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

Judul Jurnal Ilmiah (Artikel)	:	Diffraction and Magnetization Properties of Fe_3O_4 Nanoparticle From Natural Iron Sand in Various Stirring Rate For Potential Biomedical Applications		
Nama/ Jumlah Penulis	:	11 Orang		
Status Pengusul	:	~~Penulis pertama~~/ ~~Penulis ke~~ / Penulis Korespondesi **		
Identitas Jurnal Ilmiah	:	a. Nama Jurnal	:	Rasayan Journal of Chemistry
		b. Nomor ISSN	:	0974-1496 eISSN : 0976-0083
		c. Vol, No., Bln Thn	:	Vol 15 No 1, Januari 2022 Hal 316-325
		d. Penerbit	:	Rasayan Journal
		e. DOI artikel (jika ada)	:	http://dx.doi.org/10.31788/RJC.2022.1516615
		f. Alamat web jurnal	:	http://rasayanjournal.co.in/archiveissue.php?issueid=63
		Alamat Artikel	:	rasayanjournal.co.in/admin/php/upload/3469_pdf.pdf
		g. Terindex	:	Scopus (Q2, SJR 0,33)

Kategori Publikasi Jurnal Ilmiah (beri ✓pada kategori yang tepat)	:	√	~~Jurnal Ilmiah Internasional~~/Internasional Bereputasi
			Jurnal Ilmiah Nasional Terakreditasi
			Jurnal Ilmiah Nasional Tidak Terakreditasi

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%)	12,00	11,50	11,75
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	11,90	11,50	11,70
d. Kelengkapan unsur dan kualitas penerbit (30%)	11,90	12,00	11,95
Total = (100%)			39,40
Nilai untuk Pengusul : 40% x 39,4 = 15,76			

Semarang, 8 Maret 2023

Reviewer 1

Prof. Dr. Rahmat Gernowo, M.Si
NIP. 196511231994031003
Unit Kerja: FSM Universitas Diponegoro
Bidang Ilmu: Fisika

Reviewer 2

Prof. Dr. Kusworo Adi, S.Si., M.T.
NIP. 197203171998021001
Unit Kerja: FSM Universitas Diponegoro
Bidang Ilmu: Fisika

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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir Yang Diperoleh
	Internasional ☑	Nasional Terakreditasi ☐	Nasional Tidak Terakreditasi ☐	
a. Kelengkapan unsur isi jurnal (10%)	4			4,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	12			12,00
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	12			11,90
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			11,90
Total = (100%)	**40**			**39,80**
Nilai Pengusul = 40% x 39,8 = 15,92				

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Artikel telah ditulis sesuai dengan standar **Rasayan Journal of Chemistry, *sebuah jurnal Scopus*** Q2, SJR 0,33
Latar belakang memberikan dasar yang sangat kuat untuk mengemukakan sesuatu yang baru dalam artikel. . Kebaruan dari kajian ini dikemukakan dengan baik dan jelas.

2. **Ruang lingkup dan kedalaman pembahasan:**

Pembahasan dengan menggunakan metoda yang diusulkan dalam artikel cukup komprehensip. Diskusi telah dilakukan dengan para peneliti lain melalui referensi yang disitasi. Sebuah artikel yang menarik.

3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**

Data dan referensi mutakhir, termasuk referensi dari kajian yang dilakukan oleh peneliti. Metoda standar dibidangnya dan akan bisa direfleksi oleh peneliti lain sebidang.

