

Unique Chemical Bonding Behavior of Love Herbal Medicine and Its Ability as a Chemotherapy Drug

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Abstract

Love herbal (LH) medicine and its ability as chemotherapy drug is shown because of its ultra-large non-enzymatic antioxidant consisted mainly of ~6.54 ng/mL flavonoids with the calculated molecular resistant of, for example: neoflavonoid (R_N) about ~3 R_C , in which R_C is a resistant of carbon atom. Such promising medicine was fabricated using Halmahera *susugolobe* (*Hornstedtiaalliacea*), and then studied systematically about its multitasking behaviors. The obtained unique chemical bonding behavior especially related to a chemotherapy drug such as *cisplatin* (a commercial drug) is presented based on four main types of unique chemical bonds of N-H (Bending) at 1562 cm^{-1} , C=C at 1697 cm^{-1} , C≡C at 2070 cm^{-1} , and C-H at 3013 cm^{-1} . We found that only 3 bonds were closely in conjunction with LH medicine behavior as a chemotherapy drug. These three are N-H (Bending) at 1562 cm^{-1} , C≡C at 2070 cm^{-1} , and C-H at 3013 cm^{-1} , where N-H (Bending) was fully responsible to handle the presence of toxic interacted to it. While the other two significant bonding of C≡C at 2070 cm^{-1} , and C-H at 3013 cm^{-1} were in conjunction with the protective alkaline energy for the immune system in human body. Furthermore, LH medicine has healing activity as strong inhibition as *Lamivudine* (HIV drug invented in 1995) which is good in healing in HIV-AIDS patient and hepatitis virus. Such multiple findings open a breakthrough opportunity in healing cancer in a patient without side effects obtained using common chemotherapy drugs.

Keywords: Nanotechnology; Chemical bonding; Chemotherapy drug; Multitasking healing; Nanomedicine

Introduction

Frontier multitasking herbal medicine is currently in a deep observation of various interdisciplinary scientists such as medical scientist, physicists, chemists, and pharmaceutical experts, as well as nanotechnologists. This type of drugs are easy to fabricate, no side effects in treating patients with many different problems both due to parasites such as bacteria and viruses, and DNA damaging of broken cell for instance in tumor, and cancer cells, and economically using simple human technology [1-3]. According to our investigations of the current world drug system of fabrication with a sophisticated nanotechnology, and many high paid scientists mostly spread in America and European continents as well as in Japan and South Korea of Asia continent [4-9], the drug system of healing was based on one drug to one target accurately in the sense that economically, it was good to grow pharmaceutical company business in terms of more medicines, more profits. More interestingly, most of the marvelous findings in such last 14 years (2003 to 2017) were due to multidisciplinary collaborations among the variety above mentioned researchers. In addition, the future herbal medicine is going to be in nano scaled rugs identified based on the development of nanoscience theory and its technology [10-12] called as herbal nanomedicine [13-15]. Such advanced medicine will make a different in enhancing the multitasking healing system in facing many problems of human complicated deceases and dangerous parasites, for examples a long mystery HIV-AIDS virus discovered since ~1980 [16-19], and hepatitis viral virus.

In present paper, a herbal medicine called as Love herbal (LH) medicine [3] based on the best chosen one from our investigation in a series types of zingiberaceae fruit (Maluku *Golobe*) such as 4 *golobe* types found in North Maluku and Maluku provinces as follows:

- I. Halmahera *susugolobe* (*Hornstedtiaalliacea*),
- II. Halmahera *golobe* or Ambon *golobe* (*Zingiberaceaealliacea*),
- III. Halmaherarambutangolobe (*Amomum sp.*),

IV. Ambon *haliagolobe*/Halmahera *kelerenggolobe* (*Etlinger alba* (Blume) A.D. Poulsen) [2,10] was investigated for its possibility in healing a cancer cell or its ability as a chemotherapy herbal drug. The result of the study will then compare with that of *cisplatin*, a commercial chemotherapy drug. It was interesting to point out that love herbal medicine with its ultra-large non-enzymatic anti-oxidant of 6.54 ng/mL [1] really induces a significant character as anti-cancer drug. Such unique behavior was based on its medicine contents of special 3 types of chemical bonding such as N-H (Bending) at 1562 cm^{-1} , C≡C at 2070 cm^{-1} , and C-H at 3013 cm^{-1} , respectively. Further reason of such physical chemistry attitudes is discussed as well.

Experimental Method

In order to identify the chemical content of LH medicine, Fourier transform infrared (FTIR) spectroscopy system with the equipment type of MB3000, USA [3] was used to study various types of chemical bonding responsible to the healing system of such herbal drug. This chemistry physics - physical chemistry system was employed according to our various studies in different types of super-nanomaterials based on carbon-carbon bonds [20,21].

