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A Preliminary Study of the Effects of Reich's Orgone Accumulator on Oats Seed Sprouting and the Structure of Water

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Abstract

This paper presents a study of the influence of Reich's orgone accumulator (ORAC) on water structure, with the aim to explain the effect of ORAC on biological entities. We have used seed germination to quantify the effect of ORAC on biological substances. To study the effect of ORAC on water structure we have analyzed 168 water samples, half of which were controls. We analyzed the samples using the capillary dilatometric method and found that the amount of structured water rose significantly if in samples that were kept in ORAC. The structured water has greater biological activity, which can explain a positive effect of Reich's accumulator on the living subjects.

Introduction

Wilhelm Reich was one of the first to discover a form of bioenergy, existing in humans and the atmosphere. He also found that this form of energy could be concentrated in a chamber made of alternating nonmetallic and metal materials. This device was called «the orgone accumulator of energy» or ORAC [1, 2]. The term «orgone» although

resembling the Latin word *organismus* (a living being) was coined by Reich himself. The first accumulator, constructed by Reich, consisted of a wooden box with the interior surfaces composed of steel sheets. The size of the first accumulator allowed for conducting experiments on mice [3]. The ORAC, constructed by him later, had sides of 3-4 plies, each one consisting of alternating metal and nonmetallic layers. Sheets of iron or steel wool were used for the metal layers, and cotton for the nonmetallic layers.

Experiments showed that a layer of organic material absorbed and accumulated the orgone energy from the cosmos, while the layer of metal absorbed and then reflected it towards the interior. This combination of materials creates the perfect conditions for gathering and accumulating orgone energy in a closed space. The capacity of the orgone accumulator depends on the number of alternating layers of insulator and metal. The more layers, the more powerful is an ORAC. It is considered that the universal cosmic vital energy is the «orgone energy».

In 1967, Reich's follower Elsworth Baker founded the «Journal of Orgonomy» and

in 1968 the American College of orgonomy, where clinical and scientific research continued.

Many researchers in this field believe that the orgone energy application in medicine might become a unique approach in prevention and treatment of a wide range of emotional and physical pathological conditions, including depression. Bioenergy in treatment of cancer is a sphere too often neglected by the official medicine and science; however, it deserves serious studying and consideration as an important addition to the traditional therapy of cancer [4]. Thus, the studies, conducted in the USA and China, report on the use of bioenergy in treatment of cancer patients [5, 6]. Many investigators claim to register a beneficial effect of bioenergy on living beings, showing a reduction of weariness and anxiety, life quality improvement, and an increase of immune system stability [7, 8].

In the literature review there is a long list of conditions successfully treated with the orgone energy. They are: depression, weariness, anorexia, constipation, cold, various types of an anemia and rheumatism, tuberculosis of the lungs, high and low blood pressure, and angina pectoris. There are data on treatment of a wide range of wounds, including abscesses, grazes, bruises, dislocations, ulcers, gangrenes, as well as traumatic pains and many other manifestations of painful syndromes [9].

With respect to the treatment of cancer, anecdotal evidence and individual case studies detailing successful application of an orgone accumulator to human subjects can be found in the literature [10, 24]. Unfortunately, systematic investigation of the effects and benefits of the orgone accumulator with respect to cancer is missing, although several controlled studies on mice attesting to life expectancy increase of 50-300% (attributed to orgone

accumulator) have been published [23].

There are also reports on the treatment of dysmenorrhea, migraines, neuralgias of a trigeminal nerve, and pain syndromes in osteoporosis, cancer, various inflammatory reactions of tissues such as abscess, thrombophlebitis, parodontosis and inflammatory diseases of the skin.

In some maladies, the orgone energy should be applied with much care to avoid the risk of possible aggravation of symptoms and health conditions in general. A number of pathologies, according to W. Reich and other authors, are relative or absolute contra-indications to application of the orgone energy, such as: high blood pressure, arterial occlusions, cardiac failure, bronchial asthma, hay fever, ulcer of duodenum, brain and liver metastases, and hysterical conditions [9].

It is known that plants and organic materials of natural origin, containing cellulose and other complex polymers-carbohydrates or their residuals are capable of absorbing and accumulating energy. Thus, clothes made of cotton, flax plant or nettle fiber, consisting of 90-95% of cellulose, are not just hygienic but also «charged» with vital energy beneficial for a living being because they are capable of accumulating that energy. Plants in general are capable of concentrating this type of energy. Some of them can absorb and radiate only part of its wide spectrum, while others – its full range.