4. **Kelengkapan unsur dan kualitas terbitan:**

Penerbitan sudah sangat bagus tertata rapi **Rasayan Journal of Chemistry, *sebuah jurnal Scopus*** Q2, SJR 0,33 *nilai maksimum 40*

Semarang, 1 Maret 2023
Reviewer 1

Prof. Dr. Drs. Rahmat Gernowo, M.Si.
NIP. 196511231994031003
Unit Kerja : Fisika
Bidang Ilmu: Fakultas Sains dan Matematika

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- [√] ~~Jurnal Ilmiah Internasional~~/Internasional Bereputasi
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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 [√]	Nasional Terakreditasi [ ]	Nasional Tidak Terakreditasi [ ]	
a. Kelengkapan unsur isi jurnal (10%)	4			4,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	12			11,50
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	12			11,50
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			12,00
Total = (100%)	**40**			**39,00**
Nilai Pengusul = 40% x 39,00 = 15,60				

Catatan Penilaian artikel oleh Reviewer :

1. **Kelengkapan unsur isi jurnal:** Penulisan artikel sudah baik dan mengikuti standard penulisan artikel di jurnal, yaitu Abstract, Introduction, Materials and Method, Result and Discussion, Conclusions, Acknowledgement and References. Substansi artikel sesuai bidang ilmu pengusul.
2. **Ruang lingkup dan kedalaman pembahasan:** Lingkup bahasan dari artikel ini adalah bidang fisika. Pembahasan cukup baik yaitu mengetahui pengaruh laju pengadukan sintetik terhadap sifat difraksi dan magnetisasi nanopartikel Fe3O4. Material yang terbuat dari pasir besi alam disintesis menggunakan metode kopresipitasi dengan variasi kecepatan pengadukan 270 sampai 470 rpm. Pada pengadukan hingga 370 rpm (R3), ukuran kristal Fe3O4 mengecil. Kedalaman pembahasan baik.
3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:** Informasi yang disajikan cukup baru dan hasil yang diperoleh memuat substansi orisinil dengan aspek aplikasi yang penting. Sumber gagasan penulis untuk artikel ini banyak dan komprehensif. Dari 49 referensi yang dipakai terdapat 18 paper yang lebih dari 10 tahun terakhir (out of date). Metodologinya baik dan penulisannya terstruktur.
4. **Kelengkapan unsur dan kualitas terbitan:** Artikel dimuat di Jurnal Rasayan Journal of Chemistry, pada Vol 15 No 1, Januari 2022 Hal 316-325. Diterbitkan oleh Rasayan Journal. Journal terindeks Scopus (Q2, SJR 0,33).

Semarang, 1 Maret 2023
Reviewer 2

Prof. Dr. Kusworo Adi, S.Si., M.T.
NIP. 197203171998021001
Bidang Ilmu: Fisika
Unit Kerja: Fakultas Sains dan Matematika

Rasayan Journal of Chemistry • *Open Access* • Volume 15, Issue 1, Pages 316 - 325 • January-March 2022

Document type
Article • *Bronze Open Access*

Source type
Journal

ISSN
09741496

DOI
10.31788/RJC.2022.1516615

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DIFFRACTION AND MAGNETIZATION PROPERTIES OF Fe3O4 NANOPARTICLE FROM NATURAL IRON SAND IN VARIOUS STIRRING RATE FOR POTENTIAL BIOMEDICAL APPLICATIONS

Syahida A.N.[a]; Sutanto H.[a, b]; Manawan M.[c]; Setiadi E.A.[d]; Wibowo A.A.[a]; Irianti F.D.D.[a]; Alkian I.[b]; Hidayanto E.[a, b]; Priyono P.[a]; Marhaendrajaya I.[a]; Triadyaksa P.[a]

Save all to author list

[a] Department of Physics, Diponegoro University, Semarang, 50275, Indonesia

[b] Smart Materials Research Center, Diponegoro University, Semarang, 50275, Indonesia

[c] Department of Physics, Indonesia Defense University, Bogor, 16810, Indonesia

[d] Smart Materials Research Centre Laboratory, Indonesian Institute of Sciences, Banten, 15314, Indonesia

Abstract

This study aims to determine the effect of synthetic stirring rate on the diffraction and magnetization

properties of Fe_3O_4 nanoparticles. Materials made from natural iron sand were synthesized using the co-precipitation method with variations in stirring rate 270 to 470 rpm. At stirring up to 370 rpm (R3), the crystalline size of Fe_3O_4 decreases. Increasing the stirring rate caused the lattice parameters to decrease in the range of 8.3 A^o and the X-ray density to increase in the range of 5.0 g cm^{-3}. The structure formed indicates that the sample contains 100% magnetite nanoparticles without any contaminants. The magnetite nanoparticles in this experiment with the smallest crystal size of 4.156 nm and the Ms value of 20.67 emu g^{-1} with a Hc value close to zero superparamagnetic, have the potential for future biomedical applications.

