Science Nature 2(2), pp.097-104 (2019)

e-ISSN: 2654-6264

DOI: <https://doi.org/10.30598/SNVol2Iss2pp097-104year2019>

Pangi Leaf (*Pangium edule Reinw*) Herbal Medicine: A Marvelous Candidate for the Prominent HIV Herbal Medicine

Arend Mapanawang^{1*} and Hendry Izaac Elim^{2-8♥}

¹Department of Pharmacy, College of Health Sciences, Medika Mandiri Foundation,
Halmahera, Indonesia

²Nanomaterials for Photonics Nanotechnology Laboratory (**N4PN Lab.**), Department of
Physics, Faculty of Mathematics and Natural Sciences, Pattimura University,
Jl. Ir. M. Putuhena, Poka, Ambon, Indonesia 97233

³Nanotechnology Research Center and Innovative Creation (**PPNRI-LEMLIT**), Research
Center of Pattimura University, Pattimura University Campus, Jl. Mr. CHR. Soplanit,
Rumah Tiga, Ambon, Indonesia 97234

⁴Multidisciplinary Research Center of Excellence (**MrCE**),
UNPATTI, Jl. Chr. Soplanit, Rumah Tiga, Ambon, Indonesia 97234
Jl. Ir. Martinus Putuhena, Poka, Ambon, Indonesia 97233

⁵Maritime and Marine Science Center of Excellence (**MMSCE**)
Jl. Dr. Leimena, Ambon, Indonesia 97234

⁶Theoretical Physics Laboratory, Physics department, Pattimura University,
Ambon, Indonesia 97233

⁷Development and Innovative Center (**PPI**) of Pattimura University, Indonesia

⁸Electronics and Instrumentation Specific Laboratory (**ELINS Lab.**), Department of
Physics, Faculty of Mathematics and Natural Sciences, Pattimura University,
Jl. Ir. M. Putuhena, Poka, Ambon, Indonesia 97233

Received : June 1, 2019

Revised : June 12, 2019

Published : June 13, 2019

Copyright @ All rights are reserved by A.L. Mapanawang and H.I. Elim (*Elim Heaven*)

Corresponding author: *Email: arend_mapanawang@yahoo.com; ♥Email: hendry.elim@staff.unpatti.ac.id

Abstract

A medicine named as Love herbal (**LH**) fabricated using zingiberaceae fruit (*Golobe halmahera*) with a very high concentration of $IC_{50} = 6.54 \text{ ng/ml}$ [1-6] had been compared with *pangileaf* (*Pangium edule Reinw*) as well as the combination of *pangi-LH* herbal medicine especially in their functions of stopping the growth of **HIV** virus inside T Cell with CD 4 in its surface. By using optical spectroscopy techniques of fast Fourier transform infrared (**FTIR**), photo cells, and gas chromatography mass spectrometer (**GCMS**), we found their significant differences. Based on our former finding, the inhibition of *pangi* leaf was **2.19 times larger than that in love herbal medicine** [7]. Such *pangi* leaf medicine has advantages of optical uniqueness behaviors due to $C \equiv C$ at 2260 cm^{-1} which might be closely in conjunction with very strong alkaline function associated with at least 4 compounds of octadecanoic acid (24.6 %), squalene (21.22 %), hexadecanoic acid (15.08 %), and phytol (10.33 %) to kill **HIV** virus more effectively and safely in human body. The results of our observation under real time photo cells with pure *pangileaf* medicine at concentration of 400 to 800 ppm were superior to **LH** medicine. Such output suggests that *pangi* leaf medicine is very promising for healing **HIV** patients in the future applications.

Keywords: Love Herbal (**LH**), *Pangileaf*, Optical Behavior,

HIV herbal medicine, Anti-cancer.

