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Positively Charged Water as a Tumor Growth Stimulator

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Abstract: Previously, it was shown that positively charged water is able to hydrate both salts and biopolymers, while negatively charged water is not able to hydrate them. Reflections on the biological significance of this dependence made it possible to assume that cells are able to accumulate predominantly positively charged water and that it is this accumulation that stimulates both cell proliferation and the growth of tumors, including cancers; accordingly, it was proposed to use negatively charged water to stop both cell division and tumor growth. Over time, it became clear that this hypothesis was proposed without taking into account the peculiarities of the interaction of electrified waters with fats. This understanding initiated additional research, which proved to be very productive. In particular, such studies made it possible to establish that positively charged water is attracted to oils and is able to form stable emulsions with them, in contrast to negatively charged water, which does not interact with oils and does not form stable emulsions with them. Thus, the discovered shortcoming of the proposed hypothesis was eliminated. This, in turn, gave additional grounds for re-proposing negatively charged water as an antitumor agent.

Keywords: Cancer, Cell Proliferation, Emulsification, Geopathic Zones

1. Introduction

It was previously established that the electric charge (potential) of water determines its ability to format various salts (Figures 1, 2) [1]. Over time, it was concluded that it is this crystalline polymorphism (Figures 1, 2) that makes it possible to visualize the distribution of electric charges in aqueous media; in other words, it was concluded that this polymorphism can be used as a research tool.

Later, it was found that positively charged water has a greater surface tension than negatively charged water. In particular, it was shown that surface tension of positively charged water compresses it (Figure 3, left), while the low surface tension of negatively charged water is not capable to do this (Figure 3, right). Accordingly, it was concluded that it is the high surface tension of positively charged water that forms compact crystals, both small and large (Figure 1, left; Figure 2, left); it was also concluded that it is the low surface tension of negatively charged water that makes it possible to form extended crystals (Figure 1, right; Figure 2, right). Thus, the observed difference in the shaping properties of oppositely charged waters received a completely adequate explanation [1].

In parallel, it was found that the electrical charge (potential) of water also determines its ability to hydrate both salts (see comments to Figure 2) and various biopolymers.

__Figure 1.__ These are crystals formed in dried KH_2PO_4 solutions prepared with positively (left) and negatively (right) charged waters. The high surface tension of positively charged water forms compact crystals, both small and large (left), while the low surface tension of negatively charged water creates conditions for the formation of extended crystals (right) [1].

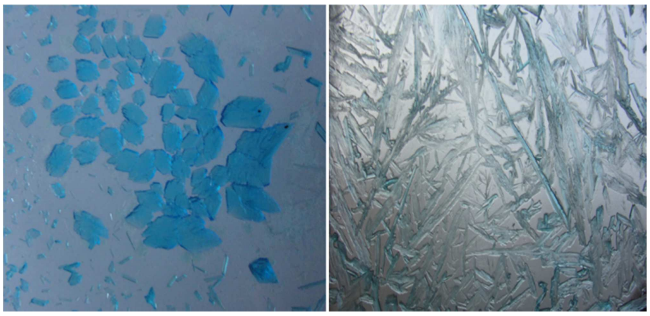


Figure 2. *Left: these are intense blue prismatic crystals that formed in a copper sulfate solution prepared with positively charged water, which has a high hydrating capacity and high surface tension. Right: these are pale green, grass-like crystals formed in a copper sulfate solution prepared with negatively charged water, which has a low hydrating capacity and low surface tension.*

It is worth noting here that fully hydrated copper sulfate, namely $CuSO_4{\bullet}5H_2O$, has an intense blue color (left), while partially hydrated cooper sulfate, for example $CuSO_4{\bullet}3H_2O$, is pale green (right) and completely anhydrous copper sulfate, namely $CuSO_4$, is colorless [3].
All this allows using this particular salt as an informative indicator

Figure 3. *Left: 5 ml of water with an electric potential of –200 mV cover all the bottom of a Petri dish. Right: 5 ml of water with an electric potential of +200 mV do not cover the bottom of a Petri dish; the surface of such water decreases rapidly after mixing [3].*

The last kind of hydration is most conveniently demonstrated with starch powder (Figure 4) [1].

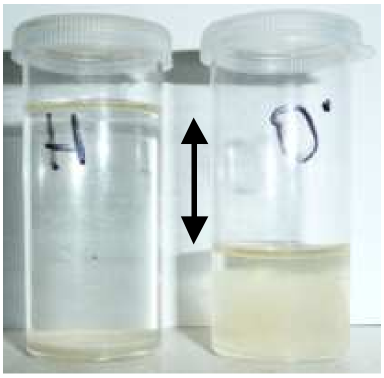


Figure 4. *There is a swelling of starch in water with a different electric potential. Starch does not swell in water with the potential of –500 (left) and swells in water with the potential of +500 mV (right).*

Water with negative potential was obtained by bubbling uncharged water with hydrogen gas (left); water with a positive potential was obtained by bubbling uncharged water with gaseous oxygen (right).
Note: water with a sufficiently large positive potential evaporates even from closed plastic flagons: the arrow shows how much during the day the level of such water has decreased.
Salts, which were dissolved in the positively charged water, penetrate through plastic along with it.
Both water used had 20 – 22°C [1, 2].

During the discussion of this dependence, a hypothesis was proposed that cells are able to accumulate exclusively positively charged water and that it is this water that stimulates both cell proliferation and the growth of tumors, including cancerous ones; naturally, such a hypothesis was also put forward that the use of negatively charged water by a person can prevent both cell division and tumor growth [2].

Over time, it became clear that this hypothesis was proposed without taking into account the peculiarities of the interaction of differently charged waters with fats. To eliminate this shortcoming of the proposed hypothesis, additional studies were carried out. The results of these studies are presented below.

2. Materials and Methods

The desired charged waters were obtained as in the study of Pivovarenko Y [1].

Cod liver oil from “De Luxe” (Iceland) was used; refined sunflower oil from “Svoja Linija” (Ukraine) was also used.

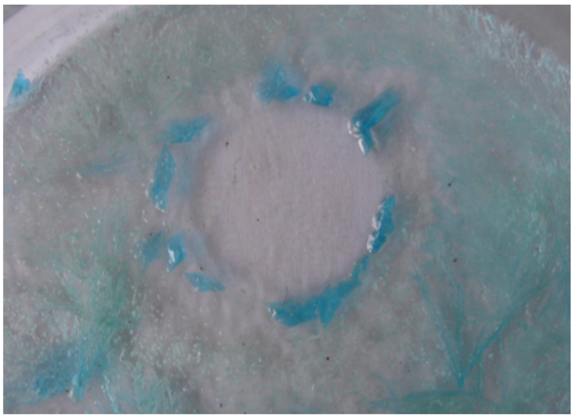
Since the coins are made of corrosion-resistant metals, they were used here.

Used copper sulphate was purchased from “Ukrreahim” (Ukraine).

3. Results

3.1. Visualization of Charge Distribution in Aqueous Media in Contact with Oils of Both Vegetable and Animal Origin

Initially, the formation of crystals in aqueous solutions of copper sulfate in contact with oils of vegetable and animal origin was studied. Thus, it was found that intense blue compact crystals form in those parts of solutions that are in direct contact with oil stains, while pale blue and pale green elongated crystals form in those parts of aqueous solutions that are far from oil stains (Figure 5).



A solution of copper sulfate was prepared in uncharged water.

Figure 5. *This is how more and less blue crystals are located in the dried solution of copper sulfate, which contained a spot of oil (completely discolored rounded area in the center).*

It is worth noting here that oils acquire a negative charge when in contact with water, and water acquires a positive charge when in contact with oils. This charge distribution occurs according to Kyon's rule: upon contact of the two phases, the phase with greater dielectric permeability receives a positive charge and the phase with lower dielectric permeability – negative [3]. Since the dielectric permeability of water at room temperature is ~81 [3, 4], and the dielectric permeability of oils at room temperature is much lower [4], water upon contact with any oil acquires a positive charge, while oils upon contact with water acquire a negative charge. Thus, the result obtained (Figure 5) is in full accordance with the stated Kyon's rule.

Since the dielectric permeability of water varies, depending on its temperature [3], the term "dielectric constant" is not suitable in relation to water; in addition, the term "dielectric constant" does not correlate well with the sensitivity of the dielectric permeability of water to high-frequency electromagnetic fields [5].

Be that as it may, but even the results presented above (Figures 1, 2) allow concluding that the surface of the oil attracts positive charges and repels negative ones (Figure 5).