Moreover, the MTT test which is a method with MDEM (Dulbecco's modified eagle medium) with the help of mass spectrometer as the additional apparatus to identify the sample of LH with its comparison

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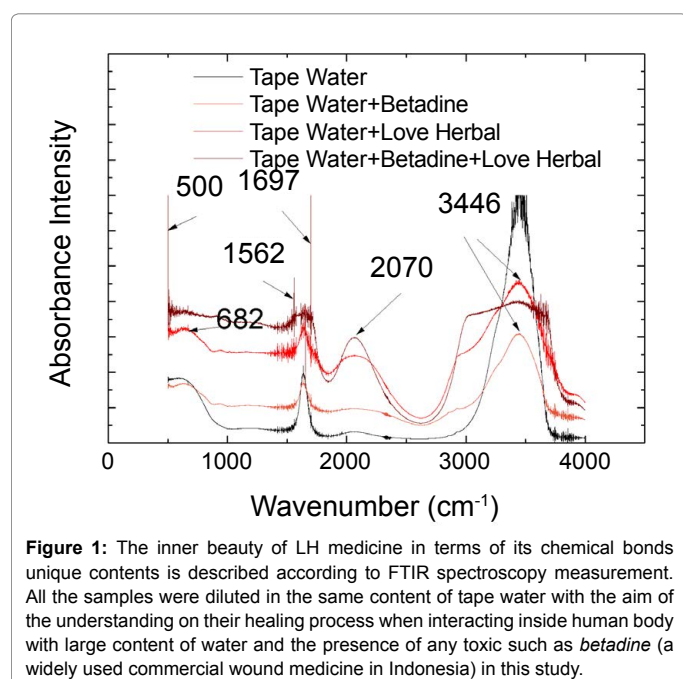
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with *Lamivudine* (a world HIV standard medicine) was conducted in Premata IPB Laboratory, Bogor, West Java province, Indonesia in 2017. In the MTT test, the substance media with MDEM was grown with 500 cells in 100 μ l growth media. The extract was added after the cells reached confluent 50% (24 h) performed on day 3 by adding 10 μ l of MTT (μ g/ml) per 4-hour inhibition well at 37°C. Fornazan crystals are dissolved in ethanol. The absorption value readings were performed at 595 nm. While the test experiment of LH resistance against normal cancer in order to study the activities in preventing the development of cancer cells was carried out at Indonesia Science and Technology Laboratory (BPPT Lab.), Serpong, West Java province in 2017. Therefore, the LH medicine as a prominent medicine to heal HIV patients was originally investigated by using just three simple steps of research: (i) optical spectroscopy of chemical bonding in LH medicine, (ii) the MTT test to a comparison between LH medicine and *Lamivudine* in stopping HIV viruses, and (iii) the inhibition percentage test as a significant indicator how good a cancer cell can be prevented.

Results and Discussion

In Figure 1, there are at least 3 unique chemical bonds namely N-H (Bending) at 1562 cm^{-1} , $\text{C}\equiv\text{C}$ at 2070 cm^{-1} , and C-H at 3013 cm^{-1} which indicate unique behavior of LH medicine. Furthermore, the Figure 1 shows that when there was a presence of a toxic (in this case, *betadine*: a wound standard medicine widely used in Indonesia), the LH medicine actively reduced the O-H bond (at 3446 cm^{-1}) from water, and enhancing its N-H bond ability. In addition, the other two important chemical bonds of $\text{C}\equiv\text{C}$ at 2070 cm^{-1} , and C-H at 3013 cm^{-1} significantly contributed to enhance LH medicine ability of healing a cancer cell due to DNA damaging in a cell are fits with the experimental observation described in Figure 2a.

Figure 2 depicts that the *cisplatin* shows about 60% viability as its concentration increases from ~ 1 $\mu\text{g/mL}$ to ~ 9 $\mu\text{g/mL}$. While LH medicine improved its percentage of viability as large as 40% as its concentration was enhanced from ~ 10 $\mu\text{g/mL}$ to 1000 $\mu\text{g/mL}$. Such findings make LH medicine as a very promising herbal medicine in handling at least 3 important healing system so far such as the first discovery of it an ultra-large non-enzymatic anti-oxidant [1] which



is good for maintaining the immune system of human body, its prominent retroviral drug ability to handling HIV virus [2,3,13,14], and this study of its anti-cancer drug ability. This invention will make a different thinking of understanding a prominent drug, and not just a process to produce highly economic drug business. In facts, mostly drugs produced worldwide are based on a drug for a targeted disease. Here, our significant discovery obtain that a LH medicine extracted from natural product of *Hornstedtia alliacea* has at least trinity healing system, or 1 drug with at least 3 obvious healing abilities.