ARTICLES

I. Introduction

Since the discovery of herbal medicine called as Love herbal (**LH**) from **STIKES Halmahera** fabricated using the largest flavonoid content of 6.54 ng/ml found in zingiberaceae fruit or *Golobe* Halmahera/ Maluku consisted of at least 5 types of such *Golobe* called in North Maluku province or *Galoba* in Maluku province, respectively [1-7],

many efforts have been conducted by the authors of Mapanawang and Elim to study it particularly associated with its multitasking healing system which was first introduced by [5,6] based on optical behavior and electronic molecular system [8-10] in order to heal various deceases and parasites such as **HIV** as well as herbal chemotherapy capsule healing system comparable to *cisplatin*, a common commercial chemotherapy medicine [11]. In the special case of about ~36 years mystery of unsolved problem in healing **HIV** patience since Prof. Francoise Barre-Sinoussi, the nobel

winner in 2008 due to her first time discovery of the novel virus in her laboratory study in ~1982, following by many different detail studies from Prof. Dr. Gallo, and his collaborators in 1984 [12-15], ones therefore would like to improve the former invention of **LH** medicine [1-11] by incorporating a possibility of the use of *pangi* leaf (*Pangium edule Reinw*) herbal medicine.

In this letter, we report for the first time that based on our former discovery in **Ref. [11]** that due to *pangi* leaf high inhibition of 94.8% in stopping the growth of **HIV** virus via the photo cells observation, a detail optical properties study of the medicine contents related to its chemical bonding is presented as well as its relationship with gas chromatography mass spectrometer (**GCMS**) detection of its main compounds content. We found that *pangi* leaf medicine has a great advantage of optical uniqueness behaviors due to **C≡C strong bonding at 2260 cm⁻¹** in comparison with that of **LH** medicine which might be closely in conjunction with very strong **C≡C alkaline function** in conjunction with at least 4 compounds of (i). *octadecanoic acid* (24.6 %), (ii). *squalene* (21.22 %), (iii). *hexadecanoic acid* (15.08 %), and (iv). *phytol* (10.33 %) to stop growing **HIV** parasite virus more effectively and safely in human body.

II. Research Method

The scientific procedure and design to overcome **HIV** spreading in CD4 of the surface of T cell of human being lymphocyte [16] is depicted in **Fig. 1** by using at least 10 steps of stopping **HIV** in the inner part of T cells. In this report, we try to provide our best scientific

knowledge without our own laboratories expensive equipment which means that one sent the as fabricated herbal medicines to be investigated independently in few professional scientific laboratories located in main cities of Java, Indonesia such as in Jakarta, Bogor, and Serpong, respectively. After a deep thinking and discussion, the authors are then explained all the data based on the way it is.

Figure 1. A scientific procedure and design to overcome **HIV** spread in T cell of human being using a herbal medicine fabricated using *pangi* leaf (*Pangium edule Reinw*). There are at least 10 steps to stop growing the **HIV** viruses inside T cell.

III. Results and Discussion

Figure 2 describes the chemical bonding spectroscopy of pure *pangi* leaf found in North Maluku/ Sulawesi, Indonesia, and its comparison with a mixture of *Golobe* Halmahera/ Maluku and *pangi* leaf measured using a Fourier transform infrared (**FTIR**) spectrometer, **SHIMADZU, Japan** of **LIPI** laboratory, Indonesia. We obtain that *pangi* leaf medicine has a great advantage of optical uniqueness behaviors due to a significant **C≡C strong bonding at 2260 cm⁻¹** in comparison

with that of **LH** medicine which might be closely in conjunction with very strong **C≡C alkaline function** to kill **HIV** virus without any bad effects in human T cells.

Figure 2. The FTIR response of future prominent HIV medicine character called as pure *pangi* medicine with the inhibition percentage is about 2.19 times higher than that in **LH** [1,11] related to the triple bonding of carbon strong absorption at 2260 cm^{-1} .

In investigating on how excellence both types of herbal medicines in curing **HIV** virus, we carried out a photo cells comparison on the samples in **Premata IPB Laboratory**, Bogor, West Java province, Indonesia. The results of our real time observation in photo cells with the concentration of 400 to 800 ppm of pure *pangi* leaf medicine show that more **HIV** viruses were destroyed in comparison with that of **LH** medicine as shown in **Fig. 3** and **Fig. 4**,

respectively. Moreover, at a high 800 ppm concentration of pure *pangi* leaf medicine, there were more **HIV** viruses destroyed in comparison with that of **LH** medicine. This is in agreement with our former inhibition study in **Ref. [8,11]** that *pangi* leaf had 2.19 times larger inhibition than that in **LH** medicine.