3.2. Oil Emulsification

Apparently, it is worth adding right away that this same result (Figure 5) should be considered as a source of information that allows drawing far-reaching conclusions. Thus, it is this result that explains the fact that suspensions of oils with positively charged water from stable emulsions (Figure 6, left), while suspensions of oils with negatively charged water do not form stable emulsions (Figure 6, right).

Figure 6. *Suspensions formed by intensive mixing of oils with positively charged water do not stratify for hours and, accordingly, retain their milky white or yellowish color (left), unlike suspensions formed by intensive mixing of the same oils with negatively charged water, which stratify within minutes (right).*

So, it is this result (Figure 5) that suggests that oils have the ability to interact exclusively with positively charged water, which oils attract; accordingly, it can be expected that oils are not able to interact with negatively charged water, which oils repel.

The results of other experiments made it possible to make sure that all these assumptions are not groundless. So, it was found that positively charged water quickly transforms oil drops into films (Figure 7), while negatively charged water does not interact with them at all (Figure 8).

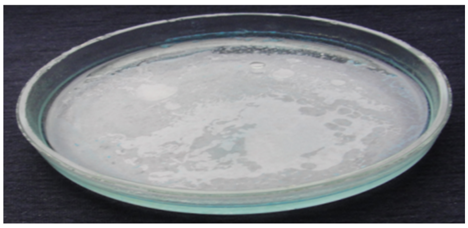


Figure 7. *This is a film that has formed from an oil drop on the surface of water with a potential of +500 mV.*

Figure 8. *Left: a small oil drop on the surface of water with a potential of –500 mV looks like this. Right: a large oil spot on the surface of water with a potential of –500 mV looks like this; the shape of this spot remains unchanged due to the lack of interaction between the oil and the sufficiently negatively charged water.*

4. Discussion

Apparently, it is first advisable to analyze the revealed attraction between positively charged water and the surface of oils (Figure 5). So, it is this attraction that explains the exceptional ability of positively charged water, or rather its surface tension (Figure 3, right), to stretch oil drops into thin films (Figures 7, 8). This, in turn, allows expecting the same effect of positively charged water on biological membranes, which are considered to be liquid-crystalline [6, 7]; in particular, positively charged water can be expected to reduce the rigidity of cytoplasmic membranes, thereby promoting cell proliferation.

In addition, the same attraction allows considering the ability of hydrogen ions, which are rich in positively charged water [1], to catalyze the addition of water molecules to the double bonds of oil molecules:

$$–CH=CH– + H_2O \rightarrow –HCOH–CH_2–[8, 9] \quad (1)$$

This, respectively, means that positively charged water is able to stimulate the appearance of HO-radicals in the composition of oil molecules, thereby increasing their hydrophilicity. This, in turn, suggests that it is this increase in the hydrophilicity of oils that determines their ability to form stable emulsions with positively charged water (Figure 6, left). (At the same time, this makes it possible to reconsider the traditional point of view, according to which the emulsification of oils in water is a purely physical phenomenon [10, 11].)

At the same time, the indicated catalytic ability of hydrogen ions (1) suggests that it is positively charged water that increases the permeability of lipid bilayers that make up biological membranes for water and aqueous solutions. In turn, this assumption creates a physicochemical basis for explaining the increase in the permeability of cytoplasmic membranes for glucose and electrolytes dissolved in water, which is observed with an increase in the concentration of extracellular protons and is now explained by the action of proton motive force [12, 13]. Be that as it may, all of the above indicates that positively charged water can not only actively hydrate intracellular biopolymers (Figure 4, right) and thus accumulate in cells, but also increase the permeability of outer cell membranes for aqueous solutions. Apparently, it seems obvious that only the combination of both of these abilities of positively charged water is able to promote cell proliferation and tumor growth. Be that as it may, all the results analyzed above can be taken as confirming the proposed hypothesis.

One way or another, but the ability of protons to catalyze the addition of water molecules to double bonds (1) should also be taken into account when explaining the ability of positively charged water to penetrate plastic (see Figure 4 and comments to it): in any case, it is very likely that this is attachment increases the hydrophilicity of plastics, making them more permeable to water.

It should also be added here that these same catalytic abilities of hydrogen ions (1) suggest that it is positively charged water that is directly involved in the formation of 8-HO-Gua in DNA; at the same time, one should take into account the fact that the content of 8-HO-Gua is increased in the DNA of cancer cells. This, accordingly, makes it possible to perceive an increased content of 8-HO-Gua in the DNA of cancer cells only as an indicator of the positive electrization of the aqueous environment of such DNA, and not as the root cause of cancer, as is commonly believed [14]. (Therefore, the previous proposal to purposefully remove HO-radicals from the DNA of cancer cells [15] should be recognized as inappropriate.)

Equally, a noticeable difference in the UV absorption spectra of aqueous suspensions of lymphocytes obtained from patients with B-cell chronic lymphocytic leukemia (B-CCL) and from healthy people (Figure 9) [16] should also be considered as the same indicator.

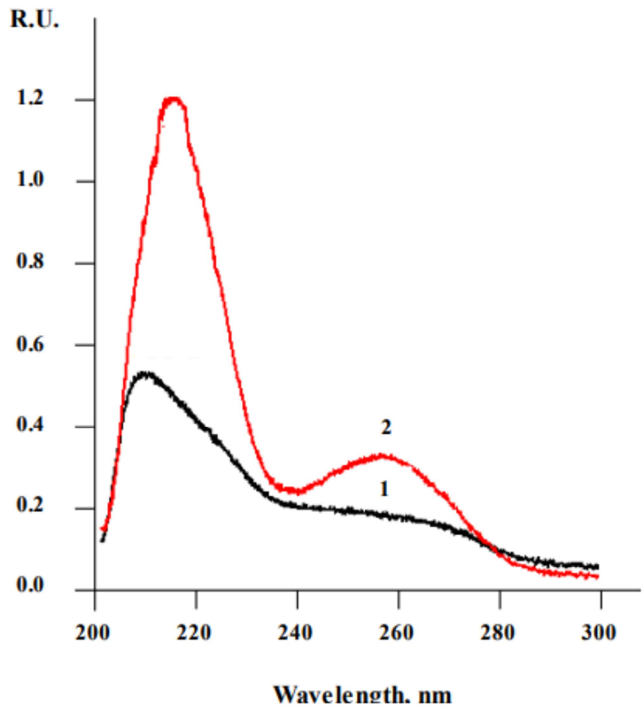


Figure 9. *UV absorption spectra of aqueous suspensions of lymphocytes: 1 – suspension of lymphocytes obtained from a healthy person: 2 – suspension of lymphocytes obtained from a patient with B-CCL.*

At the same time, the possibility of recording the UV absorption spectra of nucleic acids located directly in cells was demonstrated [2, 16].

In this case, it is necessary to take into account the preliminarily obtained UV absorption spectra of DNA dissolved in oppositely electrized waters [1], which allowed concluding that the DNA of B-CCL patients is in a positively charged aquatic environment, while the DNA of healthy people is in a negatively charged aquatic environment [16]. Also, special attention should be paid to the fact that the short-wavelength peaks in the UV absorption spectra of pure negatively charged waters are located noticeably to the left than the short-wavelength peaks in the UV absorption spectra of pure positively charged waters [1].

Thus, both previous and recent results show that the proposed hypothesis is not without foundation. Given this, it is useful to highlight those sources of positively charged water that are especially common. In this regard, it should first of all be noted that contact with air is the main cause of the positive electrization of water and water-containing objects, including the human body [3]; in particular, this electrifying ability of air is successfully used in air-hydrogen electrochemical cells (Figure 10) [17].

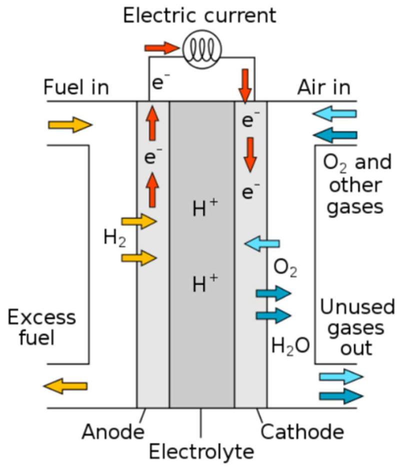


Figure 10. *This is a diagram of an air-hydrogen electrochemical cell. The red arrows indicate the movement of electrons from the compartment with an aqueous solution bubbled with hydrogen gas (which is the electron donor) to the compartment with an aqueous solution, bubbled with air (which is the electron acceptor) [17].*

At the same time, it is useful to take into account that any light, including visible light, can positively electrify the surface of the water [18].

Thus, even these two examples show that positively charged water is not something inaccessible to humans.

Despite this, boiling water deserves special mention as it has an exceptionally high positive charge. To verify this, it is necessary to analyze the boiling of water in terms of Kyon's rule [3]. Thus, taking into account that the dielectric permeability of boiling water is 55.1 [3], and the dielectric permeability of gaseous water filling the bubbles formed during boiling is ~1 [4], boiling water must be constantly enriched with positive charges upon contact with these same bubbles. This, accordingly, allows considering any boiled food as an accumulator of positively charged water; thus, in an attempt to make food softer, people saturate it with positively charged water.

Apparently, the same Kyon's rule makes it possible to explain the positive electrization of any vapor [19], of course, taking into account its friction against air. In addition, the fact that steam can often be detected visually (Figure 11) also confirms its positive electrization, since it is the tendency of positively charged water to compress (Figure 3, right) that allows seeing its aggregates, which in fact form evaporating water. At the same time, it is worth considering the fact that only positively charged vapor is able to move upwards in the same way as in clouds (Figure 12) [19–21].

Accordingly, all these evidences of the positive electrization of water vapor necessitate a revision of the current ideas about evaporation, according to which it is an upward movement of individual fast molecules [22, 23]. At the same time, it is hoped that the revised ideas about evaporation will be able to reflect the fact that vapor particles are multimolecular aggregates that can be observed even with the naked eye (Figure 11), and not individual molecules (invisible to humans).

Figure 11. *A cup of coffee from which jets of steam rise. The fact that vapor is visible to the naked eye indicates that it is composed of multimolecular aggregates, probably held together by surface tension. At the same time, it is these jets that make it possible to consider the rising steam as an electric current formed by positively charged water aggregates that form the same streams that exist in clouds (Figure 12).*

One might also expect the same ideas to take into account exclusively the positive charge of rising water vapor, for example, what causes the top of a typical cloud to be positively charged (Figure 12) [19–21].

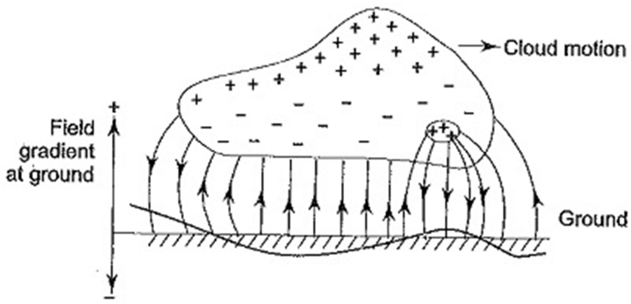


Figure 12. *Typical cloud polarization: The bottom of a typical cloud has a negative charge, while the top has a positive charge.*

Vertical arrows, which are located under the cloud and directed mainly upwards, mean predominantly positive electrification of the subcloud earth's surface [4, 5, 20, 21].

Perhaps all the above considerations seem redundant, but they all seem necessary, since they can eliminate doubts that: 1. Steaming food is accompanied by its saturation with positively charged water, the use of which promotes tumor growth; 2. Being in a steam room promotes the saturation of the body with positively charged water and probably also promotes the growth of tumors. At the same time, the above reasoning will allow doctors to perceive the intense sweating of cancer patients as the desire of their bodies to get rid of positively charged water, releasing it in the form of positively charged water vapor.

This, therefore, means that antiperspirants that slow down sweating promote the growth of tumors, primarily breast tumors, just like tight bras, which impede the flow of lymph, which produces sweat, from the mammary glands to the armpits.

While this may come as a surprise, the same Kyon's rule also comes into play when explaining that most foods acquire a positive charge when they are frozen. Thus, given that the dielectric permeability of ice is greater than 90 [5], and the dielectric permeability of air is close to 1, ice formed in frozen products acquires a positive charge due to its contact with air.

Be that as it may, but all these considerations allow, in particular, concluding that modern culinary culture undoubtedly contributes to the positive electrization of food. This, in turn, suggests that it is modern culinary culture that is able to create the prerequisites for both the emergence of tumors and their development.

