (30%)	9			9.0
Total = (100 %)	30			29.5
Nilai Pengusul = (60% x29.5) = 17.7				17.7

Catatan Penilaian artikel oleh Reviewer :

1. Kesesuaian dan kelengkapan unsur isi artikel:

Artikel sangat lengkap, dimana analisis tentang enkapsulasi vitamin C dalam liposom wijen di disajikan dengan terperinci, disitasi dan dibahas. Topik dan materi sesuai dengan jurnal yang bersangkutan. Tata penulisan tersaji dengan sangat baik.

2. Ruang lingkup dan kedalaman pembahasan:

Artikel ini membahas tentang enkapsulasi vitamin C dalam liposom wijen baik secara eksperimen di laboratorium maupun dengan komputasi. Pembahasan dari komputasi berkisar pada penentuan geometri molekul fosfolipida wijen sebagai penyusun liposom, energi interaksi fosfolipida dengan vitamin C dan panjang ikatannya. Hasil komputasi kemudian digunakan untuk menjelaskan hasil eksperimen empiris yang dilakukan di laboratorium yaitu efisiensi enkapsulasi vitamin C dalam liposom wijen dan releasenya. Pembahasan cukup detail dan komprehensif dengan mensitasi referensi yang relevan sebagai benchmark

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Referensi yang dicitasi dalam artikel ini ada 19 dimana 17 Baru (dalam 10 tahun terakhir). Nilai novelty/kebaruan artikel sangat baik. Analisa dilakukan secara terperinci setiap bagiannya. Metode disajikan dengan tahapan yang jelas.

4. Kelengkapan unsur dan kualitas terbitan:

Penerbit adalah De Gruyter (bereputasi), Jurnalnya termasuk kategori Q2, dengan nilai SJR 0.35 dan H-index 12, Web of Science - Science Citation Index Expanded IF 1.52. Artikel ini masuk kategori Conference Series dalam jurnal tersebut. Nilai similaritas artikel berdasarkan Turnitin hanya 3%, sehingga orisinalitas sangat baik.

Semarang, November 2019
 Reviewer


 Prof. Dr. Moh Djaeni, ST, M.Eng
 NIP 197102071995121001

Unit Kerja : Universitas Diponegoro
 Jabatan Fungsional : Guru Besar
 Bidang Ilmu : Teknik Kimia

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	(30)			
a. Kelengkapan unsur isi jurnal (10%)	3			2,4
b. Ruang lingkup dan kedalaman pembahasan (30%)	9			7,2
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9			8,1
d. Kelengkapan unsur dan kualitas penerbit (30%)	9			9
Total = (100 %)	30			26,7
Nilai Pengusul = (60% x 26,7) = 16,02				16,02

Catatan Penilaian artikel oleh Reviewer :

a. Kesesuaian dan kelengkapan unsur isi artikel:

Jurnal lengkap mencantumkan semua komponen dengan tim editor bereputasi. Jurnal memuat artikel ini yang memiliki kesesuaian dan kelengkapan unsur isi artikel tinggi. Judul abstract, pendahuluan dan sampai dengan referensi disusun secara runtut dan mudah dipahami. Ada kelemahan artikel ini adalah di bagian metode eksperimen yang kurang menyajikan kuantitas bahan yang digunakan kurnag lengkap. Similaritas artikel berdasarkan Turnitin 3% tingkat orisinalitas sangat tinggi.

b. Ruang lingkup dan kedalaman pembahasan:

Ruang lingkup pembahasan artikel ini sesuai dengan topik riset yang dilakukan, yaitu enkapsulasi vitamin C dalam liposom wijen baik secara komputasi dan eksperimen di laboratorium. Pembahasan diuraikan secara mendalam. Namun, meskipun berkaitan, hasil yang diperoleh dari komputasi sebetulnya kurang relevan dengan data yang digunakan dalam eksperimen. Sebaiknya urutan uraian diawali dari eksperimen kemudian dibahas interaksi antara vitaminC dan liposom dengan komputasi.jumlah vitamin C yang terenkapsulasi yang disajikan dalam ppm kurnag lazim digunakan melainkan mg/g.

c. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Informasi/data penelitian cukup memadai dan artikel mensitasi sebanyak 19 referensi, 17 (90%) terbit dalam 10 tahun terakhir dan 18 (94%) dari sumber primer (jurnal). Kebruan artikel baik. Data yang disajikan yang menggabungkan data eksperimen dan hasil komputasi sangat mencukupi untuk artikel ilmiah. Namun metode disajikan dengan tahapan yang kurang runtut dan kurang lengkap mencantumkan kuantitas bahan yang digunakan.

