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Visualization of the Water, Improved Diseases, and Nuclear Changes

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Abstract

We developed the activated water by tap water pressurizing (more than 100MPa) to indicate two significant items. One is the reduction (anti-oxidation) due to the outer electron of an atom, and another one is nuclear change due to the nucleus. The critical factor is a hydrogen atom, but hydrogen is neither a hydrogen atom nor a proton and electron. They exist stably for an extended period, transferring their information. Here, we report visualization and sustainability of the activated water characteristics. Furthermore, we discuss the remedy for diseases of Heberden's node and mental disorder, suggesting foods besides drinking water. Finally, we introduce radiation reduction, which we continuously researched the Fukushima contaminated soils.

Keywords: Quantum Electrodynamic (QED), Classical Electrodynamic (CED), Electromagnetic and Classical Electromagnetic, Quantum Physics or Mechanics, General and Special Relativity, and Warp Drive.

Introduction

Water is a universally found compound, and there are several reports on the behavior of water in the chemical, biological, and medical fields. Some primary textbooks, such as “The Nature of Chemical Bond” by L. Pauling, include hydrogen bonding in water [1]. The hydrogen-bond kinetics in liquid water was discussed in the structure and diffusion process [2]. Besides, no reports discuss the viewpoint from physics, although quantum mechanics was introduced [3-4].

We will not refer to the previous reports here, as they are already ample in number.

The plant pigment relates to the type of light which the seed receives. A light in the red wavelength usually promotes germination, whereas blue light inhibits it.

Phytochrome plays the role of signal transduction in the receptor. The factors are light, temperature, and water. The light spreads from ultraviolet rays (wavelength of 200 ~ 380 nm) through far-infrared (wavelength of 10~20 μm). And temperature ranges are 288 ~ 303K). Considering temperature, Japan's rice growth zone is towards Hokkaido in the northern part because of global warming. Furthermore, there are some areas of lack of water on the earth and sometimes drought and people draw underground water, leading to the depletion.

A few unique technologies of water research are the dynamics of floating water bridges between two beakers under high voltage [5, 6]. There are other exciting studies in optical applications for water, such as the quantum dissipative state of coherent water which expresses the properties from a visual viewpoint; these represent the microscopic and macroscopic behaviors of water [7-10].

There are a few microscopic viewpoints like phonon-polariton dispersion in terahertz spectroscopy [11-13].

However, all these studies relate to the electron(s). They have reported many high-energy physics or engineering research between the late 1990s and early 2000s. Some researchers conducted with palladium metal complexes and dry deuterium or hydrogen gas at 343 K (1 atm for about one to two weeks). They reported the development of molybdenum and strontium in the ppm order [14,15]. Researchers pay attention to hydrogen to develop the formation of it by fusion [16]. Since then, they have studied hydrogen bonds from various points, their kinetics in liquid water [2]. and the potential energy of the quantum water dimmer [17, 18].

We have focused on the dissociated hydrogen bond of H_2O and mainly developed the specially-processed water more than ten years ago. The specially-processed water means the water dis-

sociated hydrogen bonds, which nobody looks at. The specially processed water we developed is called MICA (Minimal Catalyst) water pressurized more than 2MPa [19]. The Hatanaka family found this water and has commercialized it for over half a century. Then, his patents were the activated storage and activation of plastics [20, 21].

Then, Sugihara developed SIGN water (Spin Information Gauge Network) since the water might be employed to reduce radiation from the soils in Fukushima. The SIGN water can be formed under 100MPa, resulting in function to a nucleus and outside of a nucleus. The characteristics of the activated water may possess a pico-sized particle like an elementary particle. We name the particle "infoton" involving <H^+~e- >, not a hydrogen atom nor ion such as proton or electron [22]. Furthermore, we developed the spins of <H^+~e->, including spins of each element of H^+ and e^- [23].

The active water may be interested in the viewpoint of information transfer. The radiation is an issue of a nucleus, not chemical reduction associated with electrons outside a nucleus. Therefore, the hydrogen particle of our study plays a role in changing radioactive cesium to stable barium [24]. And it is challenging to elucidate the nucleus varies because of water, H_2O, and hydrogen essentially,

Here, we introduce only hydrogen particle behavior of reduction and nuclear change based on Sugihara's concept.

So, we can recognize the nucleus transmutation in viewpoints of beta decay of cesium [25, 26]. Since 2011.3.11, we paid attention to the Fukushima problem and found it to reduce radioactivity of cesium nuclei and reported continuously [24, 27, 28]. Interestingly, the bacteria can change a nucleus in the Fukushima soils using photosynthetic bacteria [29]. They performed the radioactivity reduction combined with other technology. However, we reduced radioactivity by 99 % in weeds and 99.6 % in the soils in a pond over 3~4 months using the purple non-sulfur bacteria [30].

Materials and Method

We can fabricate SIGN water under high pressure to tap water of more than 100 MPa without any additive, which involves the pico-size particle such as infoton and transfers to another substance as information associated with the momentum. We asked Echigo Seika Co., Ltd. (Niigata Prefecture) for a high-pressure process.

Our analysis instruments are Hydrogen Nuclear Magnetic Resonance (H-NMR), where we can identify two points. One is relaxation time (T2), in which the more significant the time (sec) is, the smaller the water size is. Another point is Free Inductively Decay (FID), in which the shorter the time (sec) is, the smaller the water size is; we can recognize the time during which the water particle resonates with each other.

Another instrument is the Fourier Transform Infrared Spectrometer (FTIR), in which we can judge the transparency of water particles by infrared beam because terahertz wave usually absorbs. Smaller water particles can penetrate in this region. We employ Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES) for element analysis.

Results and Discussions

The visualization and durability of the SIGN water are essential studies as the characteristics to spread worldwide. Furthermore, a countermeasure for various diseases is vital to our daily life. Here are only two diseases to discuss, although we report the remedies.

Finally, we reconsider the fundamental and straightforward radiation reduction using the water to send worldwide is our responsibility emergently without filtering and isolating radioactive materials.

Visualization of Activated Water Characteristics

Figure 1 shows the characteristics in the chromaticity coordinate.

The values in the (x, *y*) indicate in nm, and we call the line from 380 to 780 the purple boundary. All visible color exists inside the closed curve.

The chromaticity coordinates color quality regardless of the brightness. We compared the MICA LED with a control LED light shown in Fig.1.

We show another visualization of the LED light with the oxidation-reduction method in the next chance.

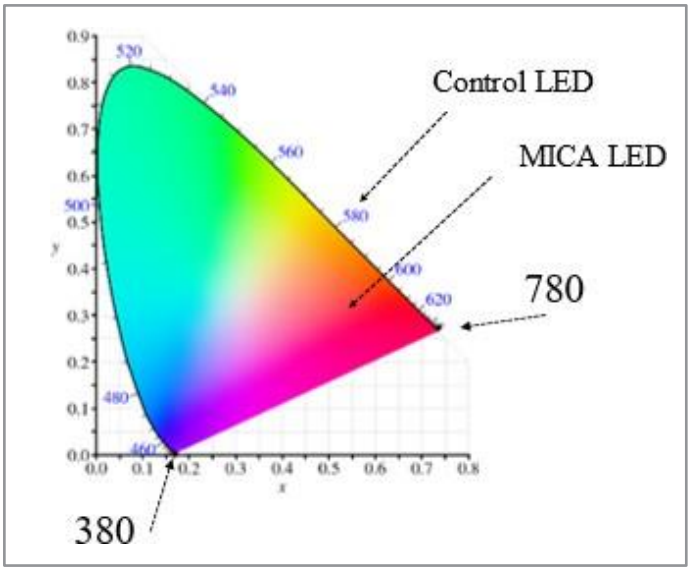


Figure 1: Chromaticity coordinate of the LED white lights.

The LED luminescent tube activated by MICA water emits easy light on the eyes, providing a longer wavelength, as shown in Fig. 1.

This result describes the effect of changing the light from the activated LED tube. The red, green, and blue colors are mixed to emit white. Another way is to mix blue LED with fluorescent. MICA water activates glass tubes and other substances; the LED light can emit softer light.

