Unique Physical and Chemical Properties of Kian Sand Worm (Siphonosoma ur-pulau) Traditional Medicine: Electrical, Optical and Chemical Response of Edible Powder with Different Sizes

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Abstract
Sea worms or sand worms were widely spread on earth generally in beach areas with a series of different taxonomy sizes. There made a variety of the genus as well as species of such interesting worms. This study explores that traditional medicines fabricated using Kian sand worm (Siphonosoma ur-pulau) with two types of grain sizes. Our significant findings show an attractive potential of it as toxic absorption based traditional medicine besides its normal use as daily foods in the Tual region of Maluku province in the eastern part of Indonesia. Such noteworthy identification was tested and identified in the grain rough size medicine with low concentration related to its integrated multitasking response of electrical, optical and chemical characters such as its lowest absorbance at a moderate transparency of 0.271 a.u (75.528%) pH ~5.09, and stable voltage under thermal effect ~0.7 V. This invention unlocks a various opportunity of the use of Kian sand worm as a multitasking traditional medicine.

Keywords: Kian sand worm (Siphonosoma ur-pulau), Traditional medicine, Toxic absorption, Multitasking traditional medicine.

Introduction
The mystery of healthy natural foods involving herbal medicines extracted from parts of plants or traditional medicine made by parts of animals has been a long time trust among ordinary people with different tribes and nations in small villages or remote islands on earth. Such incredible simple science from generation to generation from ancient times has been an evident history inherited to current 21st century people worldwide. As the advancement of Nano medicine with multitasking understanding or multi-agent system is acceptable among interdisciplinary scientists as well as unconscious ordinary society, the life of healthy people has been a good example to improve cultural behaviors among person to person interactions daily in current ~7.8 billion world people [1-22].

Even though the space of human being on earth has been shrinking to be ~ 50.33 Person/km² in the whole living land area of earth surface. The momentum of lifestyle is a good source of energy contribution for maintaining human being being such as both enzymatic and non-Enzymatic types of giant natural antioxidants to develop either herbal medicines or traditional medicine, for instance in sea or sand worms extracted and taken from the parts of sea worms [1-22]. Such sand worms mostly stayed in the beach sand areas or a land surface on earth very closely connected to the ~70% of world seas/ oceans. Therefore, it is interesting to investigate their unique physical chemistry chemical physics characters for a possibility in integrated traditional medicine based on electrical, optical and chemical responses, respectively.

Many deep investigations have been carried out about different types and locations of sea or sand worms all over the world with their focuses on typical anatomy, environmental behaviors, and food processing and products by using the identification through DNA barcoding, molecular detection worm relationships novel antithrombotic protease protective effects of polysaccharides bioturbation and aquaculture, ecological impact and counterplan [1-4, 23-29]. In this simple and coherent study, the authors present on how Kian sand worm named as Siphonosoma ur-pulau found in the south east part of Maluku province in the eastern part of Indonesia with surrounding over 1340 small islands (~10% of the number of Indonesia islands), and particularly located mostly in Ur-Pulau, Tual region can exhibit a unique physical chemistry chemical physics behavior due to its integrated electrical, optical and chemical...
responses as traditional medicine identified by inserting as fabricated two types of grains traditional medicine based Kian sand worm. The results of this work suggest that Kian sand worm can be generally used as a multitasking traditional medicine as unconsciousness consumed daily food by ordinary local people in Tual region of the eastern part of Indonesia.

Research Experimental Techniques

Kian sand worm (Siphonosoma ur-pulae) traditional medicine was fabricated using traditional modified technique in laboratory of nanomaterial’s for photonics nanotechnology (Lab. N4PN, physics department at Pattimura university (UNPATTI), Ambon, Indonesia) as well as nanotechnology research center and innovative creation (PPNRI, UNPATTI). The worms were collected in the sand beach parts of Ur-pula Island located in Tual region of Maluku province in the eastern part of Indonesia. (Figure 1) shows a typical anatomy of different body parts of Siphonosoma ur-pulae, a new species of sand worm. Such worm was often grouped as sea worm in the world wide view. However, the Kian sand worm was identified as one of the longest sand/sea worm on earth up to present as depicted in (Figure 2). Traditional herbal medicine using Kian sand worm was prepared by cooking it in a hotplate with the inner temperature pan of ~87.6 °C for few minutes.