Equally, the contribution of modern bathing culture to the positive electrization of human bodies cannot be forgotten. In any case, the established dependence of the dielectric permeability of water on temperature, in combination with the same Kyon's rule [3], allows concluding that even contact of a person's skin with water, perceived by him as warm, can cause a positive electrization of the skin. Thus, not only steam contributes to the positive electrization of the human body.

In order for the list of common sources of positive electrization of human bodies to be comprehensive enough, it should be supplemented with a few more natural phenomena. So, the sub clouded earth's surface undoubtedly acquires a positive charge (see Figure 12 and comments to it). This obviously means that cloudiness contributes to the positive electrization of people, with corresponding consequences for them, at least hypothetically.

In the same aspect, one should consider sea currents that cause a positive electrization of the environment. Thus, it is likely that the Gulf Stream and the California Current contribute not only to obesity in Americans [24], but also to the occurrence of tumors in them.

Apparently, it should also be shown that geopathic zones that promote the occurrence of cancer [25, 26] are also sources of positively charged water vapor. Thus, it is known that pendulums rotate counterclockwise over underground water sources, often coinciding with geopathic zones. It is also shown that the ascending parts of tornadoes that occur in the northern hemisphere are positively charged (Figure 13) [27].

Apparently, the proposed scheme (Figure 13) shows quite clearly that any rising vapor, undoubtedly positively charged (Figure 12), rotates counterclockwise, of course, in the northern hemisphere of the Earth.

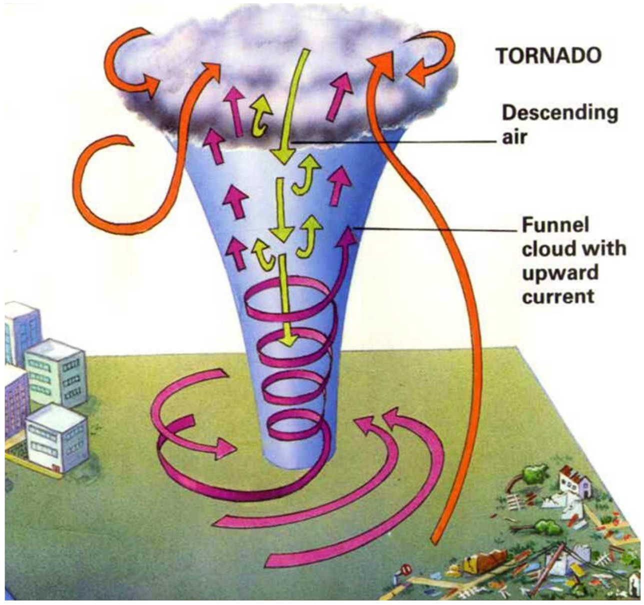


Figure 13. Diagram of a typical northern hemisphere tornado: an updraft of positively charged air rotates counterclockwise (when viewed from top to bottom) [27].

This, accordingly, allows concluding that the geopathic zones are saturated with positively charged water vapor, which rotates the pendulums counterclockwise, rising. Probably, all this indicates that people living in geopathic zones are constantly saturated with positively charged water vapor, i.e. that they constantly stay, as it were, over a cup of hot coffee (Figure 11).

Be that as it may, but all these examples also indicate that people are constantly in contact with positively charged water, which contributes to both the emergence and development of tumors (in any case, in accordance with the proposed hypothesis). Accordingly, such constant contacts require knowledge of the available sources of negatively charged water that can neutralize the negative effect of positively charged water on a person.

Thus, taking into account the successful use of hydrogen inhalations in oncology [28–30], it is advisable to mention them first of all. At the same time, attention should be paid to the fact that attempts to explain the positive effect of inhaled hydrogen gas on cancer patients solely by its chemical properties seem too unambiguous.

So, the high reactivity of molecular hydrogen in an aqueous medium [3] makes it possible to assume its participation in the no enzymatic conversion of pyruvate to lactate [31]:

$$H_3C{\bullet}CO{\bullet}COOH + H_2 \rightarrow H_3C{\bullet}HCOH{\bullet}COOH \qquad (2)$$

Equally, the same high reactivity of molecular hydrogen implies its ability to bind directly to FAD (→ $FAD{\bullet}H_2$) and thus inhibit the first reaction of fatty acid β-oxidation, which consists in the simultaneous elimination of two hydrogen atoms [32].

