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TO THE QUESTION ABOUT BRAIN MEMORY NATURE

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Abstract. The study of alcoholic influence, joint alcoholic and mental influence as well as the one of further exposition on structural and informational properties of water was carried out with the method of laser emission scattering.

Experimental findings imply that adding alcohol to water results in formation of coarser cluster structure compared to the initial one. Degree and character of such restructuring are defined by duration of alcohol influence, its dosage, and the initial water structure.

The mechanism of memory deterioration of water with alcohol is defined. It lies in essential abatement of its sensitivity to the influencing information compared to the one of the blank sample.

The loss of memory in water containing alcohol is determined by high mechanical durability of combined clusters that consist of molecules of water and pure alcohol formed by alcohol influence which hinders their spin restructuring under informational influence.

Character of changes in water structure that contains alcohol corresponds to abatement of human brain memory under consumption of alcohol and testifies to veracious conclusion of torsional nature of brain memory. It also confirms that physical carrier of the latter is spin configurations of tetravalent atoms of oxygen in water clusters that neurons contain.

Keywords: cluster, water structure, torsional soliton, alcohol, memory.

Introduction. The nature of brain memory is widely studied. However, all attempts to define its mechanism were unsuccessful. The problem was insuperable because of the wrong initial idea that memory has electrochemical nature i.e. arises from chemical reactions in diverse variations among ingredients in or among neurons. According to advocates of the conception the output of the reactions are material carriers of memory. [1-4] Argumentation of invalid idea about electrochemical nature of brain memory is given in. [5]

The first supposition of field structure of consciousness mechanism was formed in. [6] According to it every act of consciousness corresponds to its space spin configuration in brain which produces its own torsional field the so-called torsional soliton radiated by a human. [7] In work [8] conception of consciousness mechanism as a torsional one was presented. However, analysis of possible structural brain elements able to form stable spin configurations implementing mechanisms of consciousness and memory given in [8] was unable to define material brain basis that provides consciousness mechanism on a field level.

The research on dependencies of structural water parameters on character of mental influence held in [9] with light scattering method let experimentally define that nature of its memory is a field one and consists in forming spin-oriented configuration of tetravalent oxygen atoms of water clusters which corresponds to the configuration of influencing torsional soliton.

The conclusion about torsional nature of brain memory was drawn based on experimentally defined in [5] analogy of properties of water memory and the one of the brain. The physical carrier of brain memory is spin configurations of tetravalent oxygen atoms of water clusters that neurons contain and the fraction of which is 84% of their chemical composition. [10]

Identity of nature of water memory and the one of the brain let easily explain the mechanisms of brain memory forming, factors defining short-term and long-term memory, causes of its abatement as well as the nature of consciousness and mechanisms of its origin, development and degradation [5].

The conclusions about field nature of brain memory and its physical carrier are formed in [5] based on analogy of experimentally defined properties of water memory to the known properties of brain memory. Impossibility of access to cytoplasm of neurons of living brain excludes experimental validation of its own component – water – to structuring.[1] In this context it is important to obtain complementary findings that either validate or refute the conclusions of the work. [5] The results of testing the conclusions under altered state of mind can be as such. The most appropriate external influencing factor to pursue the objective is evidently alcohol. It negatively influences brain aggravating almost all of its functions - memory, thinking, emotions, willpower, consciousness etc.

In the present work the study of both alcohol influence and joint alcohol and mental influence on structural and informational water properties is carried out with the method of light scattering in order to prove the conclusion about brain memory nature.

Materials and methods. The experiment consisted of 2 parts: one-part studies the influence of alcohol on structural water properties depending on duration of its influence, the dose of alcohol, initial

[1] The indirect proof of such a property may be experimental findings in study of structural properties of blood serum [11] which has the correspondence of water and solid portions close to the one of cytoplasm.

structure of the tested samples; the other part is dedicated to study of changes in water structure after being influenced with both alcohol and mental action as well as to the one of the further exposure of water samples when the mental influence ceased. It was necessary to carry out the first part of the experiment since the information about mechanism of alcohol influence on water structure was absent. The other part studied the influence of alcohol on the informational aspect of structural water properties.

The research was conducted with method of scattering of laser emission on the tested water samples. The essence of the measuring method is considered in details in. [9]
Under T=300K the intensity dependencies of scattered light I on scattering angle Q – scattering indicatrices of initial water samples $I(Q)_{int}$ and the ones immediately upon influence and upon the exposition $I(Q)_{inf}$ were measured.

Calculating and graphical processing of the measured indicatrices made it possible to define the set (ensemble) and sizes of clusters, their relative concentration, degree and character of change in the parameters of water structure upon influence and exposition. Methods to define an ensemble and sizes of clusters are given in [9].

The degree of change in total concentration of clusters $N_i = \sum_i N_i$ (N_i – cluster concentration of i type (size) was defined according to the ratio of integral intensity of the scattered light upon influence I_Σ^{inf} to initial I_Σ^{int} :

$$N_\Sigma^{rel} \approx I_\Sigma^{rel} = \frac{I_\Sigma^{inf}}{I_\Sigma^{int}} \cdot 100\%.$$

According to [9] in approximation of single scattering the value I_Σ is numerically equal to the square under the curve I(Q). Veracity of correlation $N_\Sigma^{rel} \approx$ is I_Σ^{rel}grounded under this condition in [9].

The degree of change in concentration of clusters of separate sizes was defined based on calculating values of relative scattering indicatrices R(Q) for every case of influence which are relation of measured scattering indicatrices of one and the same water sample after $I(Q)_{inf}$ and before $I(Q)_{int}$ influence. The use of R(Q) gives an opportunity to simultaneously define the direction and degree of change in cluster concentration caused by influence by its numeric value. Thus, value R(Q) >1 indicates increase and R(Q) < 1 implies decrease in concentration of clusters which form intensity of scattering in the corresponding angle sector. The additional findings about informative properties R(Q) are given in [9].

The water from an artesian well was used for the research. As alcohol vodka was used in proportions of volumes of the tested water samples and alcohol (3:0,5) and (3:1). Dependencies of structural water properties on time of influence of alcohol t_{inf} was studied under its additive increase.

To study the influence of initial water structure on its change under alcoholic influence the samples with various degree of dispersion were used. The additional information on the issue is given in paragraph 1 of the part *Experimental Results*.

The mutual influence of alcohol and information on water structure was implemented in the following way. Two identical cuvettes were filled with equal in volume water samples from one and the same container. Upon measuring the initial scattering indicatrices of both samples, $I(Q)_{int}$ a dose of alcohol in proportion 3:1 was put into one of them. The other sample of water was a blank sample (i.e. an alcohol-free sample). Then the mutual exposition of both water samples (the one with alcohol and the blank one) was made within 20 minutes. After that they were influenced with neutral information.