Author keywords

Co-precipitation; Diffraction; Iron Sand; Stirrer Rate; Superparamagnetic

SciVal Topics

Metrics

Funding details

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Publisher and Managing Editor,
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23 'Anukampa', Janakpuri, Opp. Heerapura Power Stn.,Ajmer Road, Jaipur-302024 (India)

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Email: rasayanjournal@gmail.com

Bassim H. Hammadi

Department of Chemical Engineering,College of Engineering, Qatar University, P.O. Box 2713,Doha, Qatar

Contact: +97440434142

Email: b.hammadi@qu.edu.qa

Research Interest: Reaction Engineering, Adsorption Technology

Eno E. EBENSO

Professor, North-West University Gauteng, South Africa

Contact: +27825387286

Email: Eno.Ebenso@nwu.ac.za

Research Interest:

Florent ALLAIS

Director, R&D Unit of Industrial Agro-Biotechnologies URD ABI- AgroParis Tech, Pomacle, France

Contact: +33 633 698 126

Email: Florent.allais@agroparistech.fr

Research Interest: Green Chemistry, Bio-based Polymers

Giusy LOFRANO

Department of Environment, University of Salerno, Salerno, Italy

Contact: 0039 347 90 60 670

Email: glofrano@unisa.it

Research Interest: nanotechnologies, wastewater treatment, advanced oxidation processes

Goutam BRAHMACHARI

Professor, Chemistry Department, Visva-Bharati University, Santiniketan-731235, India.

Contact: +91 943485744

Email: goutam.brahmachari@visva-bhartai.ac.in

Research Interest: Organic Synthesis; Green Chemistry; Natural products, Medicinal Chemistry

Hakan ARSLAN

Department of Chemistry, Faculty of Arts and Science, Mersin University, Mersin, TR-33343, Turkey

Contact: +90.532.7073122

Email: hakan.arslan@mersin.edu.tr

Research Interest: Coordination chemistry, Hetrocyclic Chemistry, Kinetic Studies, X-ray diffraction studies, Spectroscopy

Ishmael MASESANE

Professor, Department of Chemistry, University of Botswana, Botswana

Contact: 26772874348

Email: MASESANE@UB.AC.BW

Research Interest: Organic synthesis, Natural product Chemistry, Medicinal Chemistry

Ime Bassey OBOT

Center of Research Excellence in Corrosion Research Institute, King Fahd University of Petroleum and Minerals (KFUPM), P.O. Box 489, Dhahran, 31262, Saudi Arabia

Contact: +966 13 860-8283

Email: obot@kfupm.edu.sa

Research Interest: Corrosion and Scale Inhibition, Chemo-informatics, Computational Chemistry.

Marei Mailoud EL-AJAILY

University of Benghazi, Faculty of Science , Department of Chemistry, Benghazi, Libya

Man SINGH

Professor and Dean, school of Chemical sciences, Gujrat central University, Gandhinagar, Gujrat, India

Contact: 00218918315683
Email: melajaily@gmail.com
Research Interest: Mixed ligand complexes, Drugs, Applications, Corrosion inhibition, Molecular docking, DFT studies


Mika SILLANPÄÄ
Department of Chemical Engineering, School of Mining, Metallurgy and Chemical Engineering, University of Johannesburg, Doornfontein 2028, South Africa
Contact: +358400205215
Email: mikaesillanpaa@gmail.com
Research Interest: Water treatment


Pankaj KUMAR
Professor and Head, Department of Chemistry, University of Energy and Petrolium studies, Dehradun, India
Contact: +917351958165
Email: pkumar@ddn.upes.ac.in
Research Interest: Biofuels and Bioenergy, Chemical sensors, Nano-materials, Minimization of industrial wastes