The measured temperature during the frying time with an infrared thermometer was ~79.1 °C on the body of the Kian worm. The traditional medicine was then grinding into flour. After such process, the separation of the grain sizes was carried out using a separation tool that makes two types of different sizes namely as smooth and rough powders, respectively. In order to test both as prepared traditional medicines, a toxic target of betadine (a common outer medicine samples with its ability to dramatically reduce the toxic by absorbing the toxic during instant interaction. The physical quick response of toxic absorption was indicated by the color changing from dark brown to be light yellow. (Figure 4) In order to find out the detail optical response of such interesting traditional medicines, shows that the high concentration of the rough powder as depicted on the right side of Figure 4 had both low absorbance and transmittance at λ ~390 nm of 1.053 a.u. and 8.858%, respectively. While the low concentration of the rough powder was obtained to be superior at λ ~403.6 nm with the lowest Abs. of 0.271 a.u. and the largest transparency (T) of 53.52% among the four different traditional medicine samples with its ability to dramatically reduce the toxic by decreasing its absorbance from ~1.266 a.u. to ~0.271 a.u. at the nearest peak absorption in UV region. Such physical indicator could be seen in the naked eyes by the much more transparent solution after absorbing the toxic during instant interaction.

Results and Discussion

Depicts two types of traditional medicines as prepared with two types of grains following by its testing results on reducing betadine in drinkable water solvent (Figure 3). The physical quick response of toxic absorption was indicated by the color changing from dark brown to be light yellow. (Figure 4) In order to find out the detail optical response of such interesting traditional medicines, shows that the high concentration of the rough powder as depicted on the right side of Figure 4 had both low absorbance and transmittance at λ ~390 nm of 1.053 a.u. and 8.858%, respectively. While the low concentration of the rough powder was obtained to be superior at λ ~403.6 nm with the lowest Abs. of 0.271 a.u. and the largest transparency (T) of 53.52% among the four different traditional medicine samples with its ability to dramatically reduce the toxic by decreasing its absorbance from ~1.266 a.u. to ~0.271 a.u. at the nearest peak absorption in UV region. Such physical indicator could be seen in the naked eyes by the much more transparent solution after absorbing the toxic during instant interaction.

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Indicates physical chemistry chemical physics properties of pH behavior for the whole fresh samples, and the physical appearance after 8 days in two prepared grain sizes of traditional medicine based Kian sand worm (Figure 5). The lowest concentration of rough powder was the most needed contributor to decrease the pH of toxic solution from 6.39 to be 5.09. This observation and measurement confirms the optical parts as shown in Figure 4. To quantify the integrated understanding of electrical, optical, and chemical response of eatable powders with two different sizes medicines, (Figure 6) denotes the physical chemistry chemical physics characters of traditional medicine made by Kian sand worm according to time (t in s) versus temperature (T in °C), and voltage (V) versus T, respectively particularly in their reactions with the betadine toxic solvent. The traditional medicines show that there are about twice improvement of voltage in toxic solution from ~0.35 V to ~0.7 V in different temperature up to ~62°C. However, the voltage of smooth medicine powder shows a sudden decreasing at 55°C. Such unusual observation may be due to an easy chemical structural changing in the medicine on the particular temperature so that it needs a further study especially in the structural transformation because of physical effects of temperature and a unique current flow. However, the rough grain type of medicine is very promising due to its stability under the thermal influences.

**Conclusion**

These findings note that traditional medicines fabricated using Kian sand worm have a great potential as toxic absorption based medicine besides its use as daily foods in the Tual region of Maluku province in the eastern part of Indonesia. Such remarkable accuracy was identified by the grain rough size traditional medicine with low concentration as well as the integrated multitasking response of electrical, optical and chemical properties with its lowest abs. at a moderate transparency of 0.271 a.u (T ~53.528%), pH ~5.09, and stable voltage under thermal effect ~0.7 V. In summary, such current discovery of traditional medicine based Kian sand worm opens a widely opportunity of a multitasking traditional medicine.

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