LH medicine with its resistance [2] mainly from ~ 6.54 ng/mL flavonoids [1] with the calculated molecular resistant of, for example: neoflavonoid (R_{Nf}) about $\sim 3 R_C$, where R_C is a resistant of carbon atom has a new insight in preventing the development of cancer cells. This results of laboratory tests at BPPT Lab. in 2017 with the method of Difan Kambal can show such activity as depicted in Figure 2, although it was only somewhat in certain commonplace. On the other hand, the LH medicine is more useful to prevent both such 3 types of diseases, and good supplements including very good safe candidate drug especially for women who have breast cancer potential. In addition, the period of inhibition of Halmahera *Golobe* fruit extracting capable of making replication of anti retrovirus (RTU)-like work such as HIV and Hepatitis opens greatly the hope of future HIV treatment and even as a prominent candidate for stopping HIV problems in human body [13,14]. Moreover, LH medicine network system is identical to *Lamivudine* that plays a role in inhibiting work on the transcriptional enzyme from DNA to RNA. The virus was lost so that the RNA Virus cannot be linked to the DNA chain, and the human RNA until the HIV is unable to proceed further into a new mature HIV. Such simple strategy to attack HIV growing is supported according the data in Table 1.

No.	Name of medicine sample	Concentration (ppm)	Average measurement	The inhibition (%)
1	LH medicine	3.125	0.391	39.88
		6.25	0.467	28.18
		25	0.437	32.79
		50	0.438	32.56
		100	0.660	-1.54
		200	0.394	39.34
		400	0.425	34.64
		800	0.368	43.34√
#	Control cell		0.650	0.00
2	<i>Lamivudine</i>	0.78	0.479	26.25
		1.56	0.465	28.48
		3.125	0.640	1.54
		6.25	0.533	18.01
		12.5	0.489	24.71
		25	0.564	13.24
		50	0.347	46.65√
		100	0.462	28.87
#	Control cell		0.650	0.00
3	<i>Pangi</i> leaf medicine	3.125	0.686	0.00
		6.25	0.709	-3.35
		25	0.352	48.71
		50	0.571	16.67
		100	0.225	67.19
		200	0.141	79.48
		400	0.180	73.80
		800	0.036	94.80√
#	Control cell		0.686	0.00

Table 1: The activity of LH medicine with its comparison with that in the *Lamivudine* inhibition. For future work, we also provide our initial another herbal medicine partner called as *pangi* (pure of its leaf, in the inset No. 3) for improving its multitasking healing system as a hybrid LH-*pangi* medicine (LH-P medicine).

