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Multitasking Herbal Nanomedicine: A Frontier Report

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ABSTRACT: A frontier review from creative research works on nanotechnology and nanomedicine is presented in a systematic explanation. Based on multitasking healing system of herbal medicine identified in the beginning using a simple theoretical physics works, and the natural product of herbal medicine, the step by step guidance to develop important herbal nanomedicine is then enlightened. Such important herbal medicines with their unique and multitasking healing system were studied by implementing five point behavior parameters: (1). Optical property (**OP**), (2). Electronics and magnetics character (**EMC**), (3). Mechanical behavior (**MB**), (4). Chemical possessions (**CP**), and (5). Quantum movables (**QM**). Finally, the detail of output herbal nanomedicine is briefly elucidated. Our findings show that herbal nanomedicine are very promising for multitasking healing system which is absolutely different from normal synthetic drug which heals one target with one medicine..

Keywords: Multitasking, Herbal, Frontier, Nanomedicine, Healing System.

Dr Hendry Izaac Elim currently working in Pattimura University. He received his Bachelor degree in Physics at Gadjah Mada University in 1995, and then graduated and held a Master degree in Physics from Bandung Institute of Technology, and attended a Ph.D study at National University of Singapore in Physics department in 2001 and finished it in 2005. Prior to PhD degree, he worked as a research fellow at Chemical and Biomolecular Engineering, NUS from October 2004 to January 2006. Then continued pursuing research career as a postdoctoral researcher at NUS and Tohoku University from January 2006 to March 2012. Currently, he is building his new lab with all the simple supraratio and supranatural work at Lab. of Nanomaterials for Photonics Nanotechnology called as Lab. N4PN, Physics dept., Pattimura Univ., Ambon. Since 24th April 2015, he was the Chairman of nanotechnology research center and innovative creation called as PPNRI, UNPATTI (http://unpatti.ac.id), Ambon (website: http://lppm.unpatti.ac.id/pusat-pnri). On December 18, 2017, Dr. Elim was elected as one among two best young Indonesia Scientist at Pattimura University leading by Prof. M.J. Saptenno, M.Hum. In 2017, Dr. Elim has been elected as a regular member of American Association for the Advancement of Science (AAAS): #41737449. While in February 2018, Dr. Elim has been a regular member of American Chemical Society (ACS): #31447106. In Indonesia, Dr. Elim is currently among 60 best scientists of over ~250,000 Indonesia researchers and scientists based on SINTA, RistekDikti Index with SCOPUS H-index of 24, and over 2200 citations. In addition, Dr Elim has served as editor in International Journal of Health Medicine and Current Research since 2016. In May 2017, Dr Elim received a president of Indonesia award called as XX years Satyalancana Karya Satya. Dr. Elim is currently serving as a editor in few journals.

1. Introduction

A frontier nanoscale work was preliminary started by R. P. Feynman [1] in his formal speech in 1959. No longer after such triggered time and prominent physicist from top well-known university of CALTECH, the wisdom and knowledge were dramatically spread worldwide. Just in the last 20 years started from ~1999, there have been many breakthroughs in multidisciplinary research particularly associated with the improvement of human health through scientific works in multidisciplinary works such as nanotechnology and nanomedicine [2-7] with the output products in large scale in this 21st century. Moreover, since the first discovery of a dangerous virus of HIV-AIDS [8-11] in ~1982-1984, the human knowledge and its applications had been dramatically advanced due to such incredible challenges and obstacle to handle it. However, the healing system of the infected patients is remained an unsolved problem yet. Currently, there are many efforts to invent a systematics herbal medicine in order to heal or even to cure the difficult parasite problem infected into human body, for instance as discovered in zingiberaceae fruit (*Golob*e Halmahera/ Maluku) [12-17]. Such invention on herbal medicine was based on a frontier physical knowledge [18-26] applied in both small islands areas [27-29] and modern cities on earth [30-45], as well as collaborated with pharmaceutical advanced knowledge and medical true experiences in society treatments [46-55].

