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Moringa – Proofs for Anti-inflammatory, Antioxidant and Inhibition Growth of Tumor Cells Effects. Relaxing Effect of Nervous System and Effect on the Hypertonia.

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Abstract
The study shows the mathematical model of interaction with water of Moringa capsules and Moringa extract. In this report are submitted data about the interaction of of Moringa capsules and Moringa extract 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 Moringa capsules with water measured by NES- and DNES-methods is ΔE=-0.0077±0.0011 eV for Moringa capsules. 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 Moringa capsules, with study of pH and oxidative reduction potential (ORP). There is review of the effects of the chemical composition of Moringa capsules – anti-inflammatory and effects on the nervous system and blood pressure. With methods NES the author show the following effects – relaxing effect of nervous system, anti-inflammatory and inhibition of tumