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## PHENOMENAL PROPERTIES OF WATER: IT'S MEMORY AND THE STRUCTURE OF CRYSTALS

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***The purpose and objectives.*** To assess the views of scientists on «Memory of water» and the importance of new information for scientific and technological progress, to reveal the unique method of study of this phenomenon and to identify opportunities of knowledge about the properties of water in science, industrial processes and in developing and manufacturing drugs.

The objective is to find, analyze and evaluate accurate information that is based on experimental determination of crystal forms of water depending on the impact factor.

***Object of study.*** The object of research is the phenomenon of water – the property of water to remember and store information and reproduce it in the form of crystals of appropriate structures.

***Methods and tools for research.*** The methods that were used in the work are microscopy of crystal after freezing and statistical analysis with the distribution of results into categories of the similarity crystal forms that can be right and wrong, it is also possible their fragmentation. In addition, important methods are refractometry, high performance liquid chromatography and proton magnetic resonance that are needed to confirm structuring of water.

***Scientific novelty and practical significance of the results.*** This topic is relevant because there is a lot of discussion about water memory. There were many experiments and dissertations, for example «Structured state of water as a basis for controlling the behavior and safety of living systems» by Zenin S. V.

The first studies dedicated to the «memory» of water were produced by Deryagin and Churaev in 1971. Later from the 1990s, the Japanese researcher Dr. Masaru Emoto performed a series of experiments observing the physical effect of words, prayers, music and environment on the crystalline structure of water.

Later studies of the phenomenon of water feature to remember information gained further development, because the theme is quite interesting and direction is new and promising.

Many other scientists also studied this theory, and most of them are inclined to approve correctness Masaru Emoto experiments. For example, Stanislav V. Zenin – a scientist with his laboratory, two Ph.D. degrees and one doctoral degree, who developed a theory of water and defended his thesis at the Institute of Medical and Biological Problems of the Russian Academy of Sciences.

But there are researchers who argue the opposite and refute these properties of water, for example, Alex Faleev, Demyan Sheng, etc. So the topic remains valid for further research for decades.

***Research results.*** The first researcher was Emoto Masaru, he hired photographers to take pictures of water after being exposed to the different variables and subsequently frozen so that they would form crystalline structures.

To confirm the theory, the water was frozen and examined under a microscope. Water in a glass bottle for some time is exposed to the influence of some information carrier - a written word, picture or music. Then fifty Petri dishes (5 cm in diameter) are taken, this water



pours out in them and is placed in the refrigerator at a temperature of  $-25^{\circ}\text{C}$  or lower. When the cups are removed after three hours, small (about 1 cm) ice granules were found in them, which assumed the shape of a sphere due to surface tension. Each of the granules is illuminated and examined under a microscope.

If everything goes well, then when the ice melts as a result of the temperature rise, a crystal begins to form. After two or three minutes, the granule opens. In fifty Petri dishes, water which was taken from the same sample and frozen under the same conditions. However, not all granules of ice form crystals. In some cups very beautiful crystals are obtained, but in others they are absent. According to the results of the survey of various water samples, they are divided into the following categories: with a lot of clearly similar beautiful crystals, with a lot of crystals of irregular shape, without crystals. Statistical analysis allows us to state that ice crystals really reflect the quality of the water studied.

After observing these miraculous results, Dr. Emoto went on to type out different words, both positive and negative in nature, and taped them to containers full of water. The results were as follows: «As you can tell, the water stamped with positive words is far more symmetrical and aesthetically pleasing than that stamped with dark, negative phrases» (Dr. Masaru Emoto).

He also responded to questions how long the water «remembers» that crystalline structure: «This will be different depending on the original structure of the water itself. Tap water will lose its memory quickly. We refer to the crystalline structure of water as «clusters». The smaller the clusters, the longer the water will retain its memory. If there is too much space between the clusters, other information could easily infiltrate this space, making it hard for the clusters to hold the integrity of the information» (Dr. Masaru Emoto).

Follower Emoto – Stanislav Zenin on the basis of data obtained by three physicochemical methods: refractometry (S.V Zenin, B.V Tyaglov, 1994), high-performance liquid chromatography (S.V Zenin et al., 1998) and proton magnetic resonance (S.V. Zenin, 1993) constructed and proved a geometric model of the basic stable structural formation from water molecules (structured water). Then a picture was obtained using a contrast-phase microscope of these structures (S.V Zenin, 2004).

The structural unit of such water is a cluster consisting of clathrates. The structure of clusters encodes information on the interactions that took place with these water molecules. Process of structuring does not impact the chemical composition, but changes the arrangement of molecules. During structuring water molecules unite creating clusters.

He gave a definition of water as a substance in the information-phase state, a substance with a structure suitable for data storage, biological information storage. At the same time, he singled out two types of «memory» of water-primary and long-term.

The primary memory of water appears after a single exposure and represents a reversible change in its structure. Long-term memory of water – a complete transformation of the matrix of structural elements in clathrates due to a long information impact. That is, to form a specific water structure, it is enough to transmit a certain emotion to the water for a certain time.

**Conclusions.** Thus, the memory of water is a proven fact that has to find its future use. Progressive is the study of the use of the properties of water in homeopathy as the possibility of using the new information in the field of medicine and pharmaceuticals.

**Keywords.** Water, crystal forms, structure, memory, phenomenon.