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Product of LavaVitae BOOST is Increasing of Energy of Hydrogen Bonds among Water Molecules in Human Body

Ignat Ignatov[1*]

1. DSc, Professor, Scientific Research Center of Medical Biophysics (SRCMB),
N. Kopernik Street, 32, Sofia 1111, Bulgaria

*E-mail of the corresponding author: mbioph@dir.bg

Abstract

We studied the mathematical model of interaction with water of BOOST of LavaVitae company (Austria). In this report are submitted data about the interaction of BOOST with water, obtained by non-equilibrium (NES) and differential-equilibrium energy spectrum (DNES) of water. The average energy ($\Delta E_{H...O}$) of hydrogen H…O-bonds among individual molecules H_2O after treatment of BOOST with water measured by NES- and DNES-methods is ΔE=-0.0114±0.0011 eV. This result suggests the restructuring of $\Delta E_{H...O}$ values among H_2O molecules with a statistically reliable increase of local extremums in DNES-spectra. The research is performed for BOOST, with study of pH and oxidative reduction potential (ORP). There is review of the effects of the chemical composition of BOOST – anti-inflammatory, energetic, stimulating etc. With methods NES we show the following effects – improvement of nervous conductivity and anti-inflammatory effect. This article deals with the review of the basic biophysical-biochemical and biological processes underlying the BOOST by LavaVitae company. The authors are studying their physical-chemical properties and biophysical and biological effects on human organism.

Keywords: BOOST, anti-inflammatory, improvement conductivity of nervous system, mathematical model, NES, DNES.

1. Introduction

Water is the main substance of life. The human body of an adult person is composed from 50 to 55% of water. With aging, the percentage of water in the human body decreases. Hence, the factor of water quality and its amount in organism is an essential factor for the research (Pocock *et al*., 1981; Howard & Hopps, 1986). Water is present in the composition of the physiological fluids in the body and plays an important role as an inner environment in which the vital biochemical processes involving enzymes and nutrients take place. Water also is the main factor for metabolic processes and aging (Ignatov, 2012). Earlier studies conducted by us have demonstrated the role of water, its structure, the isotopic composition and physical-chemical properties (pH, temperature) on the growth and proliferation of prokaryotes and eukaryotes in water with different isotopic content (Mosin & Ignatov, 2012; Ignatov & Mosin, 2013a; Ignatov & Mosin, 2013b). These factors, the structure and composition of water are of great importance in many biophysical studies. The peculiarities of the chemical structure of the H_2O molecule and weak bonds caused by electrostatic forces and donor-acceptor interaction between hydrogen and oxygen atoms in H_2O molecules create favorable conditions for formation of directed intermolecular hydrogen bonds (O–H…O) with neighboring H_2O molecules, binding them into complex intermolecular associates which composition represented by general formula $(H_2O)_n$, where n can vary from 3 to 50 (Keutsch & Saykally, 2011). The hydrogen bond is a form of association between the electronegative O-atom and a H-atom, covalently bound to another electronegative O-atom, is of vital importance in the chemistry of intermolecular interactions, based on weak electrostatic forces and donor-acceptor interactions with charge-transfer (Pauling, 1960). It results from interaction between electron-deficient H-atom of one H_2O molecule (hydrogen donor) and unshared electron pair of an electronegative O-atom (hydrogen acceptor) on the neighboring H_2O molecule. The product of BOOST is combining of Green Coffee, Green tea and Guarana and natural Caffeine. The research is with methods NES and DNES. There is research of ORP and pH and there are executing the conclusions from electrochemically activated waters – anolyte and catholyte for anti-inflammatory effects (Ignatov et al., 2014).
The aim of this research is to show the usefully of BOOST on the base of the results and conclusions.

2. Materials and Methods

2.1. NES and DNES Spectral Analysis

The device for DNES spectral analysis was made by A. Antonov on an optical principle. For this was used a hermetic camera for evaporation of water drops under stable temperature (+22–24 ^{0}C) conditions. The water drops were placed on a water-proof transparent pad, which consists of thin maylar folio and a glass plate. The light was monochromatic with filter for yellow color with wavelength at λ = 580±7 nm. The device measures the angle of evaporation of water drops from 72.3^0 to 0^0. The DNES-spectrum was measured in the range of -0.08– -0.1387 eV or λ = 8.9–13.8 μm using a specially designed computer program. The main estimation criterion in these studies was the average energy ($\Delta E_{H...O}$) of hydrogen O...H-bonds between H_2O molecules in water samples.

2.2. Product of LavaVitae – BOOST

The product LavaVitae BOOST is including 200 mg Green Coffee, Green tea and Guarana and 204 mg natural Caffeine, Raw cocoa, Cordyceps sinensis, Acerola, Vitamin C.

2.3. IR-spectroscopy

IR-spectra were registered on Brucker Vertex (“Brucker”, Germany) IR spectrometer (a spectral range: average IR – 370–7800 cm^{-1}; visible – 2500–8000 cm^{-1}; the permission – 0,5 cm^{-1}; the accuracy of wave number – 0,1 cm^{-1} on 2000 cm^{-1}) and on Thermo Nicolet Avatar 360 Fourier-transform IR.

2.4. Statistical Processing of Experimental Data

Statistical processing of experimental data was performed using the statistical package STATISTISA 6.0 using the Student's *t*- criterion (at $p < 0.05$).

3. Results and Discussions

3.1. Applications of BOOST for Human Health. The information is from the company LavaVitae

Product features: LavaVitae Company – BOOST product

– Four vegetarian capsules contain ever 200 mg Green Coffee, Green tea and Guarana and 204 mg natural Caffeine.
– Purely vegetable. 100 % natural.
–NON - GMO. Free of animal ingredients and allergens according to regulation (EU) No. 1169/2011.

Vitamin C

Supports formation of collagen for skin, blood vessels and bone and aids in wound healing.
– Protects cells from oxidative stress.
–Supports the immune system.
–Increases the excretion of heavy metals via the kidneys and improves iron absorption.

The natural high quality ingredients in the LavaVitae-BOOST are derived from different plant sources such as caffeine - which bond on tannins - provides due to the "active substance cascade" the body fast and at the same time long-lasting (up to 6 hours or more) with caffeine.

Caffeine

For the human 400 mg of caffeine a day is considered safe for a 70 kg person (that is 5.7 mg per kg body weight) whereas more than 1.000 mg of caffeine seems to be an overdose. The main sources of caffeine are (green) coffee, (green) tea, cola, energy drinks and raw cocoa (chocolate). Typical energy drinks contain about 80 mg - usually of synthetic origin - and a cup of coffee about 50 to 100 mg of caffeine. Caffeine shows a broad spectrum of activity: Primarily a stimulant with effects on the psyche, concentration, impulsion and muscular peristaltic. At higher concentrations this stimulant in an increases heart rate, contractility of the heart, respiratory rate and further glucose and lipid metabolism. At the same time a vasoconstriction take place in the brain and a vasodilatation in the periphery. These effects are used specifically in prevention and therapies of migraine and performance increase in sports. Owing to a regular high coffee consumption numerous side effects were observed, such as accelerated pulse, irregular heartbeat, restlessness, sleeplessness and very strong vasoconstrictor effects - which may results in impotence. Caffeine requires approximately 30 to 45 minutes reaching the blood circulation. The degradation of caffeine takes place in the liver. Caffeine normally remains in the blood circulation up to 4 hours although there are people, in which the degradation takes longer and for this reason they should be careful with the consumption of caffeine after 16 am.

Green Coffee

In raw form coffee beans are green and contain less flavorings, but more functional plant compounds such as chlorogenic acid (a polyphenols), niacin (vitamin B_3) and fast and highly available caffeine. Green Coffee has more than 1.000 well known ingredients, from which many of these have not been explored till today. In addition to carbohydrates, lipids, proteins, minerals and alkaloids especially the chlorogenic- and caffeic acids are important. A total of 80 different acids are found in green coffee. Chlorogenic acids belong to the polyphenols, secondary plant substances with antioxidant properties. They are able to neutralize free radicals before these aggressive oxygen molecules arise constantly in the body and damage cell structures. Nevertheless caffeine which extracted first in 1820 remains the best known and most important ingredient in coffee.
The supposed "acidifiers" even has a slightly basic value. Studies suggest beneficial effects in the prevention and therapie of diabetes, depressions or Alzheimer´s disease. It is believed that milk and sugar can reduce the positive effect or reverse them.
The positive effects of Green Coffee in an overview:
Coffee intake correlated with lower mortality;
Coffee reduces statistically significant the likelihood of a depression;
Coffee would not has a negatively impact on the cardiovascular system – in contrast, current studies suggest the opposite;.
The ingredients of coffee protect against diabetes and obesity;
Coffee enhances performance and increases statistically significant endurance capacity;
Coffee reduces statistically significant pain during exercise and increases the muscular performance;
Coffee promotes nerve-muscle interaction and acts also in short term exposure performance enhancing;
Coffee is ideal supplement in weight management;
Coffee acts against weight gain.

Guarana

The originally home of the evergreen Guarana plant is the Amazon region. Today it is cultivated in a number of other Latin American countries. In his home the bitter-tasting crushed Guarana seed has been used for centuries in form of a sweetened beverage. Due its invigorating effect Guarana is very popular in Europe for many years. Guarana releases caffeine more slowly and acts gentle on the stomach compared with Green or roasted coffee because caffeine is bound on other ingredient like tannins, fat, protein and fibers. Guarana increases the physical and mental performance and decreases feeling of thirst and hungry. More than 20 g Guarana represents an overdose. The possible side effects are similar to those of coffee (such as increased irritability, sleeplessness, tachycardia ~ increasing heart rate, headache, tremors or muscle pain).

Green tea

The Green has been known already for several thousand years and first came to Europe in the 16th century. The tasty and stimulating beverage is made - like his brother, the black tea - from the plant "*Camellia sinensis*". Green tea isn´t fermented, so the natural leaf pigment largely remains intact. Green tea has a wealth of health-promoting ingredients especially polyphenols (catechins as epigallocatechin gallate), essential vitamins (such as Vitamin A, Vitamin B_1 and B_2), trace elements and minerals (calcium (Ca), potassium (K), magnesium (Mg), copper (Cu), zinc (Zn)). The natural content of stimulating components (natural caffeine and Tein/Thein/Teein, which is chemically identical to caffeine) activates the body in a gentle and natural way. Ltheanine - a natural amino acid in green tea - imparts inner balance and appears to be useful again the stress. The totality of these natural ingredients cause an antioxidative and antimicrobial effect and seem to have a positive influence on immune processes, inflammation and blood clotting and further has been associated with cancer inhibition, obesity, decrease in blood pressure and balancing effects on the gastrointestinal tract, however, not all effects can be confirmed by a study.

The positive effects of Green tea in an overview:

Green tea increases body fat burning and energy supply in everyday life and during exercises.
Green tea reduces inflammatory responses and muscular damage caused by sports and supports regeneration and recovery.
Physical stress caused by high endurance exercise and strength training is mitigated through the use of green tea.
L-theanine - an amino acid in green tea - has a strong anti-stress effect and counteract against depression.
Green tea polyphenols have a positive effect in obesity, cardiovascular disorders and diabetic conditions (on basis of blood-sugar-stabilizing effects;
Green tea reduces the likelihood of liver disease;
Green tea reduces inflammation, has an antibacterial and anticancer effect. It also lowers cholesterol levels and has a positive effect on the nervous system;

Green tea is powerful antioxidants. It protects the body against free radicals and reduces thereby the aging processes (anti-aging effect.

Raw cocoa
The cocoa bean grows in the pods on the up to 15 meter high cocoa tree (lat. *Theobroma cacao* = "Food of the gods!"). One of the main active ingredients in cocoa, the bromine, is derived from this statement. Arises in Latin America the cacao plant has spread all over the world. Already the Mayas and Aztecs enjoyed the taste of the cocoa bean and brewed a bitter sharp drink. Today is added a lot of sugar and cocoa mainly enjoyed in the form of sweet drinks and chocolate. Raw cacao has naturally no sugar but consists more than 50 percent of fat. In addition cocoa contains many beneficial substances such as health-promoting antioxidants (polyphenols) which are able to protect body cells against oxidative stress (anti-aging), the bromine and "slow" caffeine. The caffeine in cocoa is - as in green tea - bound to tannins and therefore it goes more slowly into the blood as caffeine from coffee. Cocoa ensures continuous provision of energy and impulsion. Among its more than 300 ingredients are the precursors to serotonin and dopamine, these neurotransmitters evoke a mood-lifting effect and can therefore mitigate depressions. Furthermore, a positive effect on the cardiovascular system and the elasticity of blood vessels is observed.

The positive effects of raw cocoa in an overview:
Cocoa supports maintaining healthy cognitive abilities of aged people (perception, attention, memory, learning;
Cocoa has a positive effect on the cardiovascular system and blood fats levels;
Cocoa is an "anti-aging" source and has positive effects on skin health (youthful complexion;
Cocoa should have protective effects on Alzheimer´s disease and may contribute to brain health;
Cocoa is a powerful antioxidant and reduces oxidative stress during exercise (strong regeneration-promoting effects;
Cocoa makes happy and content;
Cocoa increases fat burning;
Cocoa improves endurance capacity;
Cocoa polyphenols have a positive effect on the sugar and insulin metabolism (stabilizing blood sugar levels; anti-diabetes effects;
Cocoa prevents against thrombosis and blood clots.

Cordyceps sinensis (greek. "*kordyle*" = club, "*ceps*" = head)
Is used in China for thousands of years and considered one of the strongest Qi-Tonics (Qi = vitality and energy). For a very long time its weight was outweighed in gold and it was only reserved for the king and his wife. Today one kilo of the dried *Cordyceps sinensis* costs approximately 24,000 euros (but the price varies greatly). Many studies demonstrated the rejuvenating, ergogenic, organ revitalized, antidepressant and anti-mutagenic effects of the healing mushroom. *Cordyceps sinensis* gives new strength and vitality in contrast to caffeine which only increases existing energy. *Cordyceps sinensis* is naturally present in the Tibetan plateaus of the Himalaya and has been obtained originally in wild-collection. Its name in the traditional Chinese medicine means something like: "Worm in winter!", or "Grass in summer!". *Cordyceps sinensis* belongs to the sac fungus together with the morels and truffles and is an invasive fungi. They attack preys (animals such as caterpillars), eat them from the inside until they hit by the prey´s body and at the end of the transformation they form a fruit shoot. Visible above the ground is than only a small blue-black, club-shaped part of the mushroom. Today it is obtained from high-quality cultures where it grows best on a natural substrate rather than on a caterpillar.
The positive effects of *Cordyceps sinensis* in an overview:
Cordyceps sinensis shows a statistically significant positive effect on energy implementation, -efficiency and –capacity;
Cordyceps sinensis acts as a strong performance-enhancer;
Cordyceps sinensis increases testosterone levels in men;
Cordyceps sinensis increases insulin sensitivity (anti-diabetes effect;
Cordyceps sinensis has a strong performance enhancing and liver protective effect.

Acerola *(Synonym: Antilles cherry)*
The Acerola shrub mainly grows in Central and South America and wears approximately spherical drupes. The Acerola fruits bursting with a very high vitamin C content (30 times higher than lemons) which giving them the name "Power Fruit". In contrast to ascorbic acid - which is synthetically produced - vitamin C from the Acerola

shows a higher bioavailability because of many other synergistic ingredients (secondary plant substances such as bioflavonoids). The high quality of the fruit can be obtained best by freeze drying.

3.2. Results for BOOST with methods for methods NES and DNES

A convenient method for studying of liquids is non-equilibrium differential spectrum (NES). It is established experimentally that the process of evaporation of water drops, the wetting angle θ decreases discreetly to zero, and the diameter of the water drop basis is only slightly altered, that is a new physical effect (Antonov, 1995; Antonov & Yuskesselieva, 1983). Based on this effect, by means of the measurement of the wetting angle within equal intervals of time is determined the function of distribution of H_2O molecules according to the value of f(θ). The distribution function is denoted as the energy spectrum of the water state. The theoretical research established the dependence between the surface tension of water and the energy of hydrogen bonds among individual H_2O-molecules (Antonov, 1995).

For calculation of the function f(E) represented the energy spectrum of water, the experimental dependence between the wetting angle (θ) and the energy of hydrogen bonds (E) is established:

$$f(E) = \frac{14{,}33 f(\theta)}{[1-(1+bE)^2]^2} \qquad (1)$$

where $b = 14.33\ eV^{-1}$

The relation between the wetting angle (θ) and the energy (E) of the hydrogen bonds between H_2O molecules is calculated by the formula:

$$\theta = arcos\ (-1 - 14.33E) \qquad (2)$$

The energy spectrum of water is characterized by a non-equilibrium process of water droplets evaporation, therefore, the term non-equilibrium spectrum (NES) of water is used.

The difference $\Delta f(E) = f$ (*Esamples of water) – f (Econtrol sample of water)* – is called the "differential non-equilibrium energy spectrum of water" (DNES).

Thus, the DNES spectrum is an indicator of structural changes in water, because the energy of hydrogen bonds in water samples differ due to the different number of hydrogen bonds in water samples, which may result from the fact that different waters have different structures and composition and various intermolecular interactions – various associative elements etc (Ignatov et al, 2014; Ignatov et al., 2015). The redistribution of H_2O molecules in water samples according to the energy is a statistical process of dynamics.

Figure 1 shows the average NES-spectrum of deionised water. On the X-axis are depicted three scales. The energies of hydrogen bonds among H_2O molecules are calculated in eV. On the Y-axis is depicted the function of distribution of H_2O molecules according to energies f(E), measured in reciprocal unit eV^{-1}.

Arrow A designates the energy of hydrogen bonds among H_2O molecules, which is accepted as most reliable in spectroscopy.

Arrow B designates the energy of hydrogen bonds among H_2O molecules the value of which is calculated as:

$$\bar{E} = -0.1067 \pm 0.0011\ eV \qquad (3)$$

Arrow C designates the energy at which the thermal radiation of the human body, considered like an absolute black body (ABB) with a temperature +36.6 ^{0}C, is at its maximum.

A horizontal arrow designates the window of transparency of the Earth atmosphere for the electromagnetic radiation in the middle infrared range of the Sun toward the Earth and from the Earth toward the surrounding space. It can be seen that the atmosphere window of transparency almost covers the NES-spectrum of water.

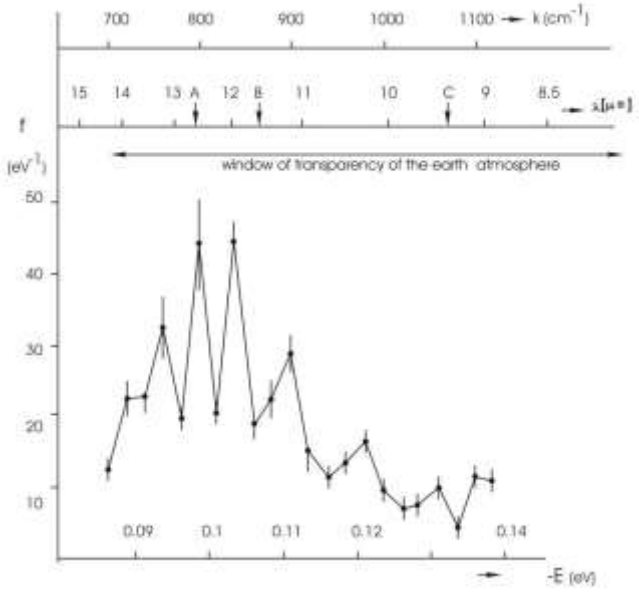

Figure 1: The NES-spectrum of deionized water (chemical purity – 99.99 %; pH – 6,5–7,5; total mineralization – 200 mg/l; electric conductivity – 10 μS/cm): the horizontal axis shows the energy of the H...O hydrogen bonds in the associates – E (eV); the vertical axis – the energy distribution function – f (eV^{-1}); *k* – the vibration frequency of the H–O–H atoms (cm^{-1}); λ – wavelength (μm)

The research with the NES method of water drops is received with 1% solution BOOST, and deionized water as control sample. The mathematical models of 1% solution BOOST gives the valuable information for the possible number of hydrogen bonds as percent of H_2O molecules with different values of distribution of energies (Table 1 and Fig. 2). These distributions are basically connected with the restructuring of H_2O molecules having the same energies.