R.V. SINGH
Ex Professor, Department iof Chemistry, University of Rajasthan, Jaipur,India
Contact: +91 941406975
Email: rvsjpr@hotmail.com
Research Interest: Inorganic Chemistry


Soro YAYA
Laboratoire des Procédés Industriels de Synthèse, de l'Environnement et des Energies Nouvelles (LAPISEN), Institut National Polytechnique (INP-HB),Yamoussoukro, BP 991 Yamoussoukro(Côte d'Ivoire)
Contact: (+225) 07 71 67 66
Email: soro_y@yahoo.fr
Research Interest: Organic synthesis, Natural Products, waste management


V.K. GARG
Professor and Dean Centre for Environmental Science and Technology School of Environment and Earth Sciences Central University of Punjab, Bathinda- 151001, India
Contact: +919812058109
Email: vinodkgarg@yahoo.com
Research Interest: Pollution Monitoring and abatement, Solid Waste Management, Radioecology

Contact: +91 9408635094
Email: mansingh50@hotmail.com
Research Interest: Surface Chemistry, Physical Chemistry

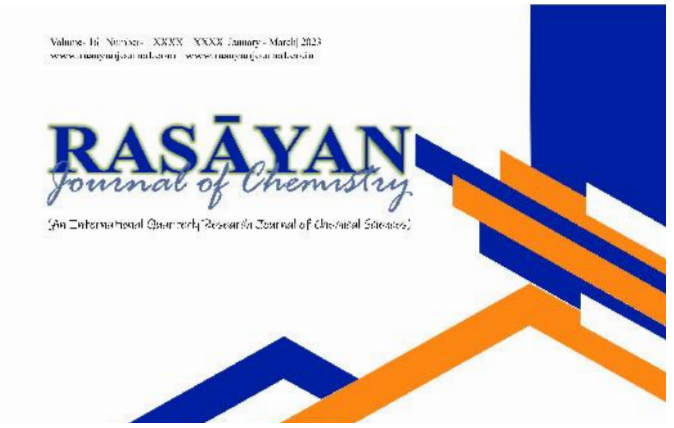

Nnabuk Okon EDDY
Professor, Department of Chemistry, Ahmadu Bello University, Zaria, Kaduna State, Nigeria
Contact: +2348038198753
Email: nabukeddy@yahoo.com
Research Interest: Physical Chemistry, Computational Chemistry, Nanochemistry, Industrial Chemistry, Environmental Chemistry


Priyan PERERA
Director - Center for Sustainability
Department of Forestry and Environmental Science
University of Sri Jayewardenepura, Sri Lanka
Contact: +94 718656457
Email: priyan@sjp.ac.lk
Research Interest: Environmental Sustainability, Ecology


Ramesh. L. GARDAS
Department of Chemistry Indian Institute of Technology Madras Chennai-600 036, India
Contact: +91 9884996125
Email: gardas@iitm.ac.in
Research Interest: Physical Chemistry, Chemical Thermodynamics, Alternative Solvents


Susheel MITTAL
Senior Professor, School of Chemistry & Biochemistry, Thapar Institute of Engineering & Technology (Deemed to be University), Bhadson Road, Patiala-147004, India
Contact: +91-9815653261
Email: smittal2001@yahoo.com
Research Interest: Voltammetric Sensors, Potentiometric Sensors, Biosensors, Ambient Air Quality and Human Health


Willian Aperador CHAPARRO
School of Engineering, Universidad Militar Nueva Granada, Bogotá-111121, Colombia
Contact: + 57 3142220552
Email: william.aperador@unimilitar.edu.co
Research Interest: Materials, batteries, corrosion, coatings, tribology



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Vol. 15 | No. 1 |12-19| January - March | 2022
ISSN: 0974-1496 | e-ISSN: 0976-0083 | CODEN: RJCABP
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PHYTOCHEMICAL SCREENING AND MICROBIAL ASSESSMENT OF *Moringa oleifera* SEED CRUDE OIL EXTRACT