Thus, it is the chemical properties of molecular hydrogen that allow it to block the two main sources of acetyl-CoA for the Krebs cycle, which can already be disrupted in cancer cells [33, 34]. Apparently, even this suggests that the chemical properties of molecular hydrogen, which can manifest itself due to the high penetrating power of hydrogen gas [17], do not allow hydrogen gas to be considered an unconditionally acceptable drug. Equally, explanations for the positive effects of inhaled hydrogen gas based solely on the chemical properties of molecular hydrogen [30] appear to be insufficiently thought out.

At the same time, the ability of gaseous hydrogen to negatively electrify aqueous media, which is successfully used in air-hydrogen electrochemical cells (Figure 10) [17], seems very attractive. In any case, it is this ability of gaseous hydrogen that makes it possible to explain its healing effect on cancer patients, based on the proposed hypothesis, of course.

In this regard, it is also appropriate to mention the ability of negative air ions to participate in the formation of hydrogen atoms from hydrogen ions contained in moist air [17]; apparently, this participation should be taken into account when explaining the therapeutic effect of negative air ions on a person [35 – 37]. Therefore, it is also advisable to consider the corresponding air ionizers as sources of gaseous hydrogen.

It is no less expedient to pay attention to the property of activated carbon to absorb protons from water [3], thereby making it negatively charged [1]. That is why water filtered through activated carbon can also be recommended as an antitumor agent. (At the same time, it is worth considering the ability of ordinary glass to absorb aqueous hydroxyl ions [3], thereby positively charging water contained in glassware.)

Thus, there are quite accessible sources that can negatively electrify the human body and, probably, suppress cancer.

Despite this, the pronounced antitumor properties of dimethyl sulfoxide (DMSO) [38, 39] should also be mentioned. Thus, it is believed that DMSO is able to replace its own H_3C-radicals with external HO-radicals, in particular, under physiological conditions [40, 41]. Accordingly, the antitumor effect of DMSO can be explained by its ability to remove HO-radicals, which are part of the 8-HO-guanine contained in the DNA of cancer cells [14]. In addition, it is advisable to take into account the possible addition of H_3C radicals, which were originally part of DMSO, to cytosines complementary to reducible guanines, with the formation of 5-H_3C cytosines, which are probably capable of blocking gene expression [42]; therefore, it is this methylation that can be expected to be able to prevent the division of cellular DNA and hence cells. At the same time, the proposed hypothesis draws attention to the ability of the oxygen atom, which is part of DMSO, to attract water protons, thereby destroying structured water [3], which is undoubtedly part of tumors [2]. Thus, the use of DMSO in anticancer therapy seems to be appropriate from various points of view.

5. Conclusion

Since the proposed hypothesis began to look even more reliable, it can be considered quite adequate and, therefore, working. This, accordingly, allows considering positively charged water as the main structural component of tumors. At the same time, this allows perceiving intense sweating as a natural protective reaction of the body to a tumor, naturally, given that sweat is a positively charged water vapor. Moreover, it also allows considering the targeted neutralization of positively charged water contained in the bodies of patients as a way to suppress tumors.

In addition, it is worth noting that the unpleasant consequences of the negative electrization of the human body, if any, can be quickly neutralized with the help of positively charged water, the sources of which are easily accessible. This, therefore, allows doctors to reduce the chance of causing any harm to patients, which is very encouraging, given that most anticancer drugs are far from harmless.

Be that as it may, the proposed hypothesis offers a completely new point of view on the root cause of tumors and deserves attention if only for this reason. In any case, it is this hypothesis that deprives the geopathic zones of mysticism, confirming the opinion that cancer is a disease of the place.

Apparently, it is no less important that the same hypothesis successfully complements the ability of positively charged blood to promote thrombosis, as well as the ability of negatively charged blood to destroy both blood clots and erythrocyte aggregates [17, 24]. Given the clear relationship between cancer and thrombosis [43 – 45], this complement seems to be extremely important, since it indicates that it is the complete positive electrization of the human body that promotes tumor growth. Among other things, it is this hypothesis that allows considering thrombosis also as a physicochemical phenomenon, contrary to traditional views [46].

(If the interpretations proposed here seem too biased, then they can only be seen as an attempt to respond to A. Szent-György, who urged biologists not to distance themselves "from two matrices: water and electromagnetic fields".)

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