The orgone energy effect on plants was indicated by many independent researchers [11, 3]. Thus, J. DeMeo, one of the most well-known researchers of orgone energy after Reich, observed obvious results of the orgone energy effects on mung beans sprouting [11]. The experiment was undertaken outdoors in an orgone accumulator (ORAC) and control enclosures. The bean sprouts inside the ORAC group showed a 34% growth increase as compared to the control

group ($p < 0.0001$), which was inside a non-accumulative chamber. The ORAC group also demonstrated increases in germination rate, water consumption and weight gain. It is important to note that according to J. DeMeo, the sprouts in the orgone accumulator group consumed a little bit more water, than those in the control group (118.3 ml against 109.9 ml) - i.e. difference of 7.6%.

Water, air and heat are necessary factors for the germination of seeds. Water gets under a seed peel through a small aperture – micropyle – making the seed swell. Water is necessary for dissolution of nutrients of the seed, which are consumed by a growing germ. Swelling of seeds is accompanied with intensive enzyme activity. Thus, the energy used in the biochemical processes of a sprout is released.

It is necessary to point out that the importance of water fractions – free and structured – for the functioning of living systems has been seriously discussed for a long time. Its effect is most fully investigated on plant bodies [12, 13]. As it follows from these publications, the intensity of physiological processes in plants depends on the free and structured water ratio in them.

T.D. Nazarov with co-authors studied the relationship between oxidation-reduction enzymes (malic enzyme and glutamate dehydrogenase) activity and their asymmetry and hydration [14]. The researchers found that the structured water optimally corresponds to the greatest enzyme activity. Upward or downward deviation from this optimum leads to enzymes activity reduction. Changes in the structure of the substrate groups, which do not directly interact with the protein surfaces, can change the enzyme reaction rate by an order of magnitude. This kind of data is usually explained by water contribution

to the free energy of the enzyme reaction. These phenomena seem to be a possible manifestation of the direct influence of the structured water on biological reactions [15, 16, 17].

Taking interest in the orgone energy effect upon biological objects, we constructed a modified orgone accumulator of Reich (ORAC) and conducted a series of experiments on the germination of oats seeds placed inside the ORAC to test its effect. When its positive biological effect was proven, we saw our basic purpose in the investigation of a possible mechanism of the orgone energy effect on living systems taking as a criterion its influence on the water structure (free and structured fraction ratio, in particular).

Materials and Methods

As mentioned above, for our experiment we constructed a modified orgone accumulator of Reich (ORAC). It is a box of $41 \times 41 \times 5.5$ cm, made of zinc-coated iron with two layers of cotton fabric and a layer of steel wool in between (Figure 1).

Before we started the experiment we placed oats seeds into a vessel with water to select the seeds, which went to the bottom, and

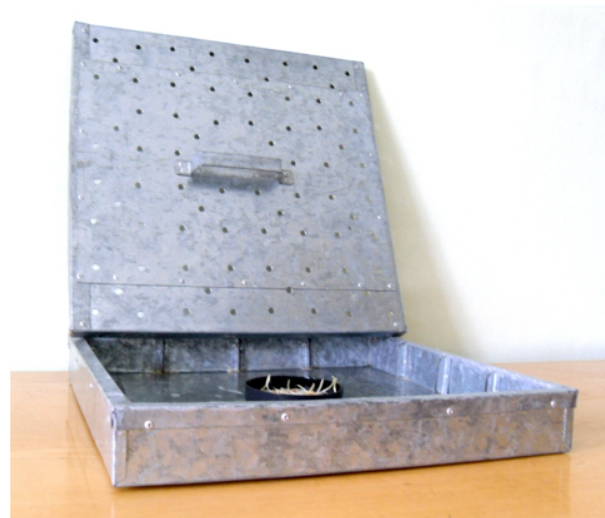


Figure 1: The modified orgone accumulator used in our research.

threw away those which floated on the water surface. Then we put the selected seeds into glass Petri dishes layered with absorbent paper, moistened them with 5 ml of bottled artesian water and covered the dishes with black lids. Each dish contained 20 seeds placed at regular intervals. The covered dishes with the seeds of the experimental group were placed inside the closed orgone accumulator for four days. The Petri dishes with the oats seeds of the control group underwent the same procedure as the seeds of the ORAC group except that they were placed inside a closed cardboard box. The dishes with the seeds of both groups remained in closed boxes for four days. After that the experiment was terminated and measurements taken. We counted the number of the germinated seeds and roots, measured the sprouts and roots in both groups. We used all together 120 seeds (60 for the control and 60 for the experimental groups).