In this short report, we would like to provide a core significant guide to understand multitasking herbal nanomedicine as a concise healing system in facing a complex decease problem located uniquely in many different continents in this world. We started from a state-of-art difference between always true healing system (ATHS) and not always true curing system (NATCS) in nature [51]. The detail of properties inside the content of herbal nanomedicine was then extracted using at least 5 important physical parameters and its technical measurements involving optical, electronics and magnetics, mechanical, chemistry and quantum behaviors, respectively. The integrated links of the whole idea in a certain herbal nanomedicine was then obtained by understanding the whole integrated relationships. This idea could be widely applied in many different kinds of herbal nanomedicine for its development and creative healing products.

2. Research Method

In conducting a systematic integrated work on nanomedicine research, one needs to have knowledge and understanding of the following 9 factors of scientific wisdom:

1. Frontier nanoscale works contributed by others [1-7].
2. The first detail work on HIV virus research [8-11].
3. Original work on the HIV herbal medicine [12-17].
4. Frontier knowledge in nanoscale physical research [18-26].
5. Frontier knowledge in the small islands locations [27-29].
6. Frontier knowledge in nanohybrid research [30-37].
7. Frontier knowledge in nanoscale processing research [38-41].
8. Frontier knowledge in nanoscale applied research such as in nanobattery, nanomedicine, and others [42-45].
9. Frontier knowledge in advanced nanoscale research development [46-54].

Furthermore, a creative work under worldwide collaborations using world standard equipments such as (**a**). Optical spectrophotometers of FTIR, UV-Vis, and photoluminescence (PL); (b). Chemical chromatography of liquid, gas and solid apparatus; (**c**). Optical high resolution of microscope for instance: SEM, AFM, TEM, and STM as well as femtosecond laser optical setup; (d). Gas chromatography mass spectrophotometer (GCMS) or a modified Organic-Metallic chromatography mass spectrophotometer (OM-CMS)**;** (**e**). Build-up integrated spectroscopy equipment involving chemical depositions, for example: CVD, PE-CVD, MO-CVD, et cetera [18-26, 30-40].

In addition, these works embedded inside the content of the present paper were generated by applying few creative research works between physics of nanotechnology and nanomedicine [44-45], and chemistry and pharmaceutical advanced research. Some important understanding on physical interpretation using the knowledge of mathematical physics and quantum mechanics on how particles of nanomedicine movement

under its interaction with human body was tested. Moreover, the fitting of theoretical calculation in experimental data was used to make sure a complete understanding of natural mystery of herbal nanomedicine extracted from natural products. It should be pointed out that the natural experimental data were generated after optical, physical, and chemical processes with the help of all above mentioned spectroscopy and chromatography as well as high resolution microscope equipment [12-17, 46, 50].

3. Results and discussion

Figure 1 shows 2 main things on the works of nanomedicine research involving ATHS and NATCS. The ATHS of nanomedicine was based on conservation laws in nature which have their invariant. It means that the nanomedicine healing system with either fast or slow velocity in interacting with human organs or target part of the body is always true. While the NATCS of nanomedicine is just true in a slow velocity of curing system.