The influence was conducted mentally simultaneously on both water samples within 5 minutes. To do it the cuvettes were placed in front of the operator at the distance of 50-60 cm; the distance between the cuvettes was 30 cm. Afterwards for the above-mentioned time period the operator mentally reproduced manifold the text: "*Water is the life base on the Earth. Water has memory.*"

Scattering indicatrices, $I(Q)_{inf}$ of both samples were measured immediately after the mental influence was stopped and also in definite exposition periods indicated in the part *Experimental Results.*

Results. Scattering indicatrices of the initial water samples

Scattering indicatrices of the initial water were decreasing functions with increase of scattering angle (pic.1). According to [12] scattering centers are clusters – microcrystals of ice which are present in liquid phase in all of the temperature interval of its existence the presence and parameters (sizes, form, concentration) of which determine the structural properties of water. The observed character of curves I(Q) in small-angle interval of scattering ($Q \leq 10°$) is formed by diffraction of falling light into (conditionally) large-scale (further large) clusters with radius of $0,9 \mu m < r \leq 2,0 \mu m$; in the angle interval $10° < Q \leq 30°$ is formed by the same light diffraction into medium-scale (further medium) clusters ($0,4 \mu m \leq r \leq 0,9 \mu m$); in the interval of angles $Q > 30°$ is formed by scattering into fine-scale (further fine) clusters with $r < 0,4 \mu m$ partially due to diffraction and to reflection the significance of which grows with the increase of Q.[13]

Insignificant fluctuations of intensity present on I-III curves in the angle interval $Q \geq 50°$ is connected to interference of rays which are reflected from the present in initial water oversize clusters with r>2мm and the ones refracted by them. [14]

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The structural peculiarity of freshly taken initial water is its natural structuring in the process of storage which consists in gradual decrease in concentration of fine clusters used up for the increase of sizes of more oversize clusters due to binding with the latter ones.

To consider the peculiarity of the initial structure its conditional classification into III degrees of structuring was made where I degree corresponded to the highest concentration of fine clusters and III degree implied the lowest their concentration in the studied water samples.

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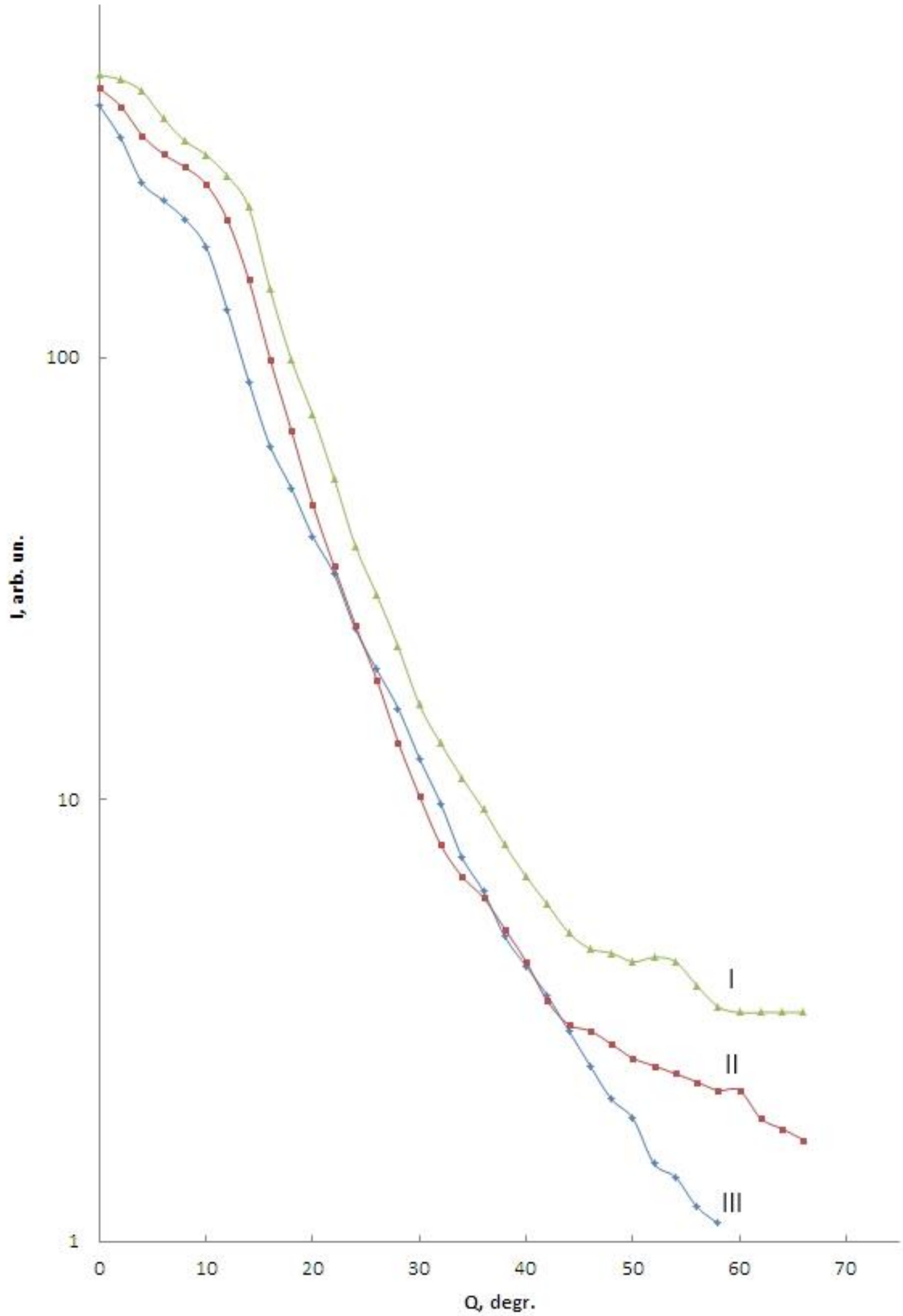

Pic.1. Scattering indicatrices of initial water samples of first(I), second(II) and third(III) degree of structuring.

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As seen from the given in table 1 structural parameters of initial water samples and Pic.1 natural structuring leads to decrease of total cluster concentration N_Σ and shift of structural dispersity from fine dispersed to larger dispersed one.

Table 1.

Structure parameters of initial water samples

Structuring degree	r, мm	I_Σ^{int}, rel. units	I_Σ^{int}, %
I	4,1-4,6; 0,95; 053; <0,4	19900	100
II	4,7; 1,36; 0,6; <0,4	15580	100
III	6,7-7,2; 1,58; 0,68; <0,4	14150	100

Notes to the tables:

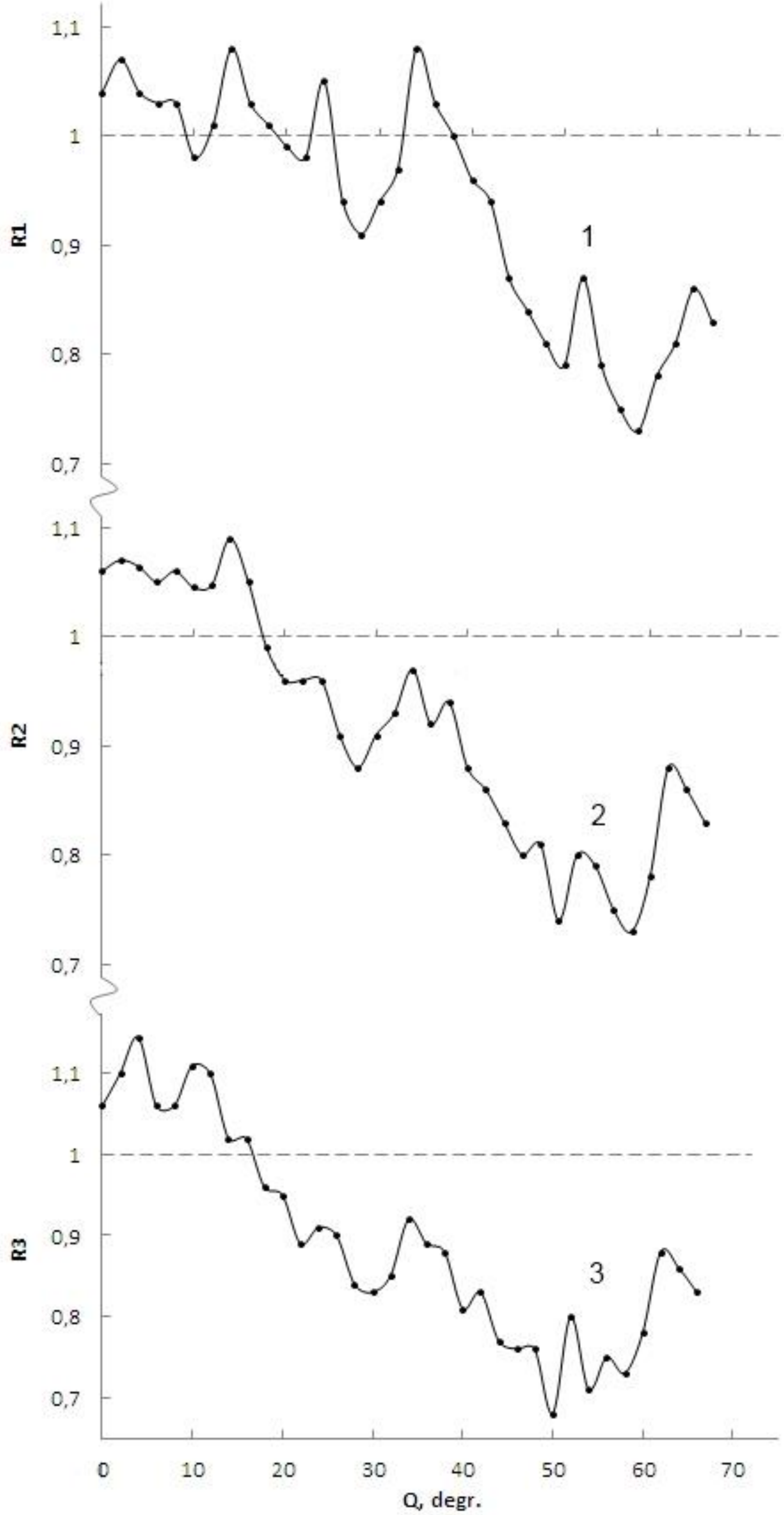
1. The value of integral scattering intensity in the initial water of various structuring degree in the column (I_Σ^{int} ,%) of table 1 was assumed as the one equal to 100% to make it convenient to compare the character and value of influence depending on initial structure.

2. The symbol (<) with radii of fine clusters in the tables 1,3,4 indicates fine clusters present in the set of the fine ones that have radii less than given in the table. Mutual overlapping of “diagrams of light direction” scattered by fine clusters of various sizes makes it impossible to define their particular values.

3. In tables 4 and 5 the data in brackets indicate radii intervals of fine and medium clusters, increase in concentration of which is determined by informational influence and its afteraction.

1. Influence of alcohol on water structure

Pic.2 shows relative scattering indicatrices $R(Q) = I(Q)_{inf}[I(Q)_{int}]^{-1}$ of III-degree sample containing the dose of alcohol in proportion 3;0,5 under increase of its influence time t_{inf}. One of the peculiarities of 1-3 curves is that all of them contained periodic fluctuations of values R(Q) in the interval of scattering angles Q>20°determined by interference of scattered rays on oversize clusters. The analysis of fluctuations periodicity R(Q) of 1-3 curves testifies to formation of new oversize clusters and increase of their sizes under influence of alcohol. It also speaks for increase in concentration of clusters present in the initial water with growth of t_{inf} (table 2).



Pic.2. Dependency of relative scattering indicatrices of water sample III degree, containing the dose of alcohol in proportion 3:0,5 under increase of its influence time $t_{inf.}$

t_{inf}, minutes: 1-10; 2-45; 3-80.

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Table 2.

Structure parameters of water sample of III degree with the dose of alcohol in ratio 3:0,5 after various periods of exposition.

#	t_{inf}, minutes	r, μm	N_{Σ}^{rel}, %
1	10	6,7-7,2; 2,5-3,5; 1,58; 0,8	94
2	45	6,7-7,2; 5,6; 1,42; 0,8	92
3	80	6,7-7,2; 4,5;1,19; 0,63	90

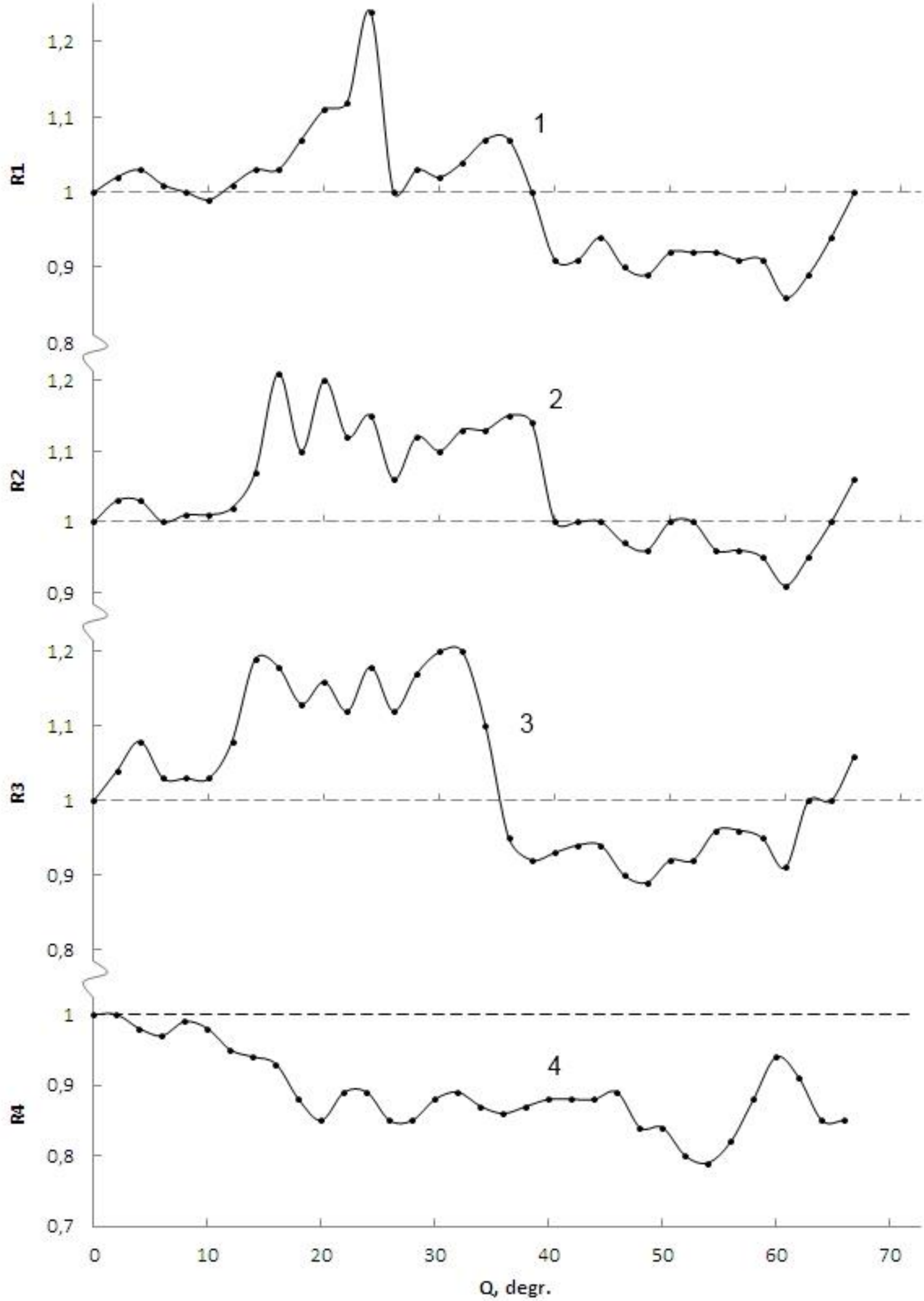
The observed changes in the structure of oversize fraction under influence of alcohol are ensured through binding of fine clusters and to less extent of medium ones. This mechanism is confirmed by values R(Q) < 1 in the angle interval of scattering which widens into small-angle interval of scattering from Q_1 > 30° for curve 1 to Q_3 >18° for curve3. Picture 2 also shows decrease R(Q) became more significant along with the increase in the angle of scattering and time of influence.

In the small-angle interval of scattering Q<20° values R(Q)>1 are stipulated by insignificant increase in concentration of oversize and the most large-size medium clusters which grew along with the increase t_{inf} and was accompanied by the change of their sizes (table 2).

Picture 3 shows relative scattering indicatrices of water samples of II degree (curves 1-3) and I structuring degree (curve 4) and table 3 gives parameters of their structure upon the influence of alcohol dose in proportion 3:1 within various time periods.

Values R>1 of 1-3 curves in the angle interval Q<45°testifying to the generation of oversize (r≈1,19μm) clusters, medium and fine ones with r≈0,63-0,23μm scattering in the angle sector 15°<Q<45°. Time of alcohol influence expanding gradual shift of the curve segment R(Q) into small-angle interval of scattering occurred which is connected to increase of sizes of generating clusters. Oscillating character of curves R(Q) in this angle sector is determined by formation of oversize clusters with r ≈ 6,7μm absent in the initial sample.

In the interval of scattering angles Q>45° values R(Q)<1 of 1-3 curves indicate decrease in concentration of fine clusters with r ≤ 0,23 μm used up to form larger clusters due to binding with the latter ones and among themselves.



Pic.3. Relative scattering indicatrices of water samples of II degree (curves 1-3) and of I degree (curve 4), containing the dose alcohol in proportion 3:1, after different periods of influence time $t_{inf,}$ minutes: 1-10; 2-30; 3-80; 4-10.

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Table 3.

Structure parameters of water samples of II and I degrees with dose of alcohol in ratio 3:1 after various periods of exposition.

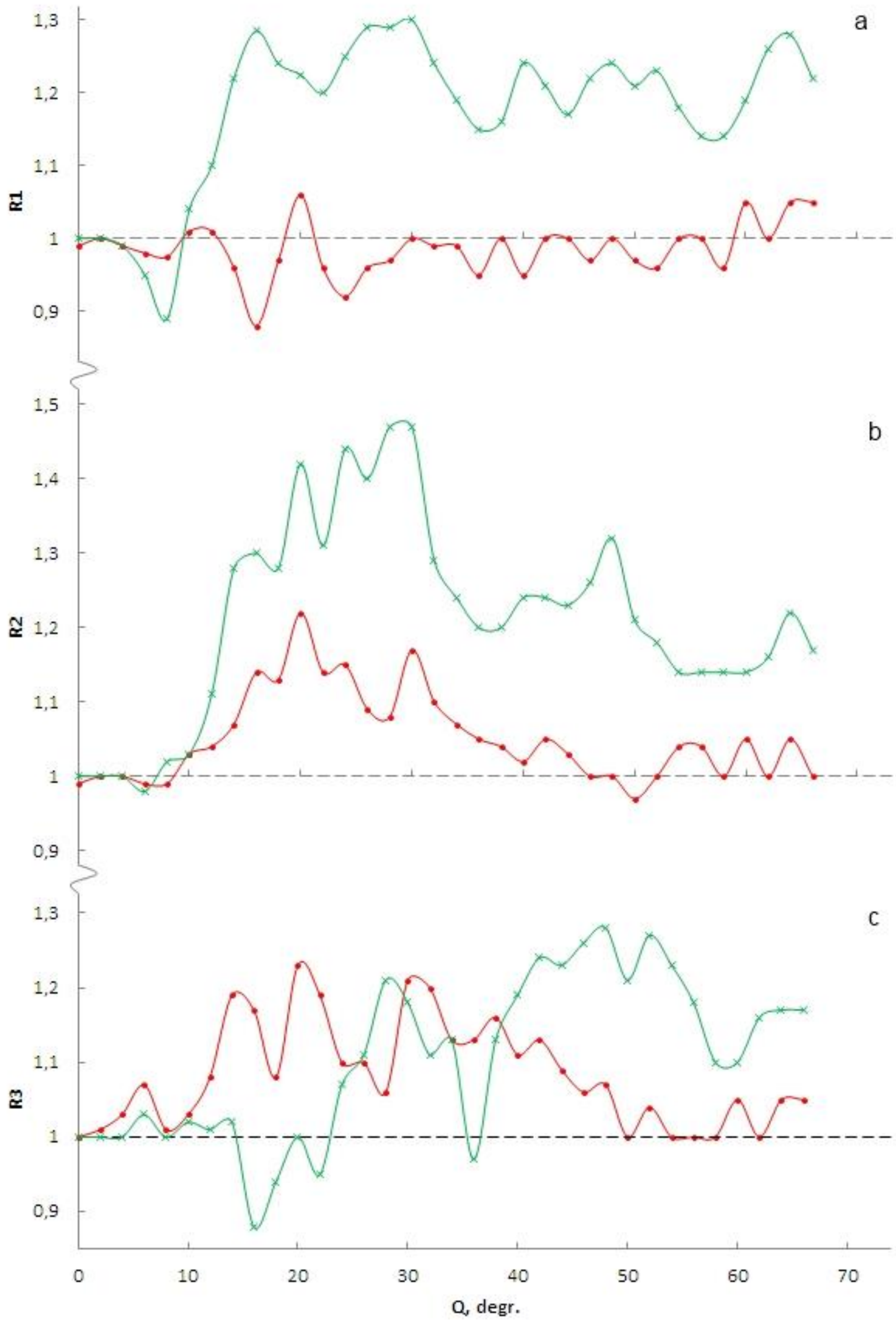
Structuring degree	t_{inf}, minutes	r, μm	N_{Σ}^{rel}, %
II	10	6,7; 1,19; 0,6; <0,24	99
	30	6,7; 1,36; 0,53; <0,23	104
	80	6,7; 1,19; 0,5; 0,27; <0,24	103,5
I	10	3,2-4; 0,95; 0,53; <0,4	89

In the water sample of I degree (pic.3, curve 4) values R<1 were observed in the whole angle interval of scattering Q>4° upon alcohol influence within 10 minutes. Almost indiscrete interferential component of 4 curve testifies to intensive inception of oversize clusters mainly with r≈3,5-4,1 μm under simultaneous decrease in concentration of all less oversize ones present in the initial sample and to greater extent under decrease of fine and medium cluster (table 3).

2. Mutual influence of alcohol and information on water structure.

Upon preliminary alcohol influence on the initial sample of II degree within 20 minutes its relative scattering indicatrix was similar to the one given in pic.3 (curve2) with structural parameters cited in table 3. Immediately after the mutual influence of alcohol and information ceased as stated in the part *Methodology of the Experiment* the following changes occurred - relative indicatrix of alcohol sample R(Q) altered its form and its values decreased to R(Q)≤1 in the angle sector Q>4° (pic.4a, curve 1). The analysis of fluctuations periodicity R(Q) indicates oversize clusters with r≈6,7μm which were present before informational influence. It also speaks for formation of new clusters with r≈4,5 μm. It follows from the comparison of pic.3 (curve 2) and pic.4a (curve1) that their generating is determined by binding of medium and fine clusters formed before influence of alcohol.

Eighty minutes after informational influence stopped the relative scattering indicatrix of sample with alcohol was characterized by values R(Q)>1 in the angle interval Q>10° (pic.4b, curve1) that speaks for generating of medium and fine clusters. The part of curve R(Q) in the angle sector 10°<Q<40° is similar to the part of curve 3 in pic.3 in the same angle sector formed under influence of alcohol. The similarity implies that this part of the curve was formed under the influence of alcohol in the sample with alcohol.



Pic.4, a,b,c. Relative scattering indicatrices of water samples of II degree with alcohol in proportion 3:1 (curve 1) and alcohol free (curve 2) directly after of informational influence (a) and in t_{inf} = 80 min. (b), t_{inf} = 260 min. (c).

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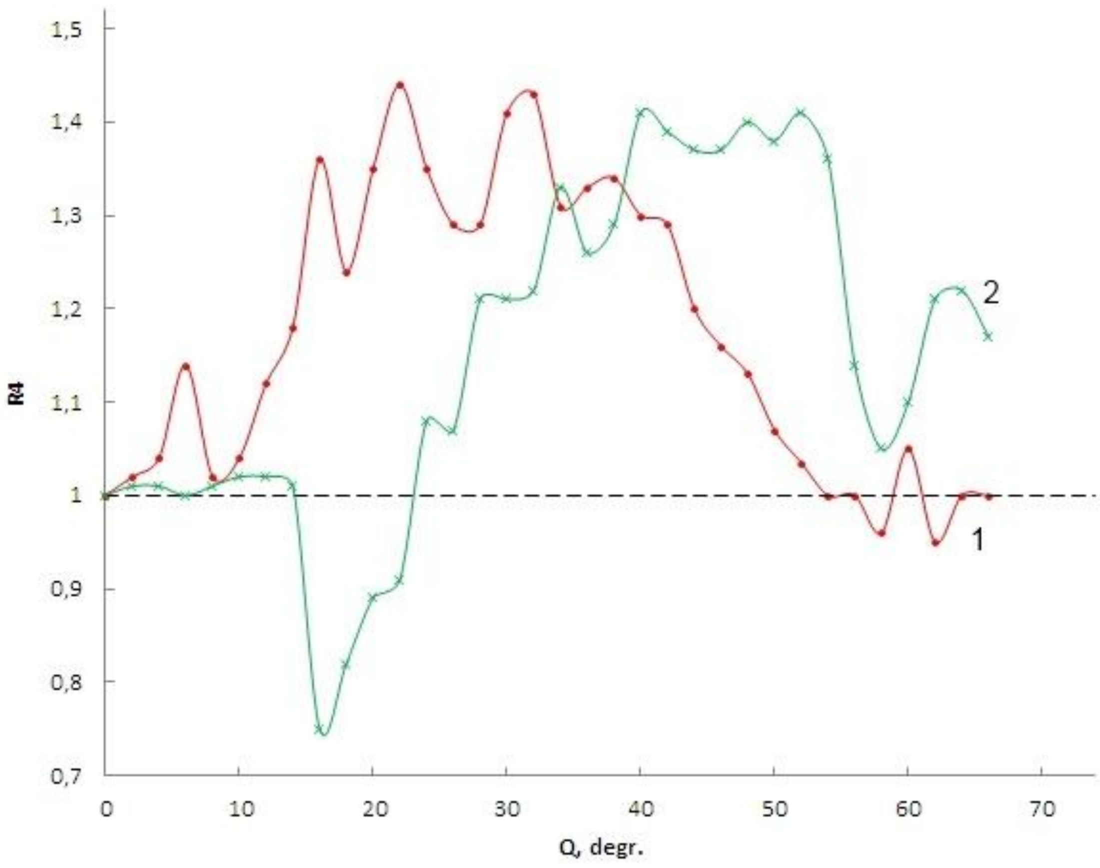
On the contrary in the angle interval Q>40° values R(Q) of the two compared curves differed. Thus, pic.3 (curve 3) shows values of R(Q) less than one (R<1) and pic.4b (curve 1) they were insignificantly higher than one (R ≥ 1) which was a result of the informational afteraction[2] comprising the generation of finer cluster with r<0,24 μm.

Further expanding of exposition time without changing qualitative scattering type R(Q) of water sample with alcohol lead to quantitative change in its characteristics. More specifically, total concentration of clusters N_Σ increased due to continuing alcohol influence and leading of the one to formation of coarse fraction structure.

The informational afteraction also proceeded however it was insignificant and didn`t contribute notably to the change of structure (pic. 4c, 4d, 4e (curves 1)). Structural parameters of the water sample in various periods of exposition are given in table 4.



Pic.4, d. Relative scattering indicatrices of water samples of II degree with alcohol in proportion 3:1 (curve 1) and alcohol free (curve 2) in t_{inf} = 480 min after of informational influence

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[2] The nature of afteraction phenomenon is determined by unchanged configuration of spin polarization of space surrounding water sample (physical vacuum) after the action of the polarization source ceased. [15] In the given work such a source was mental influence.

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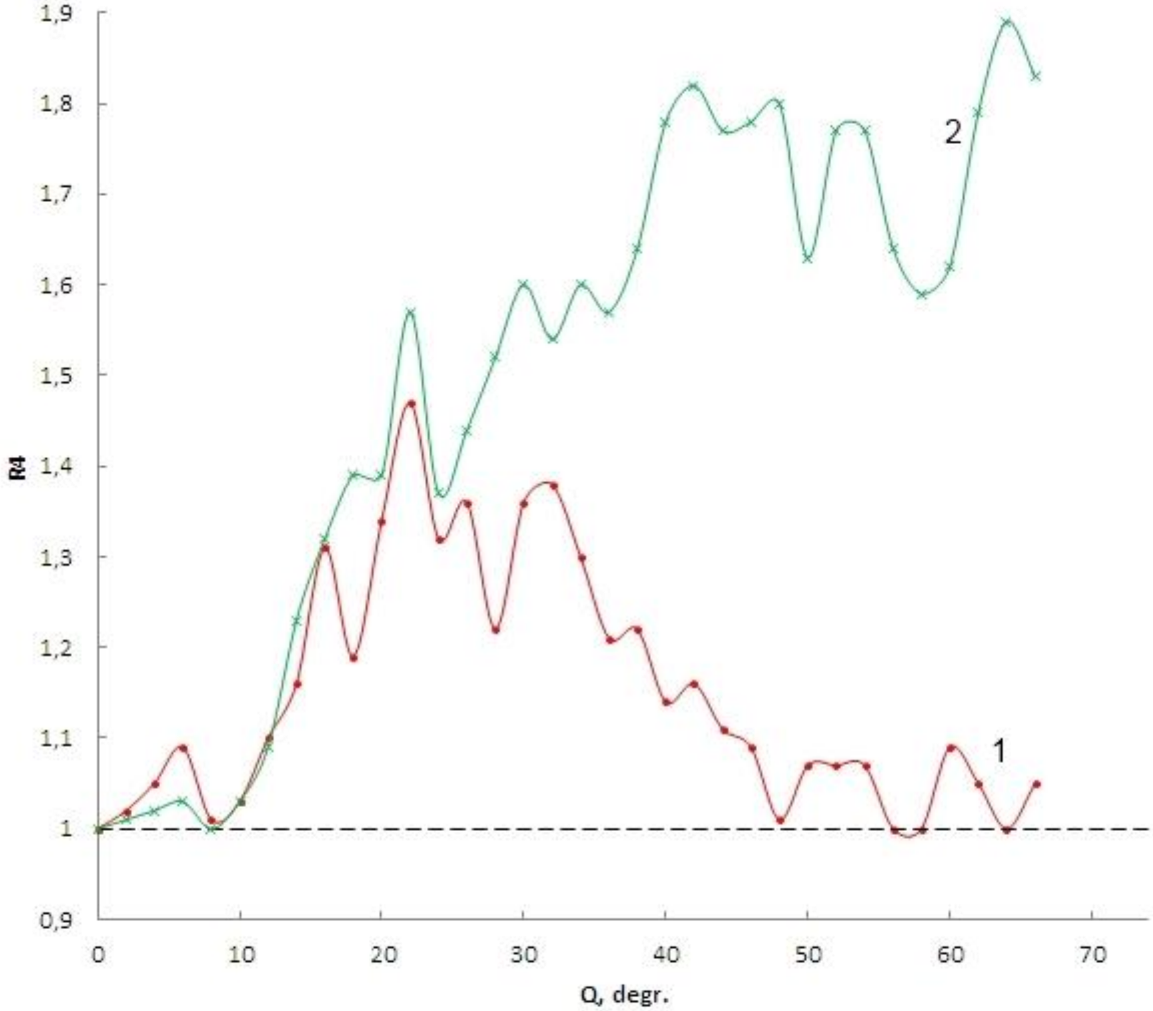

Pic.4, e. Relative scattering indicatrices of water samples of II degree with alcohol in proportion 3:1 (curve 1) and alcohol free (curve 2) in t_{inf} = 660 min after of informational influence.

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Table 4.

Structure parameters of water samples of II degree with dose of alcohol in ratio 3:1 under mutual influence with the informational one and after the loss of informational effect.

# of fig.4	t_{inf}, minutes	r, μm	N_{Σ}^{rel}, %
Mutual Influence of Alcohol and Information			
a	5	6,7; 4,5; 1,46; 0,63; <0,4	98,6
Further Exposition			
b	80	6,7-4,5; 1,36; 0,66; (0,6-0,2)	105
c	260	7,2-4,5; ~1,36; 0,95; 0,63; (0,6-0,18)	108,3
d	480	7,2; 4,5; ~1,36; 0,95; (0,6-0,17)	117
e	660	6,7-4,7; ~1,36; 0,95; (0,6-0,16)	115

In pictures 4 a-e curves 2 represent relative scattering indicatrices of the blank/test water sample and table 5 shows parameters of its structures in various periods of exposition after the mental influence stopped. When comparing curves 1 and 2 in these pictures it is evident that there was a significant difference in their character at all of the experimental stages.

Informational influence induced intensive generating of medium and fine clusters in the blank sample as well as the initial phase in forming of oversize clusters. Values R(Q)>1 in the angle interval Q>12°, interferential component accordingly (pic.4a, curve2) and significant increase of total cluster concentration testify to it as well (table 5).

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Table 5.

Structure parameters of the blank water sample of II degree under informational influence and following exposition.

# of fig.4	t_{inf}, minutes	r, мm	N_{Σ}^{rel}, %
Informational Influence			
a	5	6,7-4,5; 2,2; 1,46; 0,79; (0,68-0,14)	117,5
Further Exposition			
b	80	6,7; 5,3; 4; 2,1; 1,36; 0,95; 0,79; (0,63-0,14)	121,3
c	260	6,7-6,2; 5,1; 4,5; 2,1; 1,58; 0,95; 0,68; (0,34-0,14)	110,5
d	480	6,7; 4,5; 2,3; 1,36; 0,95; 0,63; (0,34-0,14)	115
e	660	6,7-4,5; 2,5; 1,36; 0,95; (0,6-0,14)	149,5

After exposition within 80 minutes there was increase in concentration of medium and the most large-size fine clusters which is confirmed by increase of R(Q)>1 in the angle sector 14°<Q<40°. Ranges of periodic fluctuations R(Q) increased and angle periods among them in the same angle sector decreased which testifies to forming of new oversize clusters and enlargement of the previously present ones (pic.4b, curve2). As a result, increase in total concentration of clusters took place (table 5).

The following period of exposition (c) led to significant decrease of values R(Q) in the angle sector 12°<Q<40° of angle periods of fluctuations R(Q) and extension of interferential component on all of the angle interval of scattering Q>10° (pic.4c, curve 2). These changes R(Q) are determined by increase in the set and concentration of oversize clusters formed due to binding of medium and the most large-size fine clusters which led to the decrease of their total concentration (table 5).

The character of the curve R(Q) in the blank sample after the exposition period (d) was similar to the previous one (pic.4d, curve2). The difference lied in decrease of the oversize clusters set and intensification of fine clusters generating which increased their total concentration (table5).

At the final stage of exposition (e) of the blank sample abnormally large increase in concentration of fine and medium clusters was observed which is confirmed by values R>>1 in the angle interval Q>15° (pic.4 e., curve 2). The form of dependency R(Q) shows that the degree of cluster concentration increase grew while their sizes decreased reaching the highest values for the finest clusters.

In the small-angle interval of scattering Q<12° the value R>1 on the curve 2 indicates insignificant increase in concentration of oversize clusters.

Increase in amplitude of fluctuations R(Q) and widening of interferential component on the angle interval of scattering Q>15° is determined by increase in concentration of oversize clusters. In general, the value of total cluster concentration increased up to 149.5% (table 5).

Discussion:

1. Mechanism of Alcohol Influence on Water Structure

OH hydroxyl group present in the molecule composition of ethyl alcohol determines their polarity. Molecules of water are also polar. It is known [16] that under interfusion of water and alcohol interaction of their dipole moments causes hydrogen bonds among similar molecules to weaken due to increase of distance among them.

According to [7] hydrogen bonds keep molecules of water in the structure of clusters. That`s why under appending alcohol to water interaction of ethyl molecules and the nearest to them water molecules being in the clusters most likely leads to either partial or total destruction primarily of the finest clusters due to tearing separate water molecules away from their carcass. Fragments of destroyed clusters link later with alcohol molecules by new hydrogen bonds through hydrogen atom of OH group forming clusters of new a mixed type. It is supposed that hydrogen atoms of alcohol molecule bond with carbon atoms may form hydrogen bonds of these clusters. Vindication of the supposition is outlined in paragraph 2 of the given part.

The most significant restructuring of fine clusters specifically is determined by its low mechanical durability and high mobility. [9] These properties make it easy to destroy them under influence of electric field of the OH group dipole and to quickly form new blended clusters.

Veracity of the examined mechanism of alcohol influence on water structure is confirmed by dependency of sizes in formed blended clusters on value and correlation of molecule concentration of ethyl alcohol and fine clusters of the initial water which was stated afore.

It is necessary to add the following to the aforesaid: the dose of alcohol increase molecules of which are nucleating seeds of blended crystals leads to decrease of the part in fine clusters fragments attributed to each nucleating seed. As the result the sizes of formed blended clusters reduced. Increase in concentration of fine clusters in the initial water sample causes rise of the part which is followed by increase in sizes of the blended clusters.

1. Nature of Memory Abatement of Water with Alcohol.

It is apparent from the given findings that speed, degree and character of spin restructuring of water samples with alcohol and the ones of the blank sample differed significantly. The highest parameters of the process were observed in the blank sample.

They were determined by significant forming of spin-aligned fine clusters [3] which determined their fast binding into more large-scale one's spin-aligned alike and conditioned increase of their total concentration N_{Σ}.

Informational influence ceased its afteraction caused further analogous development of the process of spin restructuring in the blank sample. Under high concentration of spin-oriented fine and medium clusters their intensive binding into the oversize clusters with aligned spin configuration took place due to their mutual attraction. It determined increase of their set and concentration as well as outstanding decrease of total cluster concentration [4] (table 5).

Observed at the last exposition stage significant amplification of generating effect in the blank sample is connected to increase in intensity of torsional field of water structure after previous stage of increase in concentration of oversize clusters. Since every of the clusters had spin-aligned configuration identical to the one of informational influence the total torsion field of water significantly increased. The field together with afteraction accelerated forming of new spin oriented fine clusters.

