

Intestinal Hydrogen Gas as Co-Creator of both Human Immunity and Aura

Yuri Pivovarenko

Research and Training Center 'Physical and Chemical Materials Science' Under Kyiv Taras Shevchenko University and NAS of Ukraine, Kyiv, Ukraine

Corresponding Author: Yuri Pivovarenko. Research and Training Center 'Physical and Chemical Materials Science' Under Kyiv Taras Shevchenko University and NAS of Ukraine, Kyiv, Ukraine

Received date: October 14, 2022; **Accepted date:** October 29, 2022; **Published date:** December 02, 2022.

Citation: Yuri Pivovarenko. (2022). Intestinal Hydrogen Gas as Co-Creator of both Human Immunity and Aura. *J. Clinical Case Reports and Studies*, 3(10) DOI: [10.31579/2690-8808/146](https://doi.org/10.31579/2690-8808/146)

Copyright: © 2022 Yuri Pivovarenko. This is an open-access article distributed under the terms of The Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

The human body is often perceived separately from its gaseous environment. Due to this perception, hydrogen gas produced by intestinal microflora is almost always overlooked. Given the extremely high penetrating and reactive properties of gaseous hydrogen, such ignoring is incorrect. Moreover, it is the unique properties of gaseous hydrogen that allow expecting the involvement of intestinal hydrogen gas in chemical reactions occurring in the human body. So, it is shown here that this very gaseous hydrogen can enter human cells and attach to pyruvates, thereby preventing the formation of acetylated forms of CoA, in the absence of which the Krebs cycle becomes impossible. Accordingly, this suggests that hydrogen gas produced by human intestinal microflora is able to reduce the intensity of the Krebs cycle and, in this way, the intensity of ATP synthesis by the mitochondria of human cells. This, in particular, allows predicting the ability of this very intestinal hydrogen gas to suppress the reproduction of viruses, which becomes impossible due to the lack of ATP produced by human mitochondria. In fact, it is shown here in what way the human intestinal microflora can be involved in the creation of human immunity. In view of this, here it is proposed to perceive the saturation of the human body with gaseous hydrogen as an indicator of human resistance to numerous diseases. To determine the specified saturation, it is proposed to use the ability of atomic hydrogen to fluoresce in an aqueous environment. Eventually, it is shown here that the processes that usually occur in the human body should not be perceived as occurring in the absence of gaseous hydrogen produced by the microflora of the human intestine.

Keywords: hydrogen gas ; intestinal microflora ; Krebs cycle ; prana ; hydrogen therapy; aura

Introduction

It is believed that the human intestinal microflora is able to increase the content of gaseous hydrogen in intestinal gases up to 50% (vol.) [1,2] . Given the exceptionally high penetrating capacity of gaseous hydrogen (Figure 1) [3], this suggests its involvement in the processes occurring in the human body, including intracellular ones. In view of this, the degree of saturation of the human body with gaseous hydrogen can be perceived as an important indicator of human homeostasis. Moreover, pronounced restorative properties of gaseous hydrogen in the aqueous environment [4] suggest that the degree of saturation of the human body with gaseous hydrogen determines a person's ability to resist diseases caused by oxidative stress [5-12].

(Probably, the fact that completely dehydrated gaseous hydrogen and oxygen do not react with each other [4] is worth mentioning here.)

Therefore, determining the degree of saturation of the human body with gaseous hydrogen seems quite appropriate. In this aspect, attention is drawn to the recently discovered ability of atomic hydrogen to fluoresce in an aqueous environment [3, 13, 14] and, in this way, to participate in the creation of the human aura (Figure 2).

Given that all of the above has both theoretical and practical significance, it is worth discussing. It is hoped that such a discussion will be useful both for those biologists who study human physiology and for those physicians who practice hydrogen therapy [15-18].



Figure 1. So it looks like a closed PET bottle with hydrogen gas a two weeks after filling it. The changes that have taken place with the bottle show that hydrogen gas freely penetrates through the plastic [3].



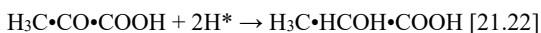
Figure 2. These are the basic colors of the human aura

At the very least, one can hope that all this will be of interest to those readers concerned the nature of the human aura, the nature of which is still debated [19, 20].