Figure 3. Photo cells observation on how *pangi* leaf medicine with different concentrations stopped growing **HIV** virus. It should be noticed that as the concentration of *pangi* leaf medicine reached 400 ppm to 800 ppm, the **HIV** virus were getting destroyed completely.

Figure 5 shows that there are **15** substances in *pangi* leaf herbal medicine measured using gas chromatography mass spectrophotometer (GCMS). From the 15 substances, ones discovered there were **four significant largest compounds contributing to the medicine healing process** especially in handling **HIV** virus as described in **Fig. 4**, involving (i). *octadecanoic acid* (24.6 %), (ii). *squalene* (21.22 %), (iii). *hexadecanoic acid* (15.08 %), and (iv). *phytol* (10.33 %), respectively.

Figure 4. A comparison between the photo cells observation of **LH** medicine and *pangi* leaf medicine when both types of herbal medicines were **at the same concentration of 800 ppm**, the **HIV** viruses seemed destroyed. However, when ones enlarged the view of the photo cells of **LH** medicine treatment to **HIV** virus, there were still some **HIV** viruses were alive. In this case, the *pangi* leaf herbal medicine was much better impacts to stop **HIV** growing, and even completely destroyed it all.

The physical chemistry chemical physics behavior of such complicated compounds associated with $C \equiv C$ strong absorption bonding at 2260 cm^{-1} as depicted in **Fig. 2** was investigated based on a multidisciplinary former works in **Ref. [11, 17-21]**. These findings are a gateway opportunity to improve future nanochip medicine as illustrated in **Ref. [22-23]**.

Pemerintah Provinsi Daerah Khusus Ibukota Jakarta
LABORATORIUM KESEHATAN DAERAH
Jl. Rawasari Selatan No. 2 Jakarta Pusat 10510, Email : dkkilab@labkesda.go.id
Telp. (021) 4247408, 4247432, 4247404, Fax. (021) 4247364

GCMS DATA
HASIL PEMERIKSAAN LABORATORIUM

PENGAMBILAN SAMPEL
Tanggal : -
Oleh : Dr. Arcnd
Jenis Sampel : Daun Pangi

PENERIMAAN DI LABORATORIUM
Tanggal : 13 Januari 2017
No. Lab : 2.3 / 0021
Batch / Kode : - / -

DIKIRIM OLEH
Nama / Instansi : Dr. Arcnd
Alamat : -

Pengambilan sampel di luar / atas *) tanggung jawab LABKESDA

SUBSTANCES
Content (%)

HASIL LABORATORIUM

NO	JENIS/KODE SAMPEL	RT	QUALITY	SENYAWA	KANDUNGAN (%)
		28,634	50	3R-acetamido-4C, 6C-bis(acetox)-5T-dimethylamino-cyclohexene	1,03
		29,337	99	Neophytadiene	5,21
		29,592	70	(+)-2-endo, 3-endo-dimethylbornane	1,24
		29,779	95	Neophytadiene	1,94
		31,185	99	Hexadecanoic acid	15,08
		31,447	98	Hexadecanoic acid	2,06
		31,737	91	Phytol	10,33
		31,958	86	(9Z)-9,17-octadecadienal	3,01
		32,447	97	Octadecanoic acid	24,60
		34,123	49	3,5-dimethyl-1-dimethyldodecylbenzene	1,62
		37,370	96	Squalene	21,22
		43,652	98	Vitamin E	1,84
		48,127	46	Anisole, m-(2-nitrovinyl)	4,07
		48,230	90	tetrahydrobenzopyranol-3-yl-6-(2-methyl-4,5,6,7-tetrahydrobenzopyranol-3-yl)pyridine	2,59
		53,195	60	Spinasterone	1,23

Keterangan:
1. Metode GCMSD (Gas Chromatography Spectrometry Mass)
2. Data yang diperoleh dibandingkan terhadap database library pada alat

Jakarta, 18 Januari 2017
Laboratorium Kimia & Doping
Drs. Priawati, MSI
NIP. 196810302014012002

Figure 5. Original data of **GCMS** measurement results of *pangi* leaf herbal medicine dated on 18th January 2017. There are at least 4 main compounds contributing to the medicine such as *octadecanoic acid* (24.6 %), *squalene* (21.22 %), *hexadecanoic acid* (15.08 %), and *phytol* (10.33 %), respectively. The original data measured from another professional laboratory was provided as it is just like “a scientist is more important than his excellent equipment”.