d. Kelengkapan unsur dan kualitas terbitan:

Penerbit adalah De Gruyter (bereputasi), Jurnal terindeks SCOPUS (CiteScore is 1,58), Scimago Journal Rank (Q2, SJR 0.35, H-index 12), Web of Science - Science Citation Index Expanded IF 1.52. (Tahun 2018 Journal Citation Reports released by Clarivate Analytics in 2019)

Yogyakarta, November 2019

Reviewer 2

Prof. Dr. rat Nuryono, M.S.

NIP. 196407141988111001

Bidang ilmu/Unit kerja :

Departemen Kimia pada Fakultas MIPA UGM
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Volume 17, Issue 1, 24 August 2019, Pages 537-543

Encapsulation of Vitamin C in Sesame Liposomes: Computational and Experimental Studies (Article) [\(Open Access\)](#)

Hudiyanti, D.^a Hamidi, N.I.^b, Anugrah, D.S.B.^b, Salimah, S.N.M.^b, Siahaan, P.^a

Save all to author list

^aChemistry Department, Diponegoro University, Semarang, Indonesia

^bUndergraduate Program, Chemistry Department, Diponegoro University, Semarang, Indonesia

Abstract

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An experimental and computational study was carried out for encapsulation of vitamin C in sesame, *Sesamum indicum* L., liposomes. Based on computational studies, the packing parameter (P) of sesame phospholipids was found to be 0.64 ± 0.09 . This indicates that the molecular shape of sesame phospholipids is in the form of truncated cone and, in aqueous solution, it self-assembles to form liposomes. In the liposomes, no chemical interaction was observed between phospholipid molecules and vitamin C. However, medium-strength hydrogen bonds (E_i) from -87.6 kJ/mol to -82.02 kJ/mol with bond lengths ranging from 1.746 Å to 1.827 Å were formed between vitamin C and phospholipid molecules. Because of this weak interaction, vitamin C gets released easily from the inner regions of liposome. Empirical experiments were performed to confirm the computation outcomes, where sesame liposomes were found to encapsulate almost 80% of vitamin C in their interior cavities. During the 8 days storage, release of vitamin C occurred gradually from the liposome system, which signifies weak interactions in the liposome membranes amongst phospholipid molecules and vitamin C. © 2019 Dwi Hudiyanti et al., published by De Gruyter 2019.

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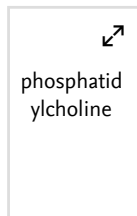
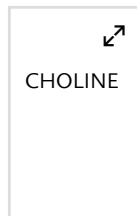
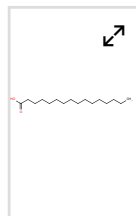
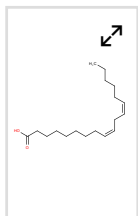
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Conflict of interest : Authors declare no conflict of interest.

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References (19)

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- ☐ 1 Hudiyanti, D., Raharjo, T.J., Narsito, Noegrohati, S.
Investigation on the morphology and properties of aggregate structures of natural phospholipids in aqueous system using cryo-tem (Open Access)

(2012) *Indonesian Journal of Chemistry*, 12 (1), pp. 57-61. Cited 5 times.
<http://pdm-mipa.ugm.ac.id/ojs/index.php/ijc/article/view/672/702>
doi: 10.22146/ijc.21372

View at Publisher
- ☐ 2 Hudiyanti, D., Fawrin, H., Siahaan, P.
Simultant encapsulation of vitamin C and beta-carotene in sesame (*Sesamum indicum* L.) liposomes (Open Access)

(2018) *IOP Conference Series: Materials Science and Engineering*, 349 (1), art. no. 012014. Cited 2 times.
<http://www.iop.org/E/journal/mse>
doi: 10.1088/1757-899X/349/1/012014

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- ☐ 3 Hudiyanti, D., Raharjo, T.J., Narsito, N., Noegrohati, S.
Study on leakage of sesame (*Sesamum indicum* L.) and coconut (*Cocos nucifera* L.) liposomes (Open Access)

(2015) *Oriental Journal of Chemistry*, 31 (1), pp. 435-439. Cited 5 times.
<http://www.orientjchem.org/download/8358>
doi: 10.13005/ojc/310152