Thus informational afteraction on water structure without alcohol possesses more time length and degree of influence amplifying short-term water memory under increase of tinf by rise in concentration of fine clusters and forming long term memory by increase in set and concentration of oversize clusters. Mechanism of forming short term and long-term types of water memory are examined in [5].

Increase of informational afteraction let us to draw a conclusion that positive reaction coupling between it and torsional field of water occurs that causes their mutual amplification. The similar coupling between informational afteraction and torsional field of water was observed in the internal form field of a pyramid. [17]

Influence of torsional soliton on water structure with alcohol was fairly insignificant compared to its influence on the structure of the blank sample. Low susceptibility of its influence by blended clusters can be explained by their additional hardening. According to [9] oversize clusters in water without alcohol possess higher mechanical durability than the fine ones which is determined by numerous inner planes in their structure.

Suggested additional hardening of the blended clusters in the sample with alcohol was achieved due to forming hydrogen bonds among molecules of ethyl alcohol and the ones of water in clusters with

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[3] Process of fine clusters forming implies transfiguration of bivalent atoms of oxygen of free water molecules into tetravalent ones, binding of such molecules into spin-oriented hexagonal rings $(H_2O)_6$ and their further binding as a result of interattraction by hydrogen bonds into fine clusters with aligned spin configuration. The mechanism of forming of cluster structure will have examined in details individually.

[4] On the assumption of a spherical cluster form it is estimated that to form oversize cluster with $r \approx 6$-7 μm about 10^3 - 10^4 fine clusters of various radii are "spent" in $r \approx 0{,}2$-$0{,}4$ μm interval.

hydrogen "carbon" atoms of ethyl alcohol molecules. The argument for the suggestion is a faster forming of large-scale structure of water with alcohol than the one in the blank sample (tables 4 and 5). Summing-up of the mentioned factors leads to high resultant structure hardness of blended clusters. It hampers their restructuring due to informational influence which conditions aggravation of property of water with alcohol to perceive and remember the influencing information. It is evident that increase of alcohol dose and its exposure on water structure will amplify the degree in blocking of the influencing information by blended clusters weakening property of water to perceive and remember it more and more. As for human psyche the phenomenon is equivalent to abatement of brain memory if alcohol is present in it.

Conclusions. Text

1. In general adding alcohol into water bring about forming of more large-disperse cluster structure compared to the initial one. The degree and character of the restructuring are determined by exposure time and dose of alcohol as well as the initial water structure.

   Concentration of fine clusters in the initial water and dose of alcohol are concurrent factors defining sizes of the formed clusters and degree of structure hardening. Increasing of the former factor enlarges the sizes of clusters while increasing of the latter decreases them.
2. The mechanism of memory abatement in water with alcohol is determined. Interaction of alcohol molecules and water molecules leads forming of blended clusters. The peculiarity of such clusters is their high mechanical durability. Rigid structure of the blended crystals hampers their spin restructuring under torsional soliton. It defines their nonsusceptibility to the influencing information and loss of property to remember it.
3. Ratio of character change in water structure, containing alcohol, abatement of human brain memory under alcohol consumption confirms veracity of conclusions made in [5] about torsional nature of brain memory and spin configurations of tetravalent oxygen atoms of water clusters in neurons being physical carrier of it.

Conflict of interest statement: The authors state that there are no conflicts of interest regarding the publication of this article.

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REFERENCES:

1. Levashov N. Essence and Brain.1.Zolotoy Vek: Kiev, 2013.
2. Hebb DO. The Organization of Behavior: a neuropsychological Theory. New York, 2002.
3. The Nature of Memory [Internet]. BASF. 2014 [cited 3 November 2017]. Available from: https://www.basf.com/ru/ru/we-create-chemistry/creating-chemistry-magazine/special-150-years/the-nature-of-memory.html
4. The Mechanisms and Principles of Human Brain Work [Internet]. GT. 2015 [cited 3 November 2017]. Available from: https://geektimes.ru/post/2699728/
5. Kovalenko Viktor Fedorovich. Analogy of Memory Properties of Water and the Ones of the Brain.//Science Journal of Physics. Volume 2013, Article ID sjp-261, 8 pages, 2013. doi:10.7237/sjp/261 http://www.sjpub.org/sjp/.html
6. Akimov A.E. Heuristic Discussion of Problem in Finding New Long-Range Actions. EGS-conceptions. – Preprint MNTC VENT #7A, M., 1991; 63 pp.
7. Shipov G.I. The Theory of Physical Vacuum.- NT- Tsentr,1993,365 pp.
8. Bobrov A.V. The Field Conception of Consciousness Mechanism. Consciousness and Physical Reality.1991; #4, pp.47-59.
9. Kovalenko Viktor Fedorovich. Spin Nature of Water Memory.// Science Journal of Physics. Volume 2013, Article ID sjp-206, 11 pages, 2012. doi:10.7237/sjp/206
10. The Chemical Composition of the Brain [Internet]. химик.ru. 2014 [cited 3 November 2017]. Available from: http://www.химик.ru/biogram/280.html
11. Kovalenko V.F., Borduyk A.Yu. and Shutov S.V. Influence of Pathology on Blood Serum Structure. Biomedical Radio Electronics. 2011; #3, pp.3-8 http://www.radiotec.ru/catalog.php?cat=jr
12. Kovalenko V.F, Levchenko P.G., Shutov S.V. The Cluster Nature of Water Scattering.-Biomedical Radio Electronics. 2008; #5, pp.36-45
13. Van de Hewlet. Light Scattering by Small Particles. – M., IL., 1961. – 536pp.
14. Kovalenko V.F., Shutov S.V., Borduyk A.Yu. Interferential Effects in Scattering of Biological Liquids.- Biomedical Radio Electronics. 2009; #8, pp.71-78

15. Kovalenko V. Research on Mechanism of From Effect. Biomedical Engineering and Electronics [Internet]. 2015 [cited 3 November 2017];1(8):61-81. Available from: http://biofbe.esrae.ru/pdf/2015/1/992.pdf
16. Blending Water and Alcohol [Internet]. Guide for Chemists 21. 2017 [cited 3 November 2017]. Available from: http://chem21.info/info/66551/
17. Sinitsyn N.I., Petrosyan V.I., Elkin V.A. and others. The Special Role of the System "Millimeter Waves – Water Medium" in Nature. - Biomedical Radio Electronics. 1; #3, pp.3-8
18. Kovalenko V. Informational Effect of a Form. Biomedical Engineering [Internet]. 2016 [cited 3 November 2017];1(12):110-130. Available from: http://biofbe.esrae.ru/pdf/2016/1/1049.pdf