How Long does the Activity of Pico-sized Water Last?

We can estimate the smallness of water by The Hydrogen Nuclear Magnetic Resonance (H-NMR) instrument comparing the SIGN water with the distilled water and standard

sea water in Fig.1. The T2 value indicates the relaxation time (in seconds), meaning longer seconds for the smallness of water. Because the time colliding water particles may become longer in the SIGN water due to the pico-sized particle. In the meantime, the FID value indicates the free induction decay, meaning a smaller time for smaller water particles.

The reason is the smaller particle may stop precession in a shorter time.

Therefore, SIGN water might not change the quality and taste, keeping it at room temperature for six years.

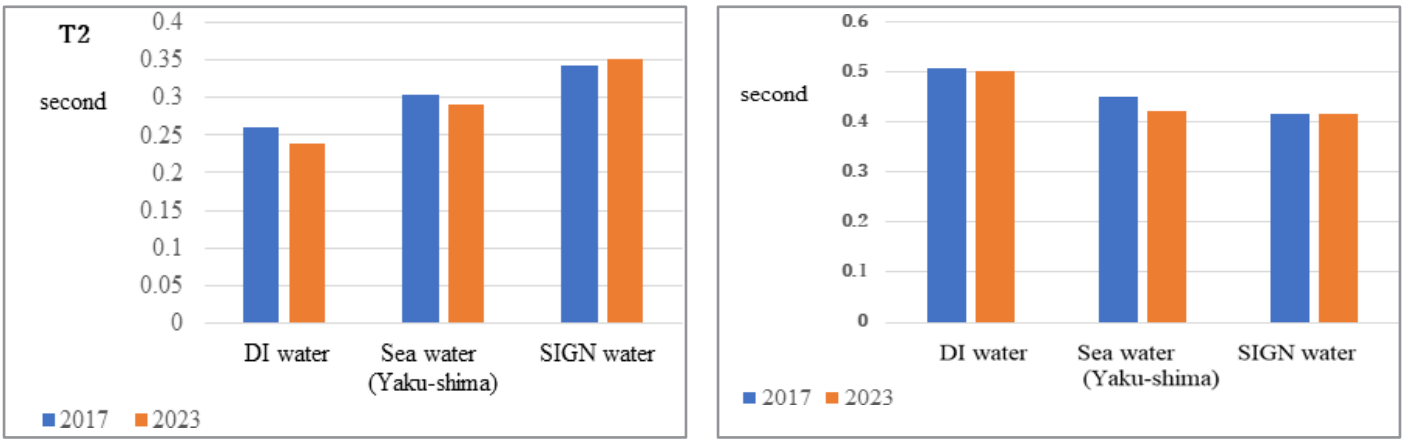


Figure 2: Essential characteristics of SIGN water have no change after six years in comparison with the other waters kept for six years.

Cured Diseases by the SIGN Water

Heberden's Node

The number of diseases of Heberden's node is more prominent in females than males, and the cause is hereditary. We treat the fingers back to move freely before a decision like no-cured disease comes to an end by heredity. The condition happens to osteophytes in cartilage by the repeated usage of joints (Figure 3).

Osteophyte; 1) Osteophyte (bone spur)" NHS.UK. (18th Oct.2017).

Osteophyte is exostosis in a thorn, increasing the bones of joints. With these diseases, movement is limited, and nerves are compressed, resulting in numbness and pain.

We regard the essential causes from the mechanism happening the osteophyte, and other illnesses and diseases may be the mechanisms relating to the around cells [31].

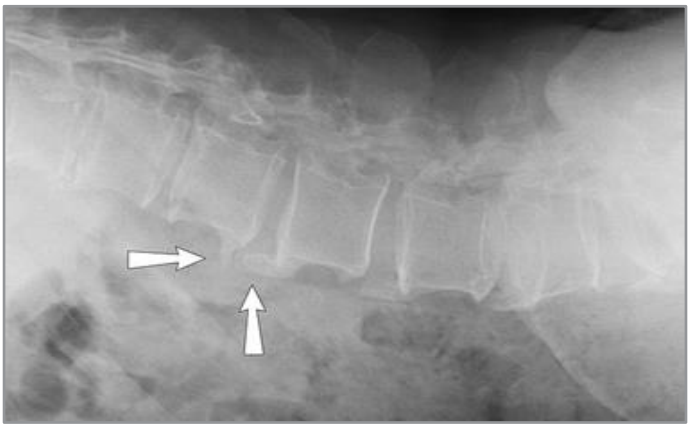


Figure 3: Heberden's node in the left-hand finger. Two arrows show the osteophytes.