View at Publisher
- ☐ 4 Pattni, B.S., Chupin, V.V., Torchilin, V.P.
New Developments in Liposomal Drug Delivery

(2015) *Chemical Reviews*, 115 (19), pp. 10938-10966. Cited 507 times.
<http://pubs.acs.org/journal/chreay>
doi: 10.1021/acs.chemrev.5b00046

View at Publisher

-
- ☐ 5 Bulbake, U., Doppalapudi, S., Kommineni, N., Khan, W.
Liposomal formulations in clinical use: An updated review (Open Access)
(2017) *Pharmaceutics*, 9 (2), art. no. 12. Cited 299 times.
<http://www.mdpi.com/1999-4923/9/2/12/pdf>
doi: 10.3390/pharmaceutics9020012
View at Publisher
-
- ☐ 6 Hudiyanti, D., Triana, D., Siahaan, P.
Studi pendahuluan tentang enkapsulasi Vitamin C dalam liposom kelapa (cocos nucifera l.)
(2017) *J Kim Sains Dan Apl*, 20 (5). Cited 2 times.
in Bahasa Indonesia
-
- ☐ 7 Tu, Y.-J., Njus, D., Schlegel, H.B.
A theoretical study of ascorbic acid oxidation and $\text{HOO} / \text{O}_2^-$ Radical scavenging
(2017) *Organic and Biomolecular Chemistry*, 15 (20), pp. 4417-4431. Cited 11 times.
<http://www.rsc.org/obc>
doi: 10.1039/c7ob00791d
View at Publisher
-
- ☐ 8 Abbas, S., da Wei, C., Hayat, K., Xiaoming, Z.
Ascorbic Acid: Microencapsulation Techniques and Trends-A Review
(2012) *Food Reviews International*, 28 (4), pp. 343-374. Cited 59 times.
doi: 10.1080/87559129.2011.635390
View at Publisher
-
- ☐ 9 Hudiyanti, D., Radifar, M., Raharjo, T.J., Narsito, N., Noegrohati, S.
A coarse-grained molecular dynamics simulation using NAMD package to reveal aggregation profile of phospholipids self-assembly in water (Open Access)
(2014) *Journal of Chemistry*, 2014, art. no. 273084. Cited 7 times.
<http://www.hindawi.com/journals/chem/contents/>
doi: 10.1155/2014/273084
View at Publisher
-
- ☐ 10 Tresset, G.
The multiple faces of self-assembled lipidic systems
(2009) *PMC Biophys*, 2, p. 3. Cited 51 times.
-
- ☐ 11 Frolov, V.A., Shnyrova, A.V., Zimmerberg, J.
Lipid polymorphisms and membrane shape (Open Access)
(2011) *Cold Spring Harbor Perspectives in Biology*, 3 (11). Cited 86 times.
<http://cshperspectives.cshlp.org/content/3/11/a004747.full.pdf+html>
doi: 10.1101/cshperspect.a004747
View at Publisher
-

-
- ☐ 12 Siahaan, P., Wuning, S., Manna, A., Prasasty, V.D., Hudiyanti, D.
Probing the Interaction between Cyclic ADTC1 Ac-CADTPPVC-NH₂) Peptide with EC1-EC2 domain of E-cadherin using Molecular Docking Approach (Open Access)

(2018) *IOP Conference Series: Materials Science and Engineering*, 349 (1), art. no. 012050.
<http://www.iop.org/EJ/journal/mse>
doi: 10.1088/1757-899X/349/1/012050

View at Publisher
-
- ☐ 13 Hudiyanti, D., Raharjo, T.J., Narsito, N., Noegrohati, S.
Isolasi dan karakterisasi lesitin kelapa dan wijen
(2012) *J Agritech Fak Teknol Pertan UGM*, 32, pp. 23-26. Cited 6 times.
in Bahasa Indonesia
-
- ☐ 14 Israelachvili, J.N.
Interactions of biological membranes and structures
(2011) *Intermolecular Surface Forces*. Cited 19768 times.
3rd ed., Academic Press, San Diego
-
- ☐ 15 Valiev, M., Bylaska, E.J., Govind, N., Kowalski, K., Straatsma, T.P., Van Dam, H.J.J., Wang, D., (...), De Jong, W.A.
NWChem: A comprehensive and scalable open-source solution for large scale molecular simulations