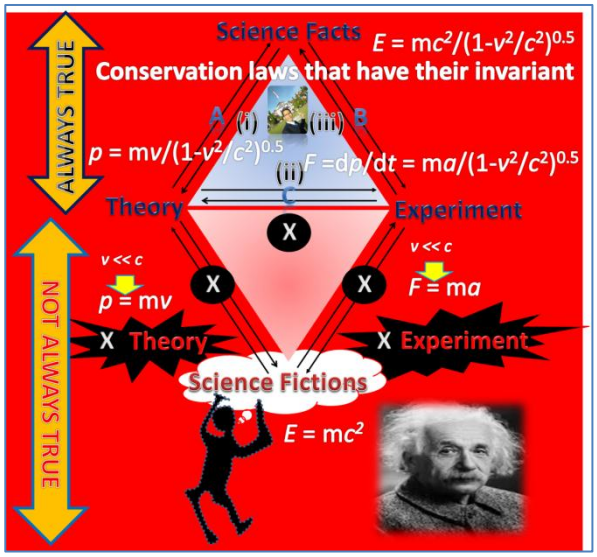

Figure 1. In conducting an advanced breakthrough nanoscale work, a basic understanding in experimental physics is a must: "*Physics which is ALWAYS TRUE healing system* (ATHS) & *NOT always TRUE* curing system (NATCS)".

In order to follow up the mechanism of the healing strategy using nanomedicine, there are at least two to three parameters in natural sciences used to understand a complex organization of herbal nanomedicine consisted in universe. The detail contents of frontier nanoscience and nanotechnology first 3 parameters applied in a deeper understanding of such physics involving (a). size, (b). shape and (c). flexibility [50] as depicted in Fig. 2. Another 3 group complementary parameters are (i). Hydrogen bonding and dipole interaction among 2 atoms, (ii). Functional group types and its orientation, and (iii). Dispersion force, π-aromatic stacking, and hydrophobic effect. When one goes into microscopic physics or quantum physics, such complicated 2 kinds of group parameters can be shortened into only 2 important points: (1). Size, and (2). Interactions [44-45, 50-51]. In nanotechnology and nanomedicine, the explanation of the physical qualities in conjunction with size (radius, r) and surface area-volume ratio ($R = A/V$) due to light-matters interactions could be described in Fig. 3.

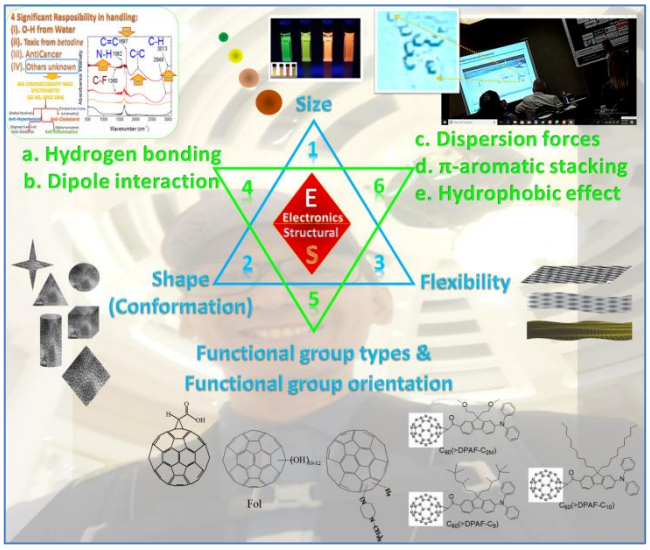

Figure 2. The advanced basic knowledge in developing frontier nanoscience and Nanotechnology [50]

In order to advance the understanding in herbal nanomedicine, one expands the wisdom and knowledge as previously shown above in Fig. 1, Fig. 2, and Fig. 3 into Fig. 4. in which the physical properties of the nanomedicine have been identified based on the following 5 core behavior parameters: (1). Optical property (OP); (2). Electronics and magnetics character (EMC); (3). Mechanical behavior (MB); (4). Chemical possessions (CP); and (5). Quantum movables (QM). By employing these 5 points of nanotechnology and nanomedicine research works, few collaborative outputs have been discovered as depicted in Ref.[12-17]. The similar idea has been applied in detail to rare earth (RE) elements with a family of 17 elements [54].

Figure 5 shows a smart strategy to develop nanomedicine products by implementing the knowledge and understanding of an experimental physics [50-51] involving organic chemistry and synthetic chemistry. The herbal nanomedicine products generated and extracted from natural products are then applied into special scientific chemical manipulation called as a synthetic chemistry manner which finally produces many different novel structures useful for healing system in ATHS. The output new structures and their unique various multitasking behaviors for instance [12, 17] are then investigated using various optical spectroscopy techniques such as UV-VIS, PL, FTIR, Liquid Chromatography (LC), photo-cells, and GCMS.