Discussion

2.1. Hydrogenation of pyruvate with the intestinal gaseous hydrogen

It is known that cytoplasmic pyruvate can be converted into lactate by joining two hydrogen atoms:



Most biochemists believe (most likely, due to a certain accentuation of their education) that this reaction occurs in cells exclusively with the participation of lactate dehydrogenase A (LDH-A), which use NADH as atomic hydrogen donors. So, it is the aforementioned accentuation of biochemists on enzymatic reactions that excludes for them the ability of cytoplasmic pyruvates to independently attach free hydrogen atoms present in the cytoplasm (that is, without the participation of the corresponding enzymes), in particular – of intestinal origin. Accordingly, biochemists do not even suspect the ability of intestinal gaseous hydrogen to convert cytoplasmic pyruvates into lactates and, in this way, block the Krebs cycle, in particular – in diseased cells. As a result, the discovered ability of hydrogen gas produced by intestinal microflora to suppress inflammatory processes and the development of malignant tumors still remains without a clear explanation. However, all this turns out to be not so incomprehensible: when this very gaseous hydrogen blocks the Krebs cycle, it simultaneously stops the mitochondrial generation of ATP, in the absence of which reproduction of both viruses and tumor cells is impossible. With this in mind, the root cause of the observed health effects

of intestinal hydrogen gas seems quite clear. (Of course, the ability of water, including cytoplasmic, to increase the reactivity of hydrogen gas [4] should also be taken into account.)

Since it is relevant here, attention should also be paid to the ability, at least theoretically, of free hydrogen atoms to directly reduce NADs, of course in an aqueous environment. It is clear that in the absence of these NADs, all NAD-dependent dehydrogenases of the Krebs cycle will remain inactive, which, accordingly will cause the entire cycle to be blocked. All these considerations suggest that there are several mechanisms by which the Krebs cycle can be blocked by gaseous hydrogen of intestinal origin.

In this connection, it is also worth recalling the FAD-dependence of the first reaction of fatty acids β -oxidation [23]. Therefore, intestinal hydrogen gas is also able to exclude the entry of fat-derived acetyl-CoA into the Krebs cycle. Accordingly, all this suggests that atomic hydrogen, regardless of its origin, is a universal limiter of the formation of cellular energy, the excess of which can be a source of inflammatory processes.

For the sake of completeness, it is worth reminding here that biochemists usually consider only the biochemical mechanism of blocking the Krebs cycle. So, they believe that pyruvate dehydrogenase kinase (PDK) blocks the activation of mitochondrial pyruvate dehydrogenase (PDH), limiting the pyruvate conversion into acetyl-CoA and further “feeding” the Krebs cycle. It is quite expected that such a purely biochemical point of view does not even allow considering the health-promoting properties of intestinal microflora. Moreover, the dominance of this point of view does not allow providing an acceptable explanation for the therapeutic effects of both modern hydrogen therapy and time-tested Ayurveda. To avoid misunderstandings, the Ayurvedic use of atomic hydrogen should be discussed separately.

2.2. Water saturated with prana as a source of atomic hydrogen

For this purpose, it is worth analyzing the Ayurvedic way of saturating water of prana. So, according to Ayurveda, a glass of water should be placed on the left palm and covered with the right palm. To enhance the desired effect, Ayurveda also advises shaking off the prana from the right hand, moving it over the water surface exclusively from top to bottom [24].

Considering the positive charge of the left hand and the negative charge of the right hand [25], all the proposed manipulations are not only devoid

of mysticism, but also acquire physical meaning. So, these considerations allow understanding that these very Ayurvedic manipulations enrich water with electrons, and therefore with hydrogen atoms:



As well, considering that under earthly conditions negative charges move mainly downwards, just like in the clouds (Figure 3) [25], the physical meaning of Ayurvedic shaking of prana into water from the right hand becomes finally clear.

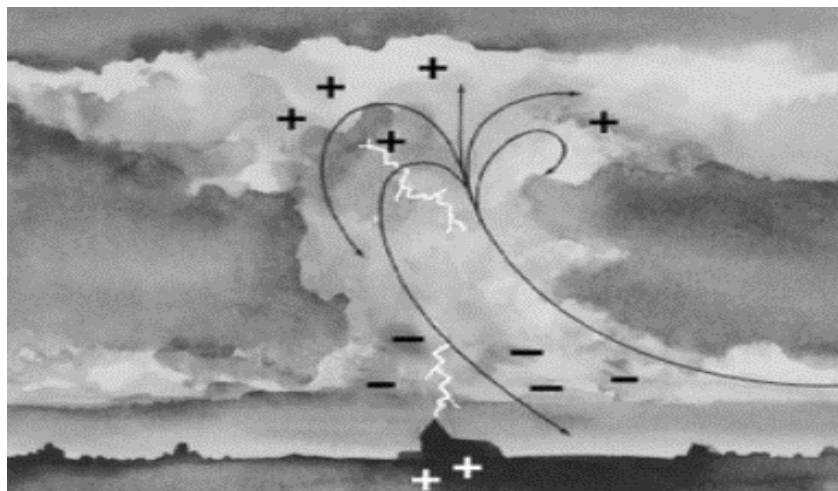


Figure 3. Polarization of clouds: the lower part of a typical cloud has a negative charge and the upper part has a positive charge [25].

In view of all the above, Ayurvedic prana flows can be identified with electron flows, that is, with the same real electric currents that occur in clouds (Figure 3). With this in mind, the Ayurvedic use of prana can be identified with the therapeutic use of hydrogen gas. Moreover, all of the above allows perceiving the normal microflora of the human intestine as a source of life-giving prana.

2.3. Intestinal hydrogen gas as a creator of the human aura

Therefore, the desire of some doctors to determine the amount of

hydrogen gas in the intestine [1, 26] should not seem strange. Accordingly, the methods of this determination need improvement, which is obviously caused by the specifics of the object being analyzed. In view of this, the analysis of human aura (Figure 2) looks quite attractive.

Before discussing the aforementioned attractiveness of the human aura, the ability of aqueous solutions of atomic hydrogen to fluoresce in the violet (Figure 4) and blue regions of the spectrum [3, 13, 14] should be taken into account.

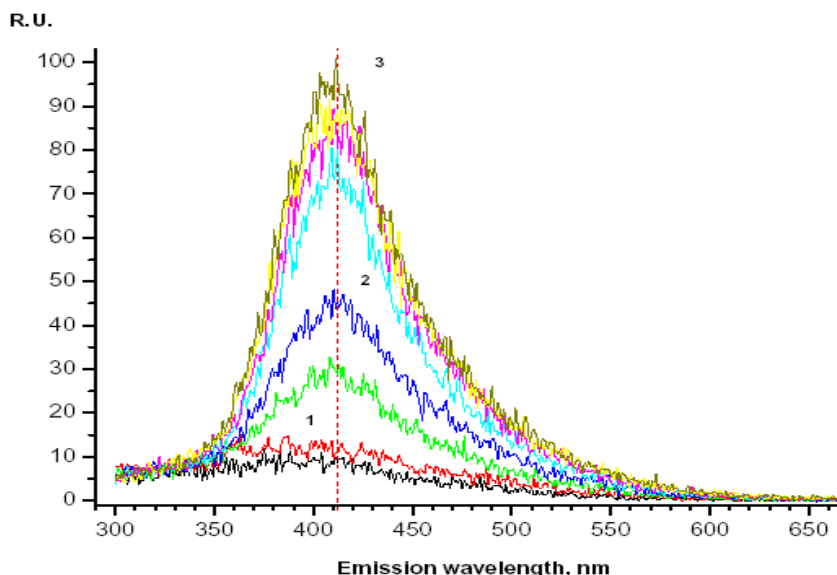


Figure 4. This is spectra fluorescence spectra of aqueous solution containing reaction products of magnesium metal and water: 1 – before the reaction; 2-15 min after the start of the reaction; 3 – 30 min after the start of the reaction.

In this case, the reaction of metallic magnesium with water was used as a source of atomic hydrogen: $\text{Mg} + \text{H}_2\text{O} \rightarrow \text{Mg}(\text{OH})_2 + 2\text{H}^*$ [4]

Saturation of water with gaseous hydrogen conveniently evaluated by fluorescence at a wavelength of 410,2 nanometers, which is situated close to the wavelength of violet spectral lines of hydrogen gas emission (~410,17 nm) of the Balmier series.

The primary fluorescence excitation wavelength was 260 nm. All investigated solutions were at room temperature [3].

Also, it should be taken into account that this very ability of aqueous solutions of atomic hydrogen allows explaining some phenomena, the nature of which is still considered unclear, in particular – the blue glow of the daytime sky (Figure 5). Therefore, considering that atomic hydrogen is the most common cosmic substance [4], it can be assumed that it is precisely its blue fluorescence that determines the blueness of the cloudiness daytime sky. (Here it is appropriate to add that this very fluorescence of atomic hydrogen is, most likely, initiated by UV radiation from the Sun, almost as in the described experiment (Figure 4) [3]. Given the ongoing attempts to explain the blue color of the sky [28, 29], this interpretation may be very timely.