The cause of exostosis is when cells can't receive messages forming the bones. Why the cells can't receive the notifications?

We Estimate the Processes as Follows

Neurotransmitters like serotonin, dopamine, and adrenaline commonly transmit the information to the receptor's cells, which function associated with electrons. Typically, the receptor's cell receives electron(s), then the transmitters separate from the cells. We call these works "reduction". However, the transmitters can't go away from the receptor's cells for a particular reason, because the cells have any problem like an external wound for some reason.

The infoton may work to provide the electron to the receptor's cell; then, the transmitters can go away from the receptor. We call this series "reduction" to achieve by drinking the SIGN water. The osteophyte of one client has gone away for a month after drinking the water.

General Aspects of Hormones for Mental Disorder

We previously reported to cure Alzheimer's disease and other neurological disorders by drinking SIGN water and flashing the SIGN light. Alzheimer's disease and other neurological disorders have been remedial to develop the cause and mechanisms.

We discussed the mechanism of Alzheimer's disease from the standpoint of amino acids, and we can compare the chemical bond strength of the radical in the molecule of every amino acid, namely, in order of bonding energy between each element.

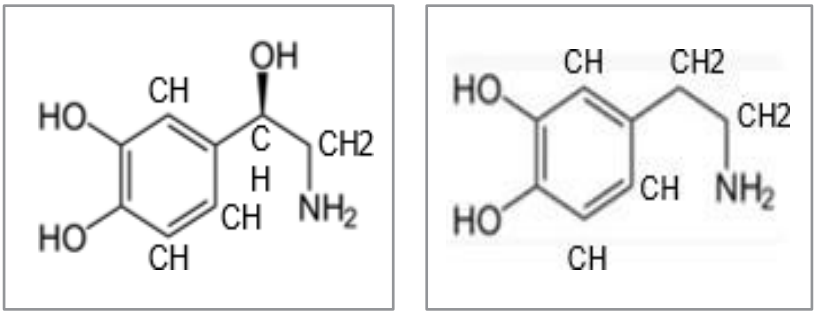
N-H (3.6eV) < O-H (4.6eV) < P=O (5.8eV) [*J. Emsley*, Element, 3rd ed. Clarendon, Oxford, 1989].

Furthermore, the central nervous system is the crucial factor for the infoton because the infoton <H^+~e^-> plays a role in reducing

the oxidized substances, even cancer cell and nuclear changes introduced in the next section.

We focus on the nervous transmitter hormones dopamine and noradrenaline in the mental disorder.

They order along with the binding energy of those formulas. We can realize the benzene rings are maintained when we compare noradrenaline with dopamine on the molecular structure and each element's bond strength shown in Fig. 4.



Noradrenaline ($C_8 H_{11}NO_3$) dopamine ($C_8 H_{11}NO_2$)

Figure 4: Structure and element-bond in noradrenaline and dopamine

We introduce the bond strength with energy (eV) in order of lower energy of each bond in noradrenaline and dopamine;

Noradrenaline; 3.2 C-N (1), 3.6 N-H (2), 3.6 C-C (5), 3.7 C-OH (3), 4.3 C-H (6), 4.6 O-H (3), 6.3 C=C (3).

Dopamine: C-N (1), N-H (2), C-C (5), C-OH (2), C-H (7), O-H (2), C=C (3).

The italic numbers before the element bonds show bond strength (eV), abbreviated in dopamine. The number in parentheses indicates the amount in each amino acid structure.

What Energy Differences Affect the Mental Disorder

The pasted yellow depicts a more significant amount of the element bond compared between noradrenaline and dopamine.