In addition to the experiments with seed germination, we conducted three series of experiments with water samples kept in the ORAC and in a cardboard box, in which we estimated the structured water ratios. We repeated the experiments three times with a week break to exclude the affect of casual natural phenomena: changes of the solar activity, magnetic field of the Earth, atmospheric pressure, phases of the moon, etc. on the water condition, and the results of the study.

For the experiment we used bottled artesian water poured into 8 glass Petri dishes (50 ml) painted black, as we had proved earlier that the sunlight, even disseminated, changed the structural condition of water [18]. We put 4 Petri dishes (experimental group) inside the orgone accumulator and the other 4 dishes (control group) – inside a cardboard box for three days. Afterwards, we took 7 samples of water from each Petri dish of both groups to evaluate the structured

and free water ratio. Thus, in each series of the experiment 28 samples of water were analyzed. All together we examined 84 orgone-charged water samples and the same quantity of the intact water samples.

According to the modern concepts, water is a heterogeneous system presented in the form of a free (liquid) fraction and an associated phase (clusters), which are basically structures of polymorphic ices [18-21].

We determined the amount of the structured water fraction using a capillary dilatometric method developed in our laboratory for determination of the “bound water” quantity in biological liquids, which is structured [22].

The bound water in biological liquids and the structured fraction in pure water are the same ice-like structures in their physical and chemical essence. That is why we used said method to study the water fractions ratio.

The method we used has obvious advantages in comparison with other physical methods of water structure analysis [17]. First of all, it enables one to assess the exact amount of the structured fraction in water samples. Secondly, all physical methods of water study involve application of some physical factors: radiation, a stream of particles, electric or magnetic fields. These methods are quite adequate for investigation of stable physical and biological objects. But we speak of water structures, which are in no way stable or lasting. The structured water formations (clusters) are in a dynamic equilibrium with the liquid fraction and are constantly exchanging water molecules among themselves. Therefore any, even insignificant, external influence can displace this balance and affect the quantity indices of the structured water ratio. The dilatometric method does not affect water in any way. The initial volume of the water

sample precisely measured in normal conditions is the basic starting point for the subsequent calculation of the structured and liquid fractions ratio of water.

The dilatometric method is based on the property of water to increase in volume during the phase of transition into a crystalline state. It is postulated that the structured fraction of water has the same structure as ice, so it does not change its volume at freezing. At the phase of freezing water crystallizes, and the liquid fraction of water increases in volume. An accurate measurement of the initial volume of water and its volume after freezing enables to calculate the amount of liquid fraction, which increases in volume after crystallization. The difference between the total volume of water and that of its liquid fraction will make the structured fraction amount.

The structured water evaluation is done as follows. We draw in water into a thick-walled glass capillary up to the level of about 90 mm, and place it in a special holder (Fig. 2) with a rubber platform at the lower end of it and a metal plunger (pushrod) passing through a guiding hole of a screw at the upper end. The diameter of the metal plunger should correspond precisely to that of the capillary inside diameter. We used a capillary with the inside diameter of 1.2 mm

and a scale of reading from 1 up to 100 mm.

Using a microscope with a scale, we measure the height of the liquid column within the accuracy of no less than 0.05 mm (V_0), bring down the metal plunger, leaving the lower end of it 1 cm above the water meniscus, and place the device into the freezing tub for 30 minutes, with the temperature of the cooling liquid of -10°C . After that we take out the device from the freezing tub and push the metal plunger down to the level of the frozen water. Now the ice in the capillary begins to melt, and the water level decreases, but the low end of the plunger remains at the place. Its position shows the height of the ice column (V). The amount of the liquid fraction of water in percentage (C) is determined as the difference between the water volume at 0°C and that of the formed ice ($\Delta V = V_0 \cdot K + (V - V_0)$, where K is the coefficient of water compression at cooling from the room temperature down to the temperature of water crystallization), considering the coefficient of water expansion at the stage of ice formation, the amount of the structured fraction of water is accordingly calculated as: $100\% - C$ [22].