Table 1: The distribution (%, $(-E_{value})/(-E_{total\ value})$ of H_2O molecules in 1% water solution of BOOST (product of LavaVitae, Austria) and control deionized water

-E(eV) x-axis	1% water solution BOOST (LavaVitae) y-axis (%((-E_{value}) */ (-$E_{total\ value}$)**	Control Sample Deionized water y-axis (%((-E_{value})*/ (-$E_{total\ value}$)**	-E(eV) x-axis	1% water solution BOOST (LavaVitae) y-axis (%((-E_{value}) */ (-$E_{total\ value}$)**	Control Sample Deionized water y-axis (%((-E_{value})*/ (-$E_{total\ value}$)**
0.0937	0	0	0.1187	0	0
0.0962	0	12.5	0.1212	**22.2**[2]	0
0.0987	0	6.2	0.1237	0	12.5
0.1012	0	0	0.1262	0	0
0.1037	0	0	0.1287	0	12.5
0.1062	0	12.5	0.1312	11.1	3.2
0.1087	11.1	6.2	0.1337	11.1	3.2
0.1112	**22.2**[1]	0	0.1362	11.1	6.2
0.1137	0	0	0.1387	**11.1**[3]	0
0.1162	0	12.5	–	–	–

E= -0.1112 eV is the local extremum for increasing of nervous conductivity
E=-0.1212 eV is the local extremum for anti-inflammatory effect
Notes:
* The result (-E_{value}) is the result of hydrogen bonds energy for one parameter of (-E)
** The result (-E_{value}) is the total result of hydrogen bonds energy

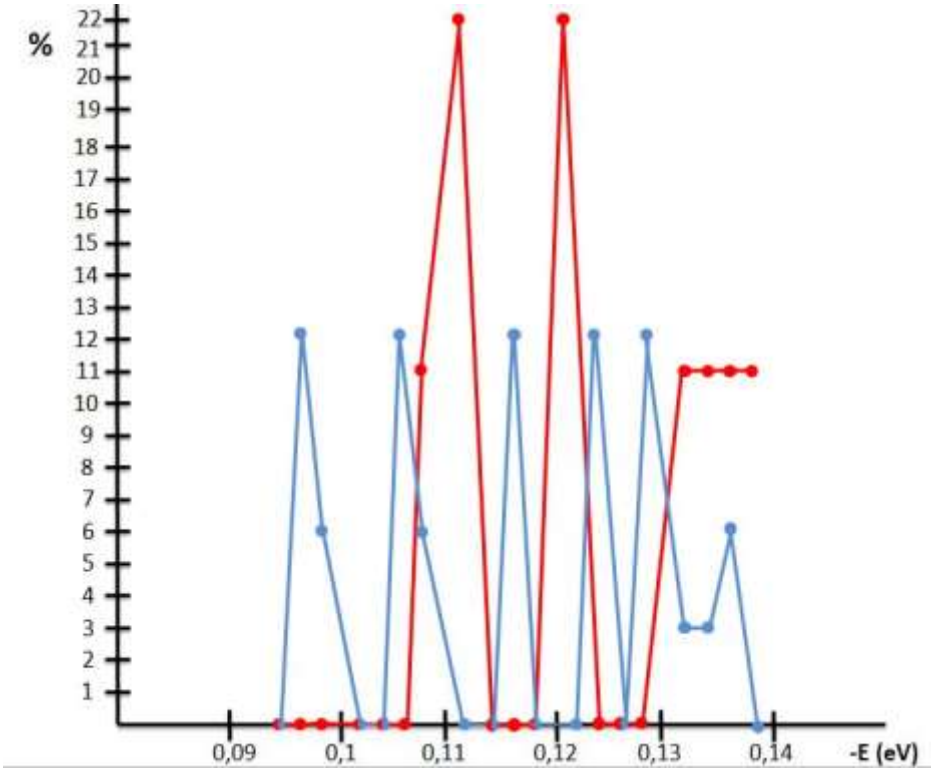

Figure 2: Mathematical model (Ignatov, Mosin, 2013) of 1% water solution of BOOST (product of LavaVitae, Austria).