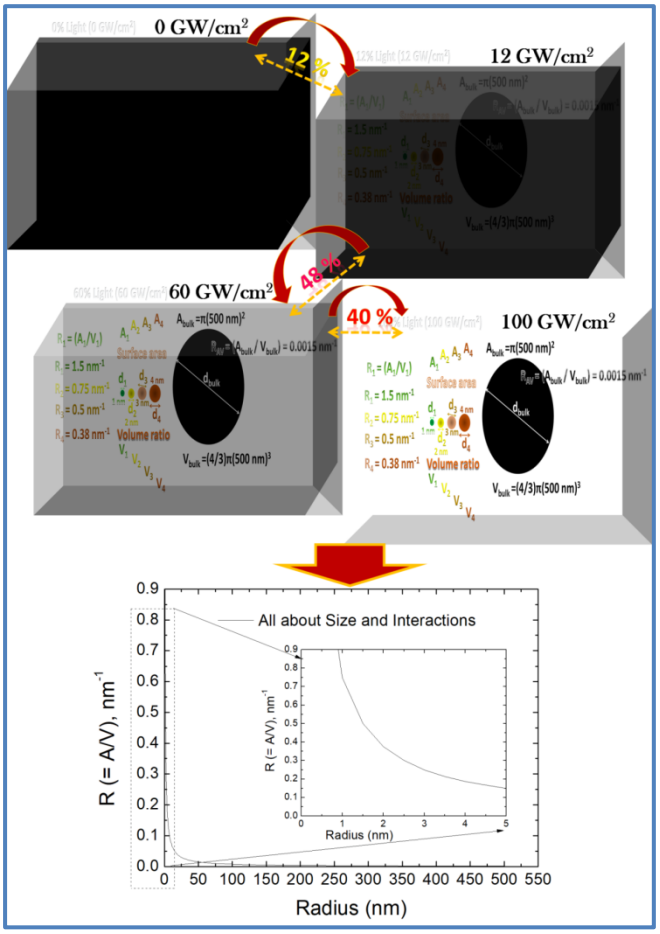

Figure 3. From darkness into brightest: size and surface area-volume ratio dependence due to light-matters interactions with the light source increased from 0%, 12%, 60% to 100%, respectively [50]. The best size of nanoparticle considered as a nanochip is ~1 nm to ~5 nm.

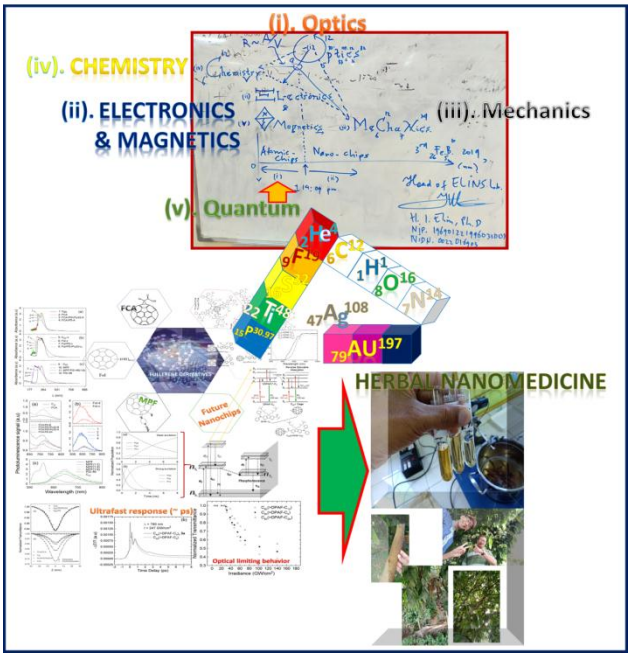

Figure 4. Physical properties of herbal nanomedicine expanded using the knowledge of nanoscience and nanotechnology: a nanomedicine for many different integrated targets of healing.