Figure 5. *These are typical clouds on a background of blue day sky.*

As well, the Cherenkov water emission (Figure 6) can be in fact the fluorescence of atomic hydrogen, which appears in water by the interaction of its hydrogen ions with fast electrons: $\text{H}^+ + e^- \rightarrow \text{H}^*$, but not the radiation of electrons that are slowed down by water, as is believed [27].

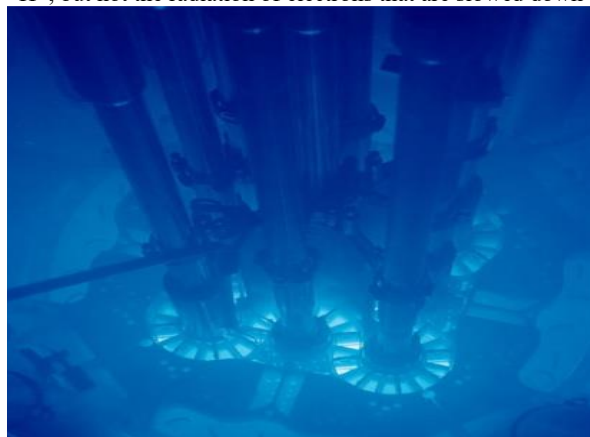


Figure 6. *This is a typical Cherenkov emission in the aquatic environment.*

In addition, it is worth noting that the proposed interpretation of this very Cherenkov water emission is applicable to explain the blue color of sea water, the nature of which is still unclear. With this in mind, the blue color of sea water can be therefore considered as a sign that such water is a source of atomic hydrogen, first of all photolytic [4].

As well, it can be assumed that Kirlian's aura (Figure 7) appears due to the skin effect, which is the release of electrons on the outer surfaces of conductors with electric currents, mostly high-frequency [30], and therefore – due to the formation of fluorescent hydrogen atoms around such conductors. (It is most likely that this type of fluorescence of atomic hydrogen is excited by those electric currents).

Considering the demonstrated performance of using the violet and blue fluorescence of atomic hydrogen in aqueous media [3,13,14] to explain the above phenomena (Figures 5-7), its use to explain the corresponding shades of the human aura (Figure 2) looks quite acceptable.

Of course, this acceptance presupposes the ability of water to promote at least a partial transformation of molecular hydrogen into atomic, thus increasing the reactivity of gaseous hydrogen [4]. Anyhow, this very acceptance deprives the human aura of mysticism and turns it into an object of scientific research.

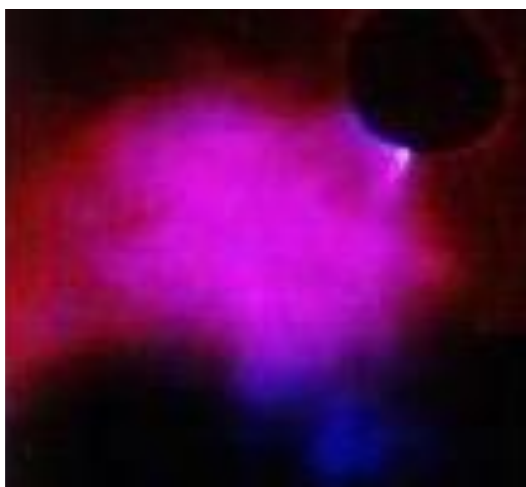


Figure 7. This is the Kirlian's aura around a drop of water.

In particular, this make it possible to consider this very aura as an indicator of the saturation of the patient's body with active hydrogen and therefore, as indicator of the antioxidant status of the human body, which determines the patient's resistance to a number of diseases, in particular – to senile, inflammatory and oncological [31]. Eventually, the most convenient method of determining intestinal hydrogen gas may appear precisely thanks to the proposed perception of the violet-blue color of the human aura (Figure 2).

2.4. Oxonium ions as co-creators of the human aura

Since it is relevant here, it is worth evaluating together the possible contribution of the red fluorescence of oxonium ions, namely H_3O^+ or $H^+ \cdot H_2O$, to the human aura. Before this assessment, it is worth realizing that exited oxonium ions have a maximum of fluorescence at 668.6 nm, i.e. in the red part of the spectrum; it is also worth realizing that this maximum tends to shift to the short-wavelength part of the spectrum over time [14,32].