Figure 2 shows the distribution (%, $(-E_{value})/(-E_{total\ value})$ of H_2O molecules in and 1% of water solution of BOOST (product of LavaVitae, Austria) (red line) and control sample deionized water (blue line).
Notes:
E= -0.1112 eV is the local extremum for improvement of nervous conductivity
E=-0.1212 eV is the local extremum for anti-inflammatory effect

The experimental data obtained testified the following conclusions from the mathematical model of in 1% water solution of BOOST (product of LavaVitae, Austria) and control deionized water. The distribution (%, $(-E_{value})/(-E_{total\ value})$ of water molecules in mathematical model of in 1% water solution of BOOST (product of LavaVitae, Austria) and control deionized water. The distribution (%, $(-E_{value})/(-E_{total\ value})$ of water molecules in BOOST (product of LavaVitae, Austria) according control sample is different. However, for the value E = -0.1387 eV or λ = 8.95 μm there is the bigger local extremum (22.2 (%, $(-E_{value})/(-E_{total\ value})$) corresponding to the re-structuring of hydrogen bonds among H_2O molecules for inhabitation of development of tumor cells of molecular level. This difference may indicate on the different number of hydrogen bonds in water samples, as well as their physical parameters (pH, ORP), resulting in different distribution of H_2O molecules and different values of H_2O molecules with ratios of $(-E_{value})/(-E_{total\ value})$. Particularly it was observed the statistical re-structuring of H_2O molecules in water samples according to the energies. The experimental data may prove that stipulates the restructuring of H_2O molecules on molecular level and may be used for the prophylaxis of inhibition of development of tumor cells. For the value E = -0.1112 eV or λ = 11.15 μm there is the local extremum (22.2 (%, $(-E_{value})/(-E_{total\ value})$) according the re-structuring of hydrogen bonds among H_2O molecules. The experimental data may prove that influence stipulates the restructuring of H_2O molecules on molecular level and has biophysical effect improvement of conductivity of nervous system. For the value E = -0.1212 eV or λ = 10.23 μm there is the bigger local extremum (22.2 (%, $(-E_{value})/(-E_{total\ value})$) corresponding to the re-structuring of hydrogen bonds among H_2O molecules for anti-inflammatory effect.
The experimental data for BOOST may prove that stipulates the restructuring of H_2O molecules on molecular level and the biophysical effects are:

E= -0.1112 eV is the local extremum for improvement of nervous conductivity
E=-0.1212 eV is the local extremum for anti-inflammatory effect

- As a result of different energies of hydrogen bonds, the surface tension of 1% solution of water samples with BOOST is increasing. The increasing of surface tension is regarding the control samples. This effect is connected with preservation of the energy in human body as result of biochemical process among water molecules and bio molecules;

4. BOOST (product of the company LavaVitae)

The average energy ($E_{H...O}$) of hydrogen H…O-bonds among individual H_2O molecules in 1% solution of BOOST is measured at E=-0.1259 eV. The result for the control sample (deionized water) is E=-0.1155 eV. The results obtained with the NES method are recalculated with the DNES method as a difference of the NES (1% solution of BOOST) minus the NES (control sample with deionized water) equaled the DNES spectrum of 1% solution of BOOST. Thus, the result for 1% solution of BOOST recalculated with the DNES method is ΔE=-0.0114±0.0011 eV. The results show the increasing of the values of the energy of hydrogen bonds in 1% solution of BOOST regarding the deionized water. This is effect of stimulation on human body. The result is 10.4 times more than statistical reliable result. The results show restructuring of water molecules in configurations of clusters, which influence usefully on human health on molecular and cellular level. The effects are describing with mathematical model of 1% solution of BOOST.