(2010) *Computer Physics Communications*, 181 (9), pp. 1477-1489. Cited 2433 times.
doi: 10.1016/j.cpc.2010.04.018

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-
- ☐ 16 Nocker, M., Handschuh, S., Tautermann, C., Liedl, K.R.
Theoretical prediction of hydrogen bond strength for use in molecular modeling

(2009) *Journal of Chemical Information and Modeling*, 49 (9), pp. 2067-2076. Cited 31 times.
<http://pubs.acs.org/doi/pdfplus/10.1021/ci9001469>
doi: 10.1021/ci9001469

View at Publisher
-
- ☐ 17 Israelachvili, J., Wennerström, H.
Role of hydration and water structure in biological and colloidal interactions

(1996) *Nature*, 379 (6562), pp. 219-225. Cited 1004 times.
<http://www.nature.com/nature/index.html>
doi: 10.1038/379219a0

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-
- ☐ 18 Torchilin, V.P.
Recent advances with liposomes as pharmaceutical carriers

(2005) *Nature Reviews Drug Discovery*, 4 (2), pp. 145-160. Cited 3263 times.
doi: 10.1038/nrd1632

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-

□ 19 Bozzuto, G., Molinari, A.

Liposomes as nanomedical devices (Open Access)

(2015) *International Journal of Nanomedicine*, 10, pp. 975-999. Cited 500 times.
<http://www.dovepress.com/getfile.php?fileID=23533>
doi: 10.2147/IJN.S68861

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🔍 Hudiyanti, D.; Chemistry Department, Diponegoro University, Semarang, Indonesia;
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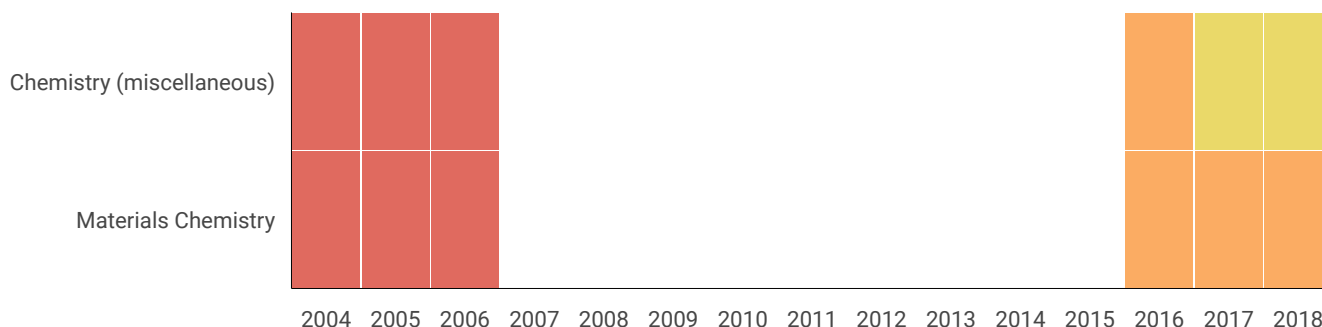
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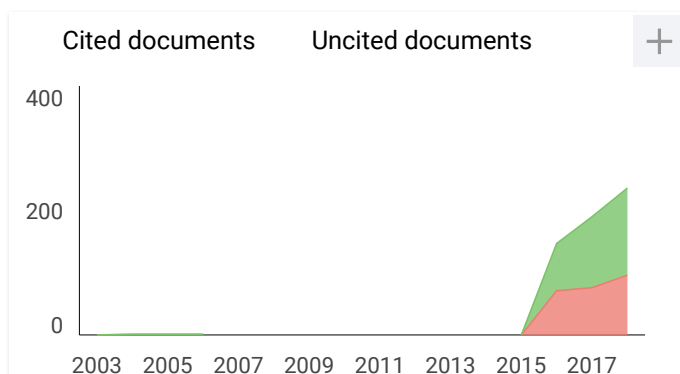
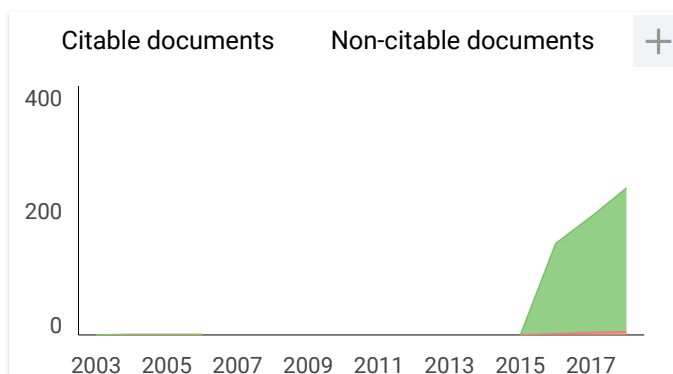
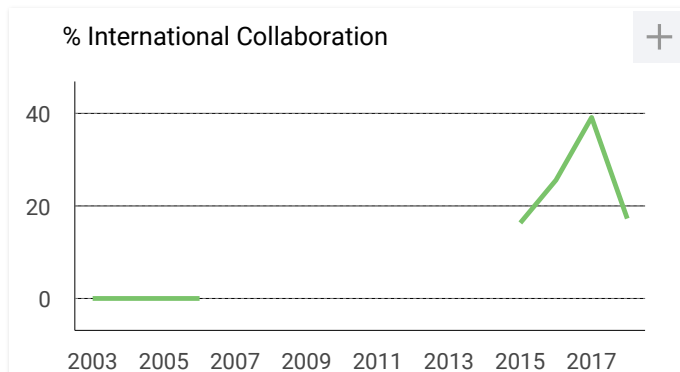
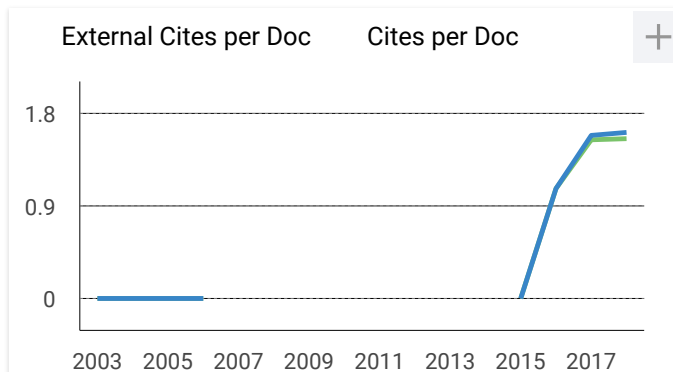
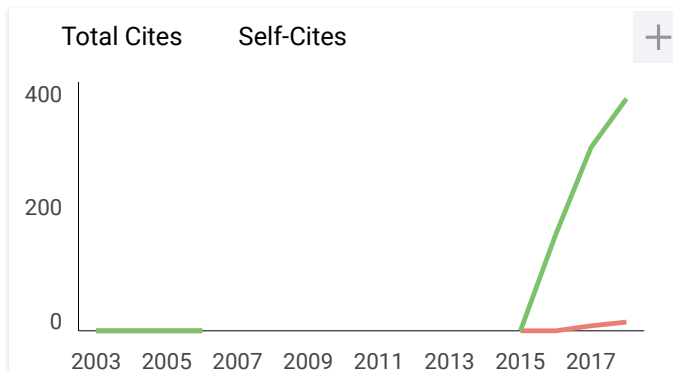
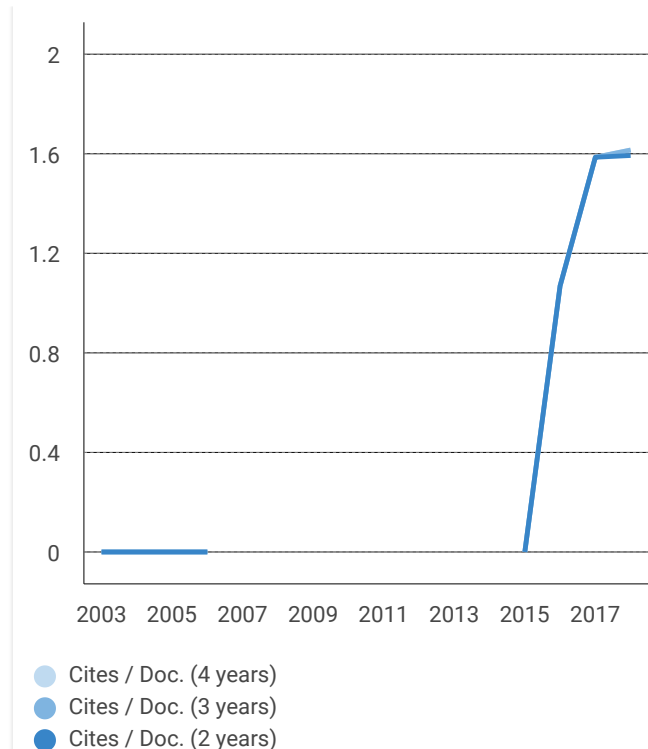


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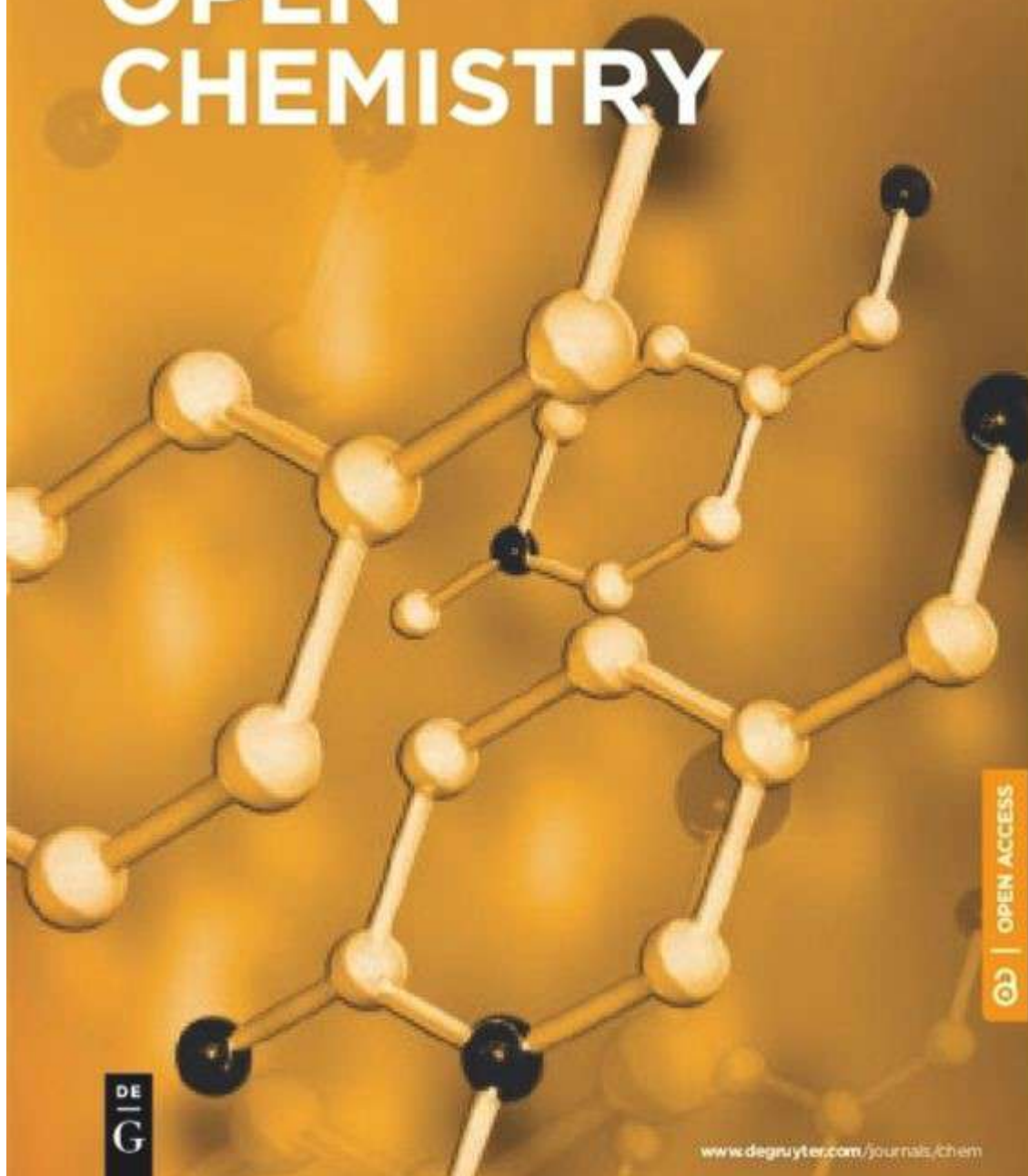
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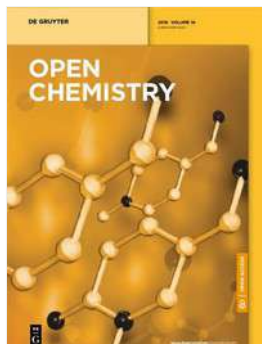
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Research on correlation of compositions with oestrogenic activity of *Cistanche* based on LC/Q-TOF-MS/MS technology