In view of all the above, it is quite likely that the redening of the cloud tops (Figure 3), which are definitely enriched with positively charged (!) oxonium ions[22], is a manifestation of this fluorescence. (Here it is appropriate to emphasize that the obvious cause of this fluorescence is solar UV radiation, almost as in the described experiments [14,32].

Accordingly, the contribution of fluorescent oxonium ions to the creation of the human aura also seems probable. (Here it is worth noting that this probability takes into account the extremely high permeability of protonated water[25,33]. Since the hydrogen ion, which is the part of the oxonium ions, is chemical oxidant [4], this suggests that the intensity of the red color of a person's aura reflects the prooxidant status of his body and, therefore, his susceptibility to a number of diseases [31, 33]. Thereby, the red color of the human aura can also be informative.

Conclusion

The extremely high penetrating ability of hydrogen gas suggests that hydrogen gas produced by human intestinal microflora can leave the intestine and spread throughout the human body, penetrating even into the cells of other organs of human body. As well, the ability of water to increase the reactivity of hydrogen gas suggests the involvement of hydrogen gas of intestinal origin in both chemical and biogeochemical intracellular reactions. Since both of these suggestions are well argued, it is better to accept them than to ignore them. (Anyhow, it is these abilities of gaseous hydrogen that make possible to clearly explain the well-known dependence of human immunity on his intestinal microflora).

Obviously, this acceptance requires an adequate response. Of course, the first thing to do is to start adding hydrogen gas to the working solutions used in biological experiments *in vitro*. It is hoped that this addition will significantly bring the environment of the studied biological objects closer to the natural one. This, accordingly, will make it possible to detect exactly those properties of the studied biological objects that they have *in vivo*. So, the proposed addition promises temping prospects.

References

1. Harchenko, N.V., Tchernenko, V.V., Tchervak, I.N., Stukalo, V.M., Tokar, D.V., (2008). Using Espumizan preparation in practice gastroenterologist. Ukraine's Health. 6, 52-53. In Russian.
2. Chapter "Human digestive system; Intestinal gas" in: Encyclopedia Britannica Online. Encyclopedia Britannica Inc.
3. Pivovarenko, Y. (2017). An alternative strategy in cancer chemotherapy, aimed not at killing cancer cells, but the recovery of their DNA, modified by active oxygen. Biomedical Sciences. 3(5), 94-98.
4. Nekrasov, B.V. (1997). Principles of General Chemistry, 1, 3th ed.; Chemistry: Moscow. 346-347 In Russian.
5. Singh N, Dhalla A.K, Seneviratne, C, Singal P.K. (1995). Oxidative stress and heart failure. Molecular and Cell Biochemistry. 147:1- 2. 77-81.
6. James, S.J., Cutler, P., Melnyk, S., Jernigan, S., Janak, L., Gaylor, D.W., Neubrandner, J.A., 2004. Metabolic biomarkers of increased oxidative stress and impaired methylation capacity in children with autism. The American Journal of Clinical Nutrition. 80(6). 1611-1617.
7. Halliwell, B. (2007). Oxidative stress and cancer: have the moved forward? Biochemical Journal. 401. 1-11.
8. Valko, M., Leibfritz, D., Moncol, J., Cronin, M.T., Mazur, M., Telser, J. (2007). Free radicals and antioxidants in normal physiological functions and human diseases. Journal of Biochemistry and Cell Biology. 39(1).44-84.
9. Bonomini, F., Tengattini, S., Fabiano, A., Bianchi, R., Rezzani, R., (2008). Atherosclerosis and oxidative stress. Histology and Histopathology. 23(3). 381-390.
10. Hwang, O., 2013. Role of oxidative stress in Parkinson's disease. Experimental Neurobiology. 22(1). 11-17.
11. Joseph, N., Zhang-James, Y., Perl, A., Faraone, S.V., 2015. Oxidative stress and ADHD: A meta-analysis. Journal of Attention Disorders. 19(11), 915-924.
12. Roma-Mateo, C., Aguado, C., Garcia-Gimenez, J.L., Ibanez-Cabellós, J.S., Seco-Cervera, M., Pallardo, F.V., Knecht, E., Sanz,