M.E. Ojewumi✉, O.R. Obanla, S.O Taiwo and A.N. John
Chemical Engineering Department, Covenant University, P.M.B 1023,
Canaan Land, Sango, Ogun State, Nigeria.
✉Corresponding Author: modupe.ojewumi@covenantuniversity.edu.ng

ABSTRACT
The present inherent ability of an organism to human pathogenic infections compelled the need to explore new substances with antimicrobial properties from plant-based materials. *Moringa oleifera* seed extract was evaluated for antimicrobial effects against the selected bacteria strains - *Bacillus subtilis, Klebsiella pneumonia, Staphylococcus aureus, Escherichia coli and Pseudomonas aeruginosa* and selected fungi - *Rhizopus stolonifera* and *Candida albicans*. The zone of inhibition test revealed samples inhibited microbial growth to various extents with greater sensitivity against fungal as viewed in the bacterial strains. Phytochemical screening of analyzed samples revealed the presence of some metabolites (secondary) such as Alkaloids, saponins, flavonoids, Anthocyanin and betacyanin, Quinones, tannins, Terpenoids and Acids. Gas-chromatography-mass spectrometry (GCMS) analysis identified about 33 chemical components.
Keywords: Antimicrobial, Antifungal, *Moringa oleifera,* Phytochemical, Soxhlet Apparatus
RASĀYAN *J. Chem.*, Vol. 15, No.1, 2022

INTRODUCTION

Moring oleifera (*M. oleifera*) is grown world-wide, especially in Asia and Africa.[1, 2] Moringa is a native to Africa, Southeast Asia, Arabia, Caribbean islands, the Pacific and South America.[3, 4] Other countries where it is well-known include Philippines, Nigeria, Malaysia, Bangladesh, Pakistan and Kenya.[5,6] *Moringaceae* is of the oilseed trees family, categorized as a genus single tree with almost fourteen species. These species are not limited to *M. Oleifera*. However, also *M. drouhardii, M. Cocanensis, M. Stenopetala, M. Peregina and M. Pterygosperma.*[7] Of the fourteen known species, *M. Oleifera* stands out as the most widely known and utilized.[8] It is planted for its innumerable functional properties as it gives various nutritional and medicinal resources.[6,9,10]

Apart from the detrimental effects of repellent and synthetic drugs on man, it has been discovered that they are no longer effective and efficient due to adaptation of these microorganisms, different antimicrobial agent has been discovered in alleviating the global burden of pathogenic agents of diseases in the environment.[11, 12]

The active compounds in most plants and their extract have given them the ability to be used for several medicinal purposes. These active compounds/substances are known as phytochemicals which have the attribute of exerting a distinctive physiological influence on specific organisms.[13]

Several works has been done and reported by researchers on Phytochemicals in plant extract and their detrimental activities on some microorganisms and larva of some insects.[14] Phytochemicals can be grouped into two major parts; primary (chlorophyll and Amino acids) and secondary metabolites (Alkaloids, flavonoids, Tannins, Saponins etc).[14-16] Some of these phytochemicals have been discovered to possess antimicrobial, insecticidal, antioxidant activities, anticonstipative and antispasmodial properties.[17, 18]

M. oleifera seed is popularly known as Ben oil which is rich in some acids such as; oleic, behenic, steric and palmitic acids.[19,20] Noted the seed to consist of about 70% oleic acid, which made it suitable for frying.[21] It can also be used as lubricants to produce air care products, perfume, and other edible functions. It has similar composition of fatty acids as the olive oil[21] apart from the presence of linoleic

http://dx.doi.org/10.31788/RJC.2022.1516543

RJC

RASĀYAN J. Chem.
Vol. 15 | No. 1 |1-11| January - March | 2022
ISSN: 0974-1496 | e-ISSN: 0976-0083 | CODEN: RJCABP
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A REVIEW ON PHYTOCHEMICAL AND PHARMACOLOGICAL PROPERTIES OF *Syzygium caryophyllatum*