5. Results with pH and ORP

There are valid the following results of pH as indicator for acid alkaline medium of the products of LavaVitae. There are the results also of ORP or Oxidation-reduction potential.

The results are for 1% (v/v) of solutions of products, which are made from deionized water. This research is performed with Georgi Gluhchev from Bulgarian Academy of Science. The results of pH of deionized water is 6.05 and of ORP is 119.7. Table 11 shows the results of pH and ORP.

Table 2. Results of products of company LavaVitae for pH and ORP

Product	pH	ORP (mV)	Coordinates Fig. 3
VITA Intense	4.07±0.02	- 104.5	Point 1 (4,07; -104.5)
BOOST	3.60±0.02	+113.6	Point 2 (3,90;113.6)
ZEOLITH detox	8.01±0.02	+109.5	Point 3 (8,01;103.3)
Deionized water	6.05±0.02	+119.7	

Figure 3 shows the dependence between the acidity and basicity (pH) of electrochemically activated solutions and the oxidation-reduction potential (ORP). The pH value within the interval from 3 to 10 units and the ORP within the interval from -400 mV to +900 mV characterize the area of the biosphere of microorganisms. Outside these ranges of pH and ORP the microorganisms will hardly survive.

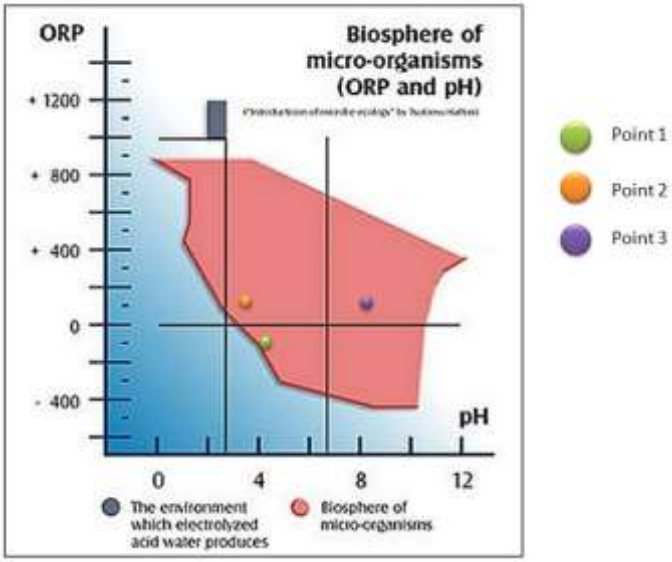

Figure 3: The dependence between acidity and basicity (pH) of solutions and the ORP on the biosphere of micro-organisms (point 1; VITA Intense), (point 2; BOOST), point 3; ZEOLITH detox).

The result of 1% solution of BOOST is 3.60 or acidic medium. The result of ORP is (113.6). Figure 5. shows the dependence between acidity and basicity (pH) of solutions and the ORP on the biosphere of micro-organisms. The result of BOOST with point 2 is with coordinates (3.60; -113.6) is the biosphere of micro-organisms. Boost is useful for human health.

4. Conclusion

From the NES and DNES spectrum and mathematical model of 1% (v/v) solution of BOOST and deionized water as control sample are valid the following conclusions for biophysical effects for BOOST (LavaVitae company)

- improvement of conductivity of nervous system;
- anti-inflammatory effect;

In 1% (v/v) solution of BOOST there is restructuring of water molecules in configurations of clusters, which influence usefully on human health on molecular and cellular level.
The biophysical effects of BOOST are connected also with stimulating effects. The BOOST is recommended as anti aging solution from anti-inflammatory effect (Ignatov, Gluhchev, Karadzhov et al. 2015). The scientific studies show that the inflammations are one of the basic reasons for aging. There are types of water which will increase the effects. For these effects is recommended additional scientific project with pH is in progress.
As a result of different energies of hydrogen bonds, the surface tension of 1% (v/v) solutions of water samples with BOOST is increasing. The increasing of surface tension is regarding the control sample. This effect is connected with preservation of the energy in human body as result of biochemical process among water molecules and bio molecules.

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