In distinguish the naked different between traditional medicine and modern medicine, Fig. 6 shows the detail physical deep knowledge background was initiated to discover a novel nanomedicine based on our former works in Ref. [44-45, 53]. In addition, through a very close multidisciplinary collaboration among nanotechnologist and pharmacologist as well as a doctor, the output product of herbal nanomedicine could be attained. Figure 6 implies that there is a systematic physical movement of nanomedicine transferred through a capsule into human body while interacting with parasites or deceases inner the special target part in the body. Such complicated healing process may take some times to be fully understood, of course with many different experiments either *in vivo* experiment in which the medicine was injected into a rat or patient (volunteer) or laboratory works. In this case, a volunteer was safe due to the nature of herbal medicine. However, through a synthetic chemistry of new structure of herbal medicine process, the *in vivo* in mice is a must experiment. Such advantage of herbal nanomedicine makes it very remarkable for multitasking healing system in various complicated deceases in human life as invented for instance in zingiberaceae fruit (*Golobe* Halmahera/ Ambon) [12-17, 46].

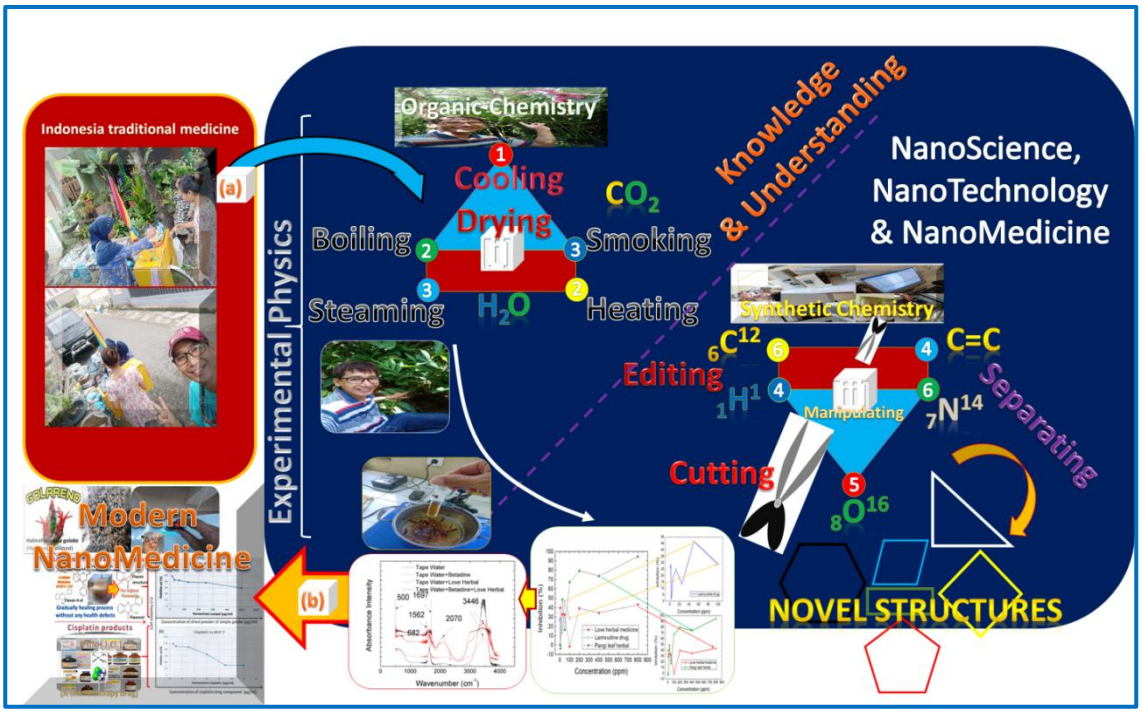

Figure 5. Simple technology transfer to work with herbal nanomedicine for instance as shown in [17] through the natural knowledge and understanding of organic chemistry and its cooperation with synthetic chemistry nanotechnology: traditional herbal medicine versus modern herbal nanomedicine.

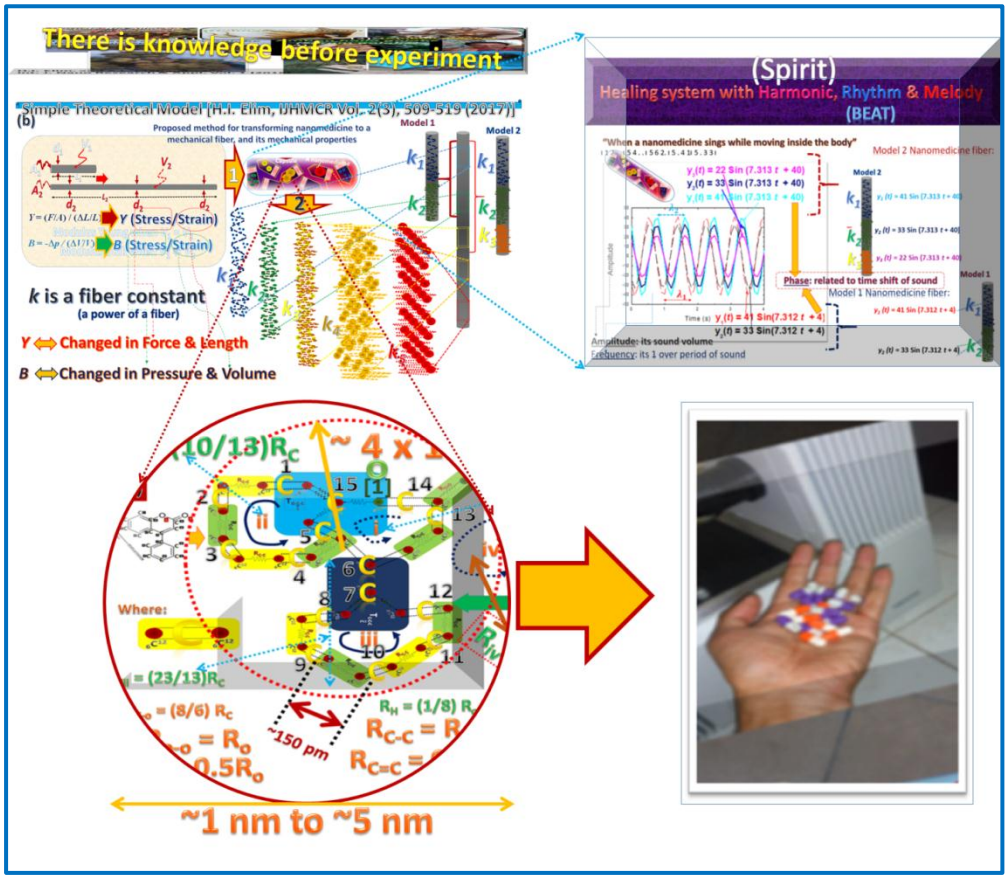

Figure 6. Output herbal nanomedicine product and its explanation, for example in Ref. [12, 17].

4. Conclusion

In conclusion, a short frontier review on herbal nanomedicine identified in the beginning using a simple theoretical physics works, and the natural product of herbal medicine have been described using a detail step by step explanation to enhance the uniqueness of herbal nanomedicine particularly on its multitasking healing system. This multitasking healing system in natural products were studied by applying 5 main behavior parameters: (1). OP, (2). EMC, (3). MB, (4). CP, and (5). QM. Our discoveries from a detail product of herbal nanomedicine show that herbal nanomedicine are incredibly promising for multitasking healing system which distinguishes her from a standard synthetic drug with just one target healing system from one medicine.

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There are no conflicts of interest.

Competing Interests:

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