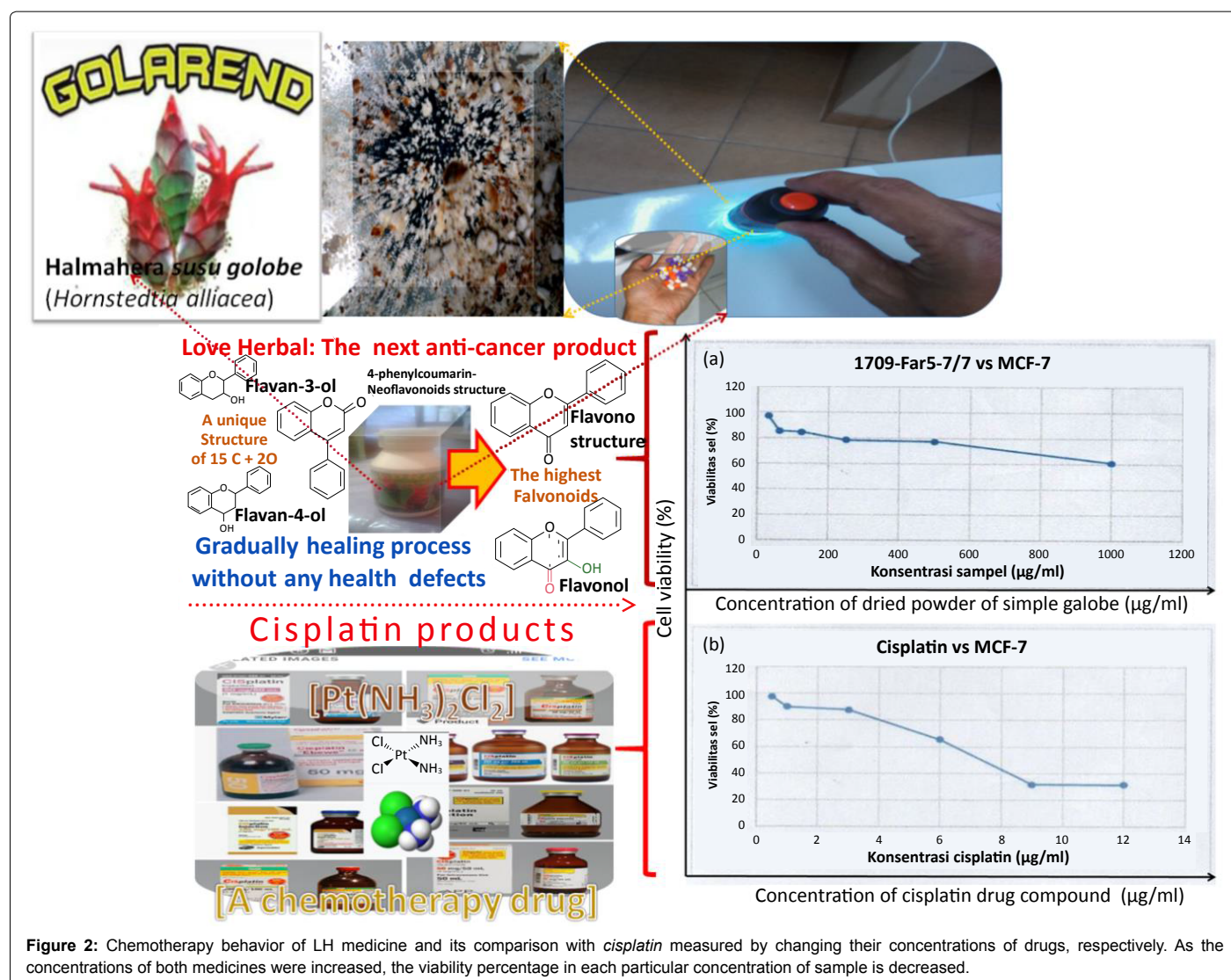


Table 1 show that LH medicine has a clear activity as a strong inhibition from herbal ingredient to retrovirus which is very useful in healing infected patients due to HIV AIDS and hepatitis virus as well as cancers. This study is supported by our former observations and findings [3,13-15]. Therefore, LH medicine activity to RTU gives new hope for [RTU] people in the future, because with the LH which is an original material extracted simply from nature (Halmahera Golobe) can suppress the RTU. In the Table 1, the results of the observation of how the LH made by Halmahera Golobe fruit (*Zingiberaceae*) with its very high concentration of IC₅₀=6.54 ng/mL can handle the rising of HIV particularly in killing the viruses. These observations were carried out using few different concentrations of *Zingiberaceae*, and the evident were then be compared with that using *Lamivudine*, a commercial medicine for handling HIV viruses discovered on 17th November 1995 [13,14].

It is interesting to note that currently, a hybrid LH-*pangi* medicine (LH-P medicine) with the excellence inhibition (94.8%) of 2.19 times larger than LH medicine (43.34%) at the same concentration of 800 ppm is superior to that *Lamivudine* (46.65% at its 50 ppm) has been investigated as depicted data is shown in Table 1. This finding will open a bright hope for a multitasking healing system in human body

problems as its theoretical explanation had been provided a year before [11,12].

Summary

In conclusion, LH medicine fabricated using Halmahera *susugolobe* (*Hornstedtiaalliacea*) is a very promising herbal medicine to be explored especially on its multitasking behaviors healing system. At least, there are three significant discoveries here involving its trinity healing functions such as not only as a prominent herbal drug in handling the human body immune system and its attack due to RTU viruses such as HIV-AIDS and hepatitis virus, but also its anti-cancer function like a chemotherapy drug. The results are fitted with our theoretical resistant calculation of for example, its mainly neoflavonoid (*Nf*) content with *R_{Nf}* [2] about ~3 *R_C*. Furthermore, we have found that only 3 bonds were closely associated with such LH medicine behavior as a chemotherapy drug as follows N-H at 1562 cm⁻¹, C≡C at 2070 cm⁻¹, and C-H at 3013 cm⁻¹ in which N-H (Bending) was fully responsible to handle the presence of toxic interacted to it. While the other two significant bonds of C≡C at 2070 cm⁻¹, and C-H at 3013 cm⁻¹ were in conjunction with the protective alkaline energy for the immune system in human body. In addition, we suggest an auxiliary work particularly to improve perfectly

the quality of this LH medicine by future on-going research based on the right formula, dose, and target with minimal effects on the organs of the body shall be conducted.

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