The Results Indicate the Following

i) The higher energy, 4.6 O-H (3), in noradrenaline is more than dopamine.
ii) The higher energy, 4.3 C-H (7), in dopamine is more than noradrenaline.
iii) The higher energy, 3.7 C-OH (3) in noradrenaline more than dopamine.

And the rest of the bonds are the same.

We can regard the subtle difference between two hormones in terms of chemical bond and strength.

Noradrenaline functions as a hormone released to blood from adrenal glands and stress (like caution and impulsivity) discharges noradrenaline.

Noradrenalin works the essential function of fight-or-flight response, increasing hurt pulse messaging sympathetic nervous system [32].

Now we pick up noradrenaline,
3.2 C-N (1), 3.6 N-H (2), 3.6 C-C (5), 3.7 C-OH (3), 4.3 C-H (6), 4.6 O-H (3) and 6.3 C=C (3).

Hallucination-delusion of schizophrenia is hypothetically said to be a reason for an extra amount of dopamine in neurons involving a basal ganglion and midbrain periphery system. However, the onset and mechanisms of the illness have not essentially been elucidated, and the condition is probably not a single disease.

Now, dopamine, a precursor of noradrenaline, is more in C-H (7) than C-H (6) in noradrenaline at the same energy. Furthermore, stress excessively secures dopamine, causing environmental changes and stimulation. Therefore, we may estimate C-H (7) in dopamine can more easily oxidize than C-H (6) in noradrenaline.

Noradrenalin loses to secret hormone regulation, pleasant emotion, willingness, learning, etc. As a result, we need a "reduction" of dopamine.

What are the Remedies for Foods to Mental Diseases?

Here is our proposal from the standpoint of physical chemistry.

i) Active water (MICA water and SIGN water) can provide infoton, <H^+~e-> so that dopamine can take in hydrogen to be a precursor for noradrenaline.
ii) It would be suggestive to get the amino acids like leucine, C-H (10), lysine, C-H (9), phenylalanine, C-H (8), and glutamic acid, C-H (5).

The foods are beef Liver, lean beef, chicken breast, mackerel, salmon, dairy products, and soybean products for leucine and lysine. Add nuts for phenylalanine. Wheat protein and gelatin (generated from collagen) for glutamic acid are also suggestive besides the foods above.

Finally, I always suggest to younger people particularly. Walking around the forest, fields, and seashore in nature is much more pleasant. Walking in nature is suitable for the secretion of serotonin, which we will report along with adrenaline and dopamine in the future. We introduce adrenaline rather than dopamine here.

It would be better to stop more discussion of dopamine because the function may spread to the vast brain region, although we will pick up our theme in the future.

The temporal lobe processes sensory input into derived meanings to appropriately retain visual memory and emotion. It is associated with the hypothalamus around the temporal lobe playing for language, memory, and hearing [33].

Radiation Reduction of Fukushima-Contaminated Soils and Weeds

The diseases recovering with activated light (SIGN light) relate to transmittance and transcript of the infoton's information, although we have not yet developed the information. The information possessing infoton is supposed to be "momentum" (spin, mass, and velocity), which may protect us from any virus and germ due to chemical reduction by proton and electron in the water.

Figure 4 shows the radiation reduction of radioactive cesium in Namie Machi in Fukushima in May 2011.