IV. Conclusion

In conclusion, a novel prominent herbal medicine fabricated by *pangi* leaf has been studied using at least three main experiment systems of **FTIR** chemical bonding, photo cells, and **GCMS** investigations. We obtained that the herbal medicine is superior to **LH** medicine due to its high inhibition of 2.19 times larger than **LH** medicine. Such

superiority was contributed by $C\equiv C$ strong absorption bonding at 2260 cm^{-1} in conjunction with 4 largest compounds of (i). *octadecanoic acid*, (ii). *squalene*, (iii). *hexadecanoic acid*, and (iv). *Phytol*. This discovery is very promising for the future for healing system for HIV patients based on a deeper knowledge of this interesting herbal medicine discovery.

Acknowledgement

H.I.E is cordially grateful to thank Prof. Dr. M.J. (Nus) Saptanno, one of the innovative president of Pattimura university due to his open minded and wide insight in expanding both research work and business since it was built on 23rd April 1963. Part of this work was supported by a research grant of *Riset Unggulan Daerah* No. 741/UN13/SK/2017 about **novel energy research** funded by Pattimura university, Ambon, Indonesia to the head of **Nanotechnology Research Center and Innovative Creation (PPNRI, URL: <http://lppm.unpatti.ac.id/pusat-pnri>)** since it was built on 24th April 2015 with Rector Prof. Thomas Pentury' official letter No. 65/UN13/SK/2015. Moreover, the frontier research work of H.I.E was supported from a world class research (WCR) grant about future creative energy sources supported by Indonesia Ministry of Higher Education (**Ristek-Dikti**) in the year period of 2019 to 2021.

Conflicts of interest

Both authors in this paper have no conflict of interest because they are working under a good collaboration to improve the development of science and technology in particular areas of both North Maluku and Maluku provinces.

References

[1]. H.I. Elim and A.L. Mapanawang, THE ATTRACTIVE DIFFERENCES OF TWO TYPES OF HERBAL MEDICINE FROM ZINGIBERACEAE FRUIT (GOLOBE HALMAHERA),

International Journal of Health Medicine and Current Research 3 (01), 799-806 (2018).

[2]. H.I. Elim and A.L. Mapanawang, Electronics physical system of large antioxidant structure in herbal medicine based Zingiberaceae fruit: Understanding and application, *J. Nanomed. & Nanotech.* Vol. 9, p. 65 (*Abstract & Biography*) (2018).

[3]. H.I. Elim and A.L. Mapanawang, Electronics physical system of large antioxidant structure in herbal medicine based Zingiberaceae fruit: Understanding and application, *Nano Tech Appl.* 1(1), pp. 1-4 (2018).

[4]. H.I. Elim, Scientific Breakthrough Based on Natural Creation: "1 Diamond with 7 Eyes", *COJ Reviews and Research* Vol. 1(1), pp.1-4 (2018).

[5]. H.I. Elim, Physics of Multitasking Nanomedicine, *IJHMCR* (<http://www.ijhmcr.com>) 2 (03), 509-519 (2017).

[6]. H.I. Elim, Nanomedicine with Its Multitasking Applications: A View for Better Health, *IJHMCR* 2 (02), 353-357 (2017).

[7]. H.I. Elim, The Discovery of NEW Golobe and Its Amazing Healing System, *Science Nature* 2(1), pp. 66-70 (2019). e-ISSN 2654-6264.DOI: <https://doi.org/10.30598/SNVol2Iss1pp066-070y2019>.

[8]. H.I. Elim, *Nonlinear Optics and the Frontier of Nanoscience and Nanotechnology*, Pattimura University Press, pp. 1-144 (2018). ISBN: 987-602-61906-9-7.

[9]. A.L. Mapanawang and H.I. Elim, Chemical bonding characters of love herbal medicine, *J. Nanomed. & Nanotech.* Vol. 9, p. 63 (*Abstract & Biography*) (2018).