Wen-Lan Li, Jing-Xin Ding, Jing Bai, Yang Hu, Hui Song, Xiang-Ming Sun and Yu-Bin Ji

Pages: 1–12 | Published online: 08 Jan 2019

ABSTRACT

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Efficacy of *Pyrus elaeagnifolia* subsp. *elaegnifolia* in acetic acid-induced colitis model

Mert İlhan, Esra Küpeli Akkol, Hakkı Taştan, Fatma Tuğçe Gürağaç Dereli and Ibrahim Tümen

Pages: 13–22 | Published online: 08 Jan 2019

ABSTRACT

In Turkish folk medicine, the fruits of *Pyrus elaeagnifolia* subsp. *elaegnifolia* have been used to treat diarrhea and detoxify poisonous

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Encapsulation of Vitamin C in Sesame Liposomes: Computational and Experimental Studies

Dwi Hudiyantri, Noor Ichsan Hamidi, Daru Seto Bagus Anugrah, Siti Nur Milatus Salimah and Parsaoran Siahaan

Pages: 537–543 | Published online: 24 Aug 2019

ABSTRACT

An experimental and computational study was carried out for encapsulation of vitamin C in sesame, *Sesamum indicum* L., liposomes.

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A comparative study of the utilization of synthetic foaming agent and aluminum powder as pore-forming agents in lightweight geopolymer synthesis

Ufafa Anggarini, Suminar Pratapa, Victor Purnomo and Ndaru Candra Sukmana

Pages: 629–638 | Published online: 19 Aug 2019

ABSTRACT

Lightweight geopolymer concrete was synthesized using fly ash as an aluminosilicate source with the addition of a pore-forming agent. The synthe

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Research Article

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Wen-Lan Li*, Jing-Xin Ding, Jing Bai, Yang Hu, Hui Song, Xiang-Ming Sun, Yu-Bin Ji

Research on correlation of compositions with oestrogenic activity of *Cistanche* based on LC/Q-TOF-MS/MS technology

<https://doi.org/10.1515/chem-2019-0001>
received March 20, 2018; accepted July 28, 2018.

Abstract: LC technology is a recognized method used worldwide to evaluate the quality of traditional Chinese medicines (TCM). The quality of TCM has a direct impact on its efficacy. Therefore, in order to thoroughly reveal how TCM exerts its efficacy, first of all, it is necessary to understand the material basis for its efficacy, and then to control the quality of active compounds. The application of the spectrum-effect relationship method is crucial for determining the pharmacological material basis. The goal of this paper was to investigate the underlying correlations between the chemical profiles and oestrogenic activity of *Cistanche*, to reveal the active compounds. The chemical profiles of *Cistanche* were recorded using HPLC/Q-TOF-MS/MS, and oestrogenic activity was determined by the Uterus growth test and the MTT assay. Then combining the results of bivariate analysis, principal component analysis and gray correlation analysis method, fifteen active compounds were identified. They are 8-epiloganin acid, salidroside, syringalide A 3'- α -l-rhamnopyranoside, cistanoside A, echinacoside, cistanoside F, cistanoside B, cistanoside C, osmanthuside B, acteoside, isoacteoside, tubuloside B, 2'-acetylacteoside, and two unknown compounds. This study lays a foundation for *in vivo* studies of *Cistanche*, and for the development of its clinical application.

Keywords: *Cistanche deserticola*; LC/Q-TOF-MS; Oestrogenic activity; principal component analysis (PCA); Uterus growth test.

Abbreviations

TCM	traditional Chinese medicines
HPLC/Q-TOF-MS	High-performance liquid chromatography/quadrupole time-of-flight mass spectrometry
BA	bivariate analysis
PCA	principal component analysis
GCAM	gray correlation analysis method
MTT	Trypsin, 3-(4, 5-Dimethylthiazol-2-yl)-2, 5-diphenyltetrazoliumbromide
DMSO	dimethyl sulfoxide
RPMI1640	Roswell Park Memorial Institute 1640

1 Introduction

Recently, TCM has become more and more popular in Asian and Western countries due to their stable therapeutic effects and low toxicity in the clinic. As a result, it is necessary to develop novel types of TCM and to understand the effective compositions used during their clinical application [1-6].