- P., (2015). Increased oxidative stress and impaired antioxidant response in Lafora disease. *Molecular Neurobiology*. 51(3). 932-946.
13. Pivovarenko, Y. (2019). Biochemical and physiological basis for treating hydrogen gas as a medicine. *European Journal of Preventive Medicine*. 7(6), 100-107.
 14. Pivovarenko, Y., (2019). Laser-induced fluorescence of wet porous silicon as laser-induced fluorescence of H_3O^+ . *Journal of Photonic Materials and Technology*. 5(1), 11-15.
 15. Ohta, S., (2011). Recent progress toward hydrogen medicine: Potential of molecular hydrogen for preventive and therapeutic applications. *Current Pharmaceutical Design*. 17(22), 2241-2252.
 16. Chen, J.B., Kong, X.F., Lv, Y.Y., et al., (2019). "Real world survey" of hydrogen-controlled cancer: a follow-up report of 82 advanced cancer patients. *Medical Gas Research*. 9(3), 115-121.
 17. Yang, F., Ruiming, L.Y., Xiaoxiu, L., Rongan, L., Xiaobo, H. (2020). Hydrogen a potential new adjuvant therapy for COVID-19 patients. *Frontiers in Pharmacology*. 11, 1-5.
 18. Pivovarenko, Y., (2022). Negative electrization of air as a means of counteracting airborne viral infections. *European Journal of Preventive Medicine*. 10(1), 34-39.
 19. Swanson, C. (2008). The torsion field and the aura. *Subtle Energies & Energy Medicine*. 19(3), 43-89.
 20. Drew, L. (2020). A richer view of aura. *Nature*. 586: 7-9.
 21. Feron, O. (2009). Pyruvate into lactate and back: From the Warburg effect to symbiotic energy fuel exchange in cancer cells. *Radiotherapy and Oncology*. 92(3), 329-333.
 22. Melkonian, E.A., Schury, M.P., (2022). *Biochemistry, Anaerobic Glycolysis*. StatPearls Publishing, Treasure Island (FL).
 23. Shultz, H. (2008). Oxidation of fatty acids in eukaryotes. In: *Biochemistry of Lipids, Lipoproteids and Membranes*, 5th ed.; Elsevier: Amsterdam. pp. 131-154.
 24. Atkinson, W.W. (Yogi Ramacharaka). (2014). *Advanced Course of Yogi Philosophy and Oriental Occultism*. Jazzybee Verlag: German.
 25. Pivovarenko, Y. (2020). The use of electromagnetic forces of the Earth in manual and physiotherapy. *Journal of Human Physiology*. 2(1), 10-15.
 26. Urita, Y., Watanabe, T., Sugimoto, M. (2009). Breathe hydrogen gas concentration linked to intestinal gas distribution and malabsorption in patients with small-bowel pseudo-obstruction. *Biomark Insights*. 9-15.
 27. Shpolsky, E.V. (1974). *Atomic Physics*, 1, 6th ed.; Nauka: Moscow. pp. 257-266. In Russian.
 28. Raymond, L.L. (1994). Twilight and daytime colors of the clear sky. *Applied Optics*. 33(21), 4629-4638.
 29. Zagury, F. (2012). The color of the sky. *Atmospheric and Climate Sciences*. 510-517.
 30. Kazimierzczuk, M., (2013). Chapter 3 "Skin Effect" in book: *High-Frequency Magnetic Components*, 2nd ed.; Wiley: USA. pp. 163-225.
 31. Papas, A.M. (1998). *Antioxidant Status, Diet, Nutrition, and Health*, 1th ed.; Routledge Taylor & Francis Group: USA. pp. 672.
 32. Lew, H. (1976). Electronic spectrum of H_2O^+ . *Canadian Journal of Physics*. 54(20), 2028-2049.
 33. Pivovarenko, Y. (2021). The Gulf Stream and the Californian Current as factors affecting the behavior and health of Americans. *Journal of Human Physiology*. 3(2), 51-56.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here:

[Submit Manuscript](#)

DOI: [10.31579/2690-8808/146](https://doi.org/10.31579/2690-8808/146)

Ready to submit your research? Choose Auctores and benefit from:

- fast, convenient online submission
- rigorous peer review by experienced research in your field
- rapid publication on acceptance
- authors retain copyrights
- unique DOI for all articles
- immediate, unrestricted online access

At Auctores, research is always in progress.

Learn more <https://auctoresonline.org/journals/journal-of-clinical-case-reports-and-studies>