The data obtained in both sets of experiments: seed germination and water fractions assessment underwent computer processing using Student's t-test with a statistically significant difference of $p < 0.05$.



Figure 2: The holder with a capillary.

	Number of germinated seeds	Average length of the sprout, mm	Average length of the root, mm	General number of the roots
Controls	21	18.5	40.9	3.6
Experiment	48	22.2	51.6*	3.8

Table 1: Quantitative characteristics of oat seeds germination.

* Statistically significant difference.

Results and Discussion

Table 1 presents the effect of the orgone accumulator on oat seeds sprouting.

As seen from Table 1, the orgone-charged seeds show greater biological activity than the seeds of the control group. The number of the sprouted seeds in the experimental group was 2.3 times higher than that of the controls; the average sprout length in the experimental group exceeds that in the control by 1.2, and the average root length by 1.3. The average length of the sprouts and number of roots in both groups did not differ significantly. Figure 3 demonstrates the difference in germination between the intact and “orgone-charged” seeds.

Table 2 shows that the structured water fraction in the orgone-charged water samples has significantly increased.

	Content of the structured Fraction (Average)
Control samples #1	5.93±0.37
Experiment #1	8.27±0.63*
Control samples #2	5.61±0.52
Experiment #2	7.75± 0.61*
Control samples #3	5.49±0.35*
Experiment #3	7.42± 0.89*

Table 2: Structured water fraction ratio in %.

* Statistically significant difference.

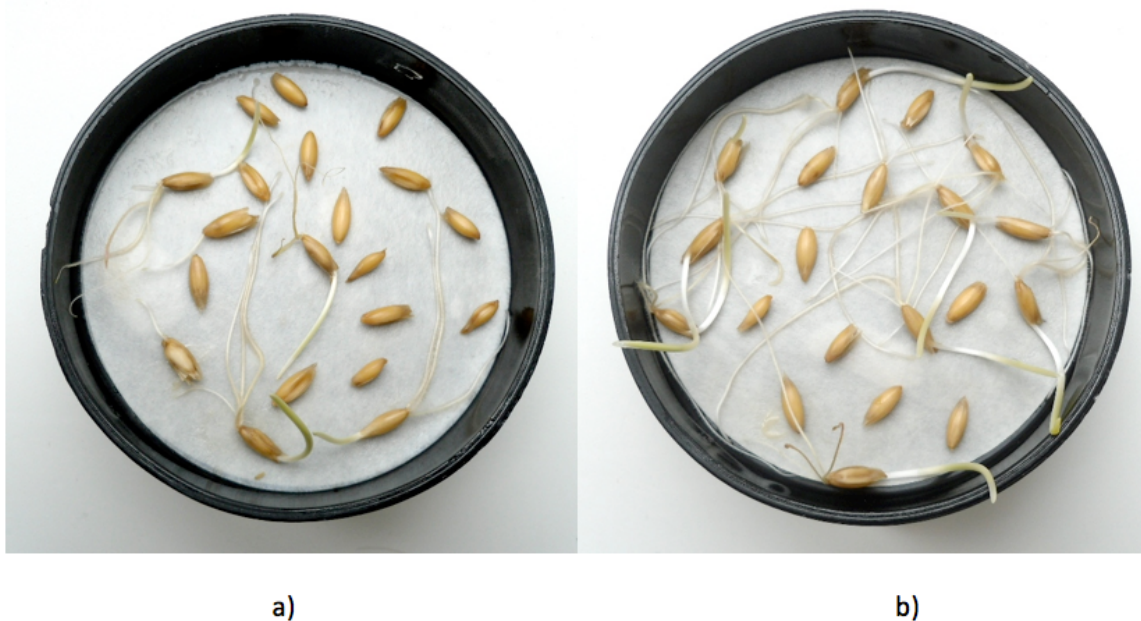


Figure 3: Sprouted oat seeds: a) controls, b) orgone-charged seeds.

What is a possible mechanism of the given effect? In J. DeMeo's opinion, 'orgone has a strong mutual affinity and attraction to water', and therefore, it charges water first, which is then absorbed by plants. The orgone-stimulated seeds consume more water, than those of the control group [11]. It is known today that the water, absorbed by seeds, binds to the biopolymers of the seed and this water is structured. This in its turn, as stated above, stimulates enzymatic processes. As the laws of thermodynamics have it, structured water is more preferable for a living organism to get. That is why the orgone accumulator intensifies the process of seeds germination in our opinion.