Ramadevi Pemmereddy[1], K. S. Chandrashekar[1,✉], Sreedhara Ranganath K. Pai[2], Vasudev Pai[1], Anna Mathew[1] and B. Venkatesh Kamath[3]

[1]Department of Pharmacognosy, Manipal College of Pharmaceutical Sciences, Manipal Academy of Higher Education, Manipal-576104, Karnataka, India
[2]Department of Pharmacology, Manipal College of Pharmaceutical Sciences, Manipal Academy of Higher Education, Manipal-576104, Karnataka, India
[3]Department of Pharmaceutical Biotechnology, Manipal College of Pharmaceutical Sciences, Manipal Academy of Higher Education, Manipal-576104, Karnataka, India
✉Corresponding Author:cksbhat@yahoo.co.in

ABSTRACT

Syzygium caryophyllatum, widely known as wild black plum, belongs to Myrtaceae. The tender leaves of *Syzygium caryophyllatum* are commonly used by folklore practitioners, particularly for stomatitis, diarrhea, blood-mucous stools, wounds, and ulcers. The plant contains numerous bioactive constituents like terpenoids, carotenoids, flavonoids, coumarins, saponins, glycosides, amino acids, sugars, fatty acids, lipids in significant amounts. The plant has reported anti-microbial effects, antioxidant, antidiabetic, and anticancer activities. The present review describes the botanical aspects, phytochemical constituents, pharmacological actions of *Syzygium caryophyllatum* to authenticate its use as a multipurpose medicinal herb.

Keywords: *Syzygium caryophyllatum*, Folkloric Herb, Essential Oils, Phytoconstituents, Pharmacological Activities
RASĀYAN *J. Chem.*, Vol. 15, No.1, 2022

INTRODUCTION

Plants are a reservoir of chemical compounds that can combat many human diseases. Natural products have traditionally been utilized as a valuable source of novel medicinal agents. Many plant-based compounds are used as lead molecules to generate synthetic molecular analogs. The genus *Syzygium* consists of 1200 species, and these plants are native to the tropics, mainly tropical America and Australia.[1] Plants of the *Syzygium* family are considered rich in volatile oils. These plant species have different biological properties such as antifungal, antibacterial, antiviral, anticarcinogenic antioxidant, anesthetic, and repellent activity.[2] Tender *Syzygium caryophyllatum* leaves, widely used by Paniya tribes in the community of Waynad, Kerala, to treat multiple ailments.[3]

The endangered evergreen tree, *Syzygium caryophyllatum,* is a member of the Myrtaceae family. This tree is indigenous to Srilanka and India; India's distribution is confined to the forests of the Kerala, Karnataka, and Tamilnadu regions of the Western Ghats. The tree is named in Hindi as Jangli Jamun, Kunta nerale in Karnataka, and Kattunjara or Jnarapazham in Malayalam. The plant grows 6 to 30 meters tall, found in the forests or rice fields, from low to higher elevations. This tree is indexed in IUCN Red List Endangered Class, based on the belief that its habitat loss and biotic strain pose a threat.[4]

The present review article emphasizes the pharmacognostical study of the plant, chief chemical constituents, essential oils present in the plant *Syzygium caryophyllatum*, and its pharmacological properties. The principal chemical components present in *S. caryophyllatum* fruit includes primary metabolites like fructose, asparagine, cysteine, serine, betalamic acid, dopaxanthin, palmitic acid, linolenic acid, linoleic acid, stearic acid, and decanoic acid, and the secondary metabolites include betulin, phytol, beta citronellal, friedelin, crocetin, nicotine, nornicotine, ambellin, mevalonic acid, lupic acid, azelaic acid, pipecolic acid, quercetin, kaempferol, caffeic acid, ferulic acid, gallic acid, xanthotoxin, jambolin.[5] The

http://dx.doi.org/10.31788/ RJC.2022.1516421