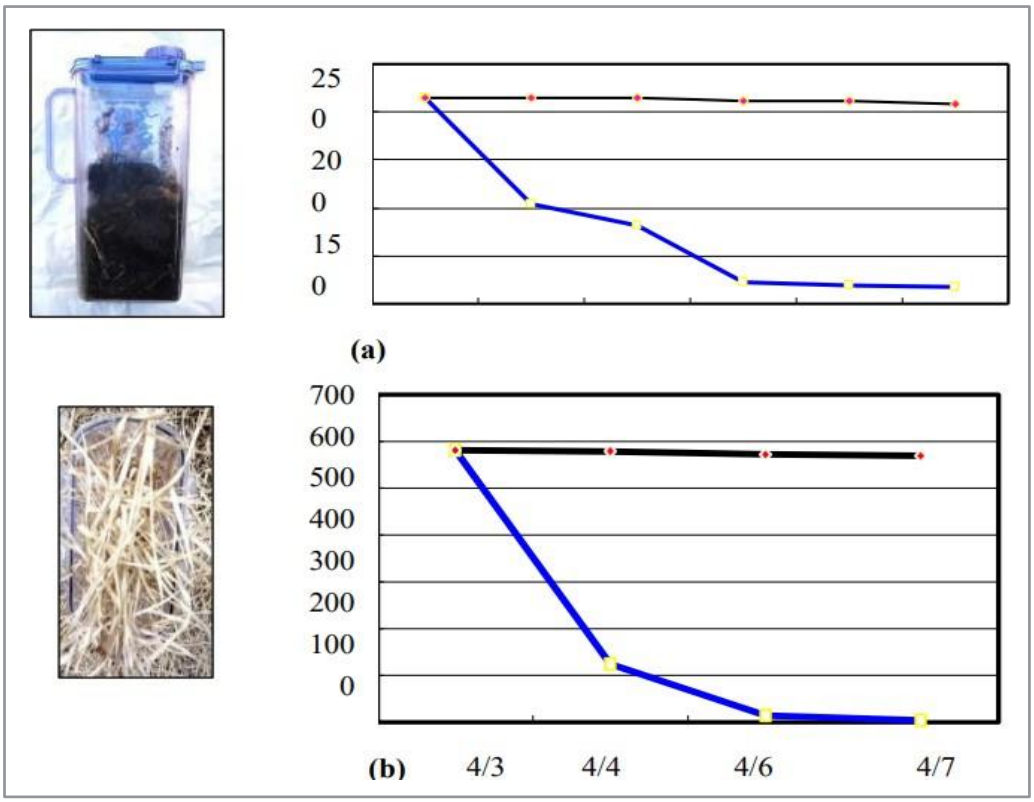


Figure 5: Radiation reduction of cesium for soils and weed in Fukushima Namie Machi (April / 2011). The vertical axis indicates μSv/ h, and the horizontal axis shows the date.

The black line depicts reduction with a half-life time (spontaneous decay), and the blue line indicates the soils (a) or withered plants (b) in the activated pot (MICA pot). (a); 91.8 % and (b); 99.4% reduction rates.

We had many discussions for the reduction of contaminated soils in Fukushima in theoretical ideas and experimental results [24, 27, 28, 30].

When cesium 137 decays in beta disintegration, the neutron transforms into a proton, electron, and anti-neutrino as follows;

$$n \rightarrow p + e^{-} + \bar{\nu}$$

Then, the infoton reacts with cesium, and the neutron's mass is a difference of 0.08 % from the infoton.

$$^{137}_{55}Cs + <H^{+}\sim e^{-}> (\simeq n) \rightarrow {}^{138}_{56}Ba + e^{-} + \bar{\nu}$$

The following equations show positron emission during β-disintegration.

The infoton, $<H^{+}\sim e^{-}>$ takes the place of the neutron on the right-hand side, and thus the mass does not change as follows;

$$p \rightarrow n + e^{+} + \nu.$$

$$^{137}_{55}Cs + <H^{+}\sim e^{-}> \rightarrow n (\simeq H^{+}\sim e^{-}>) + {}^{137}_{56}Ba + e^{+} + \nu.$$

The natural abundance of $^{138}_{56}Ba$ and $^{137}_{55}Cs$ are 71.7% and 11.23 %, respectively. The barium isotopes exist seven kinds, and these two are the top two abundances [*J. Emsley*].

Furthermore, we found the decreasing radioactivity of the contaminated soils with SIGN water (processed water), increasing the amount of barium atoms [24].

Conclusion

There are a few visualizations of the activated water. Here, we focused on the chromaticity. The activated LED light became better for our eyes due to the longer wavelength. We report the activeness of the water in six years according to the H-NMR spectra. Regarding the reduction in the chemical reaction, we discuss Heberden's node and mental disorder, and drinking

SIGN water is suggestable for improvement for these diseases. Finally, we report radiation reduction by changing radioactive cesium in Fukushima to stable barium atoms by the SIGN water.

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