Firstly, the spectrum-effect relationship is studied to discern the correlation between chromatographic fingerprint and pharmacodynamics efficacy. Then using the relationship to look for effective components in TCM, and to formulate control standards to reflect their internal quality. The spectrum-effect relationship has been applied in many areas of TCM research, such as material basis of single and compound TCM, component compatibility, processing mechanism, pharmacological effect forecast and technology optimization [7-12]. The spectrum-effect relationship is used to put forward new ideas and methods

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Research Article

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Mert İlhan, Esra Küpeli Akkol*, Hakkı Taştan, Fatma Tuğçe Güragaç Dereli, İbrahim Tümen

Efficacy of *Pyrus elaeagnifolia* subsp. *elaegnifolia* in acetic acid–induced colitis model

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received June 19, 2018; accepted September 24, 2018.

Abstract: In Turkish folk medicine, the fruits of *Pyrus elaeagnifolia* subsp. *elaegnifolia* have been used to treat diarrhea and detoxify poisonous snake bites by enlarging the wound. The aim of the study was to confirm the ethnopharmacological usage of the plant using *in vivo* and *in vitro* models. Experimental colitis was performed under anesthesia by intrarectal administration of acetic acid in rats, and the extracts were administered orally. The colonic malondialdehyde (MDA), tumor necrosis factor (TNF- α), Interleukin-6 (IL-6), and nitrite levels, in addition to the myeloperoxidase (MPO) and caspase-3 activities, were measured to determine the effects of the plant extracts. The methanol (MeOH) extract revealed a significant decrease in MPO and caspase-3 levels. The MeOH extract was found to have the highest total tannin content. It was also found to have significant antioxidant ($p < 0.01$) and anti-inflammatory activities ($p < 0.05$) in acetic acid induced colitis rat model. According to our results, the present study exhibited a decrease in MDA, nitrite, IL-6, and TNF- α levels in the colon tissue and blood in the MeOH extract treated group. The findings of this study can help in treating various disorders, such as *Clostridium difficile* infection, irritable bowel syndrome, and inflammatory bowel diseases.

Keywords: Caspase-3; colitis; myeloperoxidase; *Pyrus elaeagnifolia*; Rosaceae.

1 Introduction

The *Pyrus* L. species (Rosaceae) is the most economically important species in the Old World, from Western Europe and North Africa to Asia. Some pear species are cultivated in Asia and Europe [1]. There are twenty *Pyrus* species in the worldwide. Nine species are growing in Turkey, namely, *Pyrus bartschiana* subsp. *crenulata* Browicz, *P. hakkarica* Browicz, *P. communis* L., *P. syriaca* Boiss., *P. amygdaliformis* Vill., *P. salicifolia* Pall., *P. anatolica* Browicz, *P. bulgarica* Kuth. & Sachok., and *P. elaeagnifolia* Pall. [2]. One of the main centers of the wild pear (*Pyrus elaeagnifolia*) is Anatolia and the plant is called as “ahlat” or “çördük” in Turkish [3,4]. Two additional subspecies are *P. elaeagnifolia* subsp. *elaegnifolia* and subsp. *kotschyana*. The fruits of the plant are one of the most highly consumed fresh or dried fruits in the world. The fruits of this species have splendid taste and aroma [5].

Various parts of *Pyrus* species are used in folk medicine worldwide. The flowers of *P. communis* L. have been used as a remedy for treating fever, pain, and spasm, whereas leaves and bark can be used in wound healing on account of their astringent action [6,7]. In Turkish folk medicine, *P. elaeagnifolia* subsp. *elaegnifolia* is widely consumed as preservative and occasionally pickled and dried. The fruits have also been used primarily for treating diarrhea and detoxifying poisonous snake bites. The leaves are used against swelling and wild animal bites (wolf, jackal, snake, and so forth) pounded with garlic and yogurt, to drain out the poison by enlarging the wound externally [4,8,9]. An infusion of the bark is used to treat intestinal ulcers, nausea and palpitations. A decoction is used for hemorrhoids, intestinal upsets and diarrhea and to hasten the onset of labor while a colic remedy is made from the root [10]. Various biological activities, including analgesic, anti-inflammatory, antioxidant,

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