Conclusions

The carried out research confirms the positive effect of the orgone accumulator on plants [11]. Our experiments enabled us to be convinced that a Reich's orgone accumulator, constructed by us, works and creates inside itself a special environment. To find out the mechanism of this biological activation we have studied the affect of this device upon the water structure. It is established, that the amount of the structured fraction in the water samples charged in the orgone accumulator increases significantly. Considering the connection between the biological activity of water and its structure proved by many other researchers, we believe, that the mechanism of the orgone accumulator action consists in its structuring effect on water, which is very important for living organisms, because water affects the activity of ferments, biological membranes and other morphological elements of the cell. By affecting water we affect upon all the biochemical and physiological processes because water is their permanent and indispensable participant

We don't think orgone exists as a special kind of energy. As we understand it there

is a universal energetic informational field, which is actually a combination of fields of various natures and various spectral characteristics. Space realizes a holographic principle: in each part, it is all. The effect of the orgone accumulator as a concentrator of the cosmic energy is obvious, and Reich's great achievement consists in the fact that he offered a device to accumulate the cosmic energy, which has a favorable effect on living organisms, and ways of its useful application.

Acknowledgements

We would like to thank James DeMeo for productive discussion, useful comments, and general encouragement of our research.

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Discussion with Reviewers

Anonymous Reviewer: Your design for the orgone accumulator departed from the original designs which Reich and others following his track have described, in that you did not provide an external layering of the organic-insulator material, nor did your accumulator have more than the one-ply layering. Consequently, I hope you will undertake these experiments again, with a more appropriately designed multi-ply orgone accumulator, made to Reich's original specifications, to gauge what the full effects might be. And also to revisit these experiments in multiple runs, with a greater sample size. Could you explain your methods and plans for further experiments?

Farashchuk N, Fomitchev-Zamilov M and Tsyuman Y: Our modified orgone accumulator had more than one ply of layering: there was a layer of cotton inside the metal enclosure. We did not provide the outside organic coating because we did not want it to be contaminated with sprouting seeds. In the next experiment we plan to compare accumulators of various design vs. a temperature controlled enclosure with artificially elevated temperature by 1-2°C.

Reviewer: I am also encouraged by your water-freezing method of analysis, wherein the orgone accumulator's influence suggests in some measure the experiments by Piccardi on cosmic energetic parameters influencing the temperature of the freezing of super-cooled water.

Farashchuk, Fomitchev-Zamilov and Tsyuman: We look forward to reviewing Piccardi's work.

Reviewer: I find the author's statement that they don't believe in orgone energy to be something of a non-sequiter in view of the fact that they have demonstrated that the accumulator confirms Reich's theory. Indeed, I could well understand it if they stated that while they did confirm that the accumulator can yield anomalous effects that their findings were not enough to definitively establish the existence of orgone energy as a theoretical general principle and that it would require more evidence for them to accept such a position. Invoking "cosmic energies" and principles does not solve the problem, but, to my mind, further obfuscates it. I find their statement that they don't believe in orgone energy to be something of a non-sequiter in view of the fact that they have demonstrated that the accumulator confirms Reich's theory. Indeed, I could well understand it if they stated that while they did confirm that the accumulator can yield anomalous effects that their findings were not enough to definitively establish the existence of orgone energy as a theoretical general principle and that it would

require more evidence for them to accept such a position. Invoking "cosmic energies" and principles does not solve the problem, but, to my mind, further obfuscates it.

Farashchuk, Fomitchev-Zamilov and Tsyuman: In the present paper we did not attempt to address the nature of orgone energy. Our focus was demonstrating the effect - which exists. The next step in our research is to determine if the effect can indeed be attributed to orgone energy or to some other source. *E.g.* one of the authors speculated that the seeds might sprout better because ambient infrared energy is absorbed by the outside metal layer of the accumulator given the seeds within the accumulator 1-2°C temperature boost and thus results in better sprouting because the control seeds were sprouting effectively in an environment that was 1-2°C colder. That is why we resisted making any conclusions whether the effect was due to orgone or not - in our experiment we simply could not tell and the entire question was outside the scope of our work. ■