[10]. A.L. Mapanawang and H.I. Elim, Chemical Bonding Character of Love Herbal Medicine: A Prominent Medicine Candidate for Preventing HIV Virus, *Nano Tech Appl.* 1(1), pp. 1-5 (2018).

[11]. A.L. Mapanawang and H.I. Elim, Unique Chemical Bonding Behavior of Love Herbal Medicine and Its Conjunction with Chemotherapy Drug, *J. Nanomedicine and Nanotechnology* 9(3), 1000503 (2018).

[12]. R.C. Gallo, S.Z. Salahuddin, M. Popovic, G.M. Shearer, M. Kaplan, B.F. Haynes, T.J. Palker, R. Redfield, J. Oleske, B. Safai, G. White, P. Foster, and P.D. Markham, Frequent Detection and Isolation of Cytopathic Retroviruses (HTLV-III) from Patients with AIDS and at Risk for AIDS, *Science* 224 (4648), 500-503 (1984).

[13]. M. Popovic, M. G. Sarngadharan, E. Read, and R.C. Gallo, Detection, Isolation, and Continuous Production of Cytopathic

- Retroviruses (HTLV-III) from Patients with AIDS and Pre-AIDS, *Science* **224** (4648), 497-500 (1984).
- [14]. M.G. Sarngadharan, M. Popovic, L. Bruch, J. Schüpbach, and R.C. Gallo, Antibodies Reactive with Human T-Lymphotropic Retroviruses (HTLV-III) in the Serum of Patients with AIDS, *Science* **224** (4648), 506-508 (1984).
- [15]. J. Schüpbach, M. Popovic, R.V. Gilden, M.A. Gonda, M.G. Sarngadharan, and R.C. Gallo, Serological Analysis of a Subgroup of Human T-Lymphotropic Retroviruses (HTLV-III) Associated with AIDS, *Science* **224** (4648), 503-505 (1984).
- [16]. G. Wang, M.L. McCain, L. Yang, A. He, F.S. Pasqualini, A. Agarwal, H. Yuan, D. Jiang, D. Zhang, L. Zangi, J. Geva, A.E. Roberts, Q. Ma, J. Ding, J. Chen, D.-Z. Wang, K. Li, J. Wang, R.J.A. Wanders, W. Kulik, F.M. Vaz, M.A. Laflamme, C.E. Murry, K.R. Chien, R.I. Kelley, G.M. Church, K.K. Parker, and W.T. Pu, Modeling the mitochondrial cardiomyopathy of Barth syndrome with induced pluripotent stem cell and heart-on-chip technologies, *Nature Medicine* **20**, **616-623** (2014).
- [17]. D.M. Margolis, J.V. Garcia, D.J. Hazuda, and B.F. Haynes, Latency reversal and viral clearance to cure HIV-1, *Science* **353** (6297), p. 262, aaf6517-1 - aaf6517-7 (2016).
- [18]. I. Ohsawa, K. Yamagata, M. Ishikawa, K. Takahashi, M. Watanabe, K. Nishimaki, K.-I. Katsura, Y. Katayama, S. Asoh, and S. Ohta, Hydrogen acts as a therapeutic antioxidant by selectively reducing cytotoxic oxygen radicals, *Nature Medicine* **13**, 688-694 (2007).
- [19]. L. Paris, R. Magni, F. Zaidi, R. Araujo, N. Saini, M. Harpole, J. Coronel, D.E. Kirwan, H. Steinberg, R.H. Gilman, E.F. Petricoin III, R. Nisini, A. Luchini, and L. Liotta, Urine lipoarabinomannan glycan in HIV-negative patients with pulmonary tuberculosis correlates with disease severity, *Sci. Transl. Med.* **9**, eaa12807 (2017).
- [20]. Y. Liu, J. Sheng, A. Fokine, G. Meng, W.-H. Shin, F. Long, R.J. Kuhn, D. Kihara, and M.G. Rossmann, Structure and inhibition of EV-D68, a virus that causes respiratory illness in children, *Science* **347** (6217), 71-74 (2015).
- [21]. Y. Yin, B. Manoury, and R. Fähræus, Self-Inhibition of Synthesis and Antigen Presentation by Epstein-Barr Virus-Encoded EBNA1, *SCIENCE* **301**, 1371-1374 (2003).
- [22]. H.I. Elim, A.L. Mapanawang, and M.V. Reddy, A Creative Proposal to Improve Woman and Child Health: from the Knowledge of Physical Nanoscience to Nanotechnology Implementation and Products, *CPQ Women and Child Health* **1** (6), pp. 1-11 (2019).
- [23]. H.I. Elim and L.Y. Chiang, Nanochip Medicine: Physical Chemistry Engineering, *Science Nature* **2**(1), pp. 86-89 (2019). DOI: <https://doi.org/10.30598/SNVol2Iss1pp086-089y2019>.

*♥ **Corresponding Authors Short CV:**

***Dr. dr. Arend L. Mapanawang, Finasim** is a very experienced director of Health Medical College called as STIKES Halmahera in Halmahera island located in North of Maluku, Indonesia. Dr. Arend is recently the Editor-in-Chief (EIC) of reputed **International Journal of Health Medicine and Current Research** (www.IJHMCRC.com) indexed by Web of Science (WoS) since 2019. He is an internist doctor as well as an Indonesia scientist in herbal medicine including for the curing of malaria, HIV virus, and hepatitis with more than 20 years experiences. He had written various books including history and the cause of world wars books. His publications in various international journals have made him as a prominent invited speaker in the world such as in South Korea, United Kingdom, USA, and Germany. As a matter of facts, Dr. Arend is now one of the best scientist in North Maluku province.

***Assoc. Prof. (Lektor Kepala) Hendry Izaac Elim, Ph.D** is a young Indonesia scientist from Pattimura university (UNPATTI) with the rank 23rd in 2017 based on Webometrics (<http://www.webometrics.info/en/node/96>), or the 3rd rank best Indonesia physicist in this 21st century based on the SINTA data, RistekDikti in 2019. Prof. Elim is now a head of the Nanotechnology Research Center and Innovative Creation (PPNRI-LPPM, website: <http://lemlit.unpatti.ac.id/pusat-pnri>) of the Pattimura University (UNPATTI) as well as Chairman for Nanomaterials for Photonics Nanotechnology Laboratory (N4PN Lab), Physics Department, Faculty of Mathematics and Natural Sciences (FMIPA-UNPATTI), Ambon, Indonesia. He has been very active in the following scientific members of the **Indonesia Theoretical Physicist**, and **MRS Indonesia**. Due to his strong background of his **B.Sc (S.Si) in Theoretical Physics** in 1995 at Gadjah Mada university (UGM), and **M.Si (M.Sc) in Theoretical Physics** of Institut Teknologi Bandung (ITB) in 1999, he was successful in obtaining his **Ph.D in the field of physics of nanoscience and nanotechnology**, at National University of Singapore (NUS), Singapore on 13th December 2005. As soon as he finished his Ph.D, he was offered a postdoctoral position at NUS until September 2007, and then moved to **IMRAM, Tohoku university, Sendai, Japan** as research assistant professor for about 4.5 years. Dr. Elim research group at PPNRI-LPPM at Pattimura university was started on 24th April 2015 by educating his first 6 research B.Sc students. Since that triggered time, he already educated more than 60 graduated B.Sc up to 2019 in the fields of superfibers, bio-membranes, and herbal medicine as well as nanobattery system. Prof. Elim had been recently invited to give international scientific talks in **prestigious 2018 PharmaNano in Las Vegas**, and **2019 PharmaNano in New York** as well as many quest lectures associated with the multitasking applications of physics in nanoscience and nanotechnology in many national universities such as **University of Pelita Harapan, UNPATTI, Universitas Negeri Manado (UNIMA), Universitas Sam Ratulagi (UNSRAT), STIKES Halmahera, AKBID MAKARIWO, and University of Indonesia**. According to **Web of Science and Publons data**, Prof. Elim has published over 70 papers with h-index of 23, and citation more than 2260. Moreover, Dr. Elim is recently a member of top scientific society such as **AAAS (ID No. 41737449)** since 2017-present, and **ACS (ID No. 31447106)** in 2018-2019.

***ORCID ID: 0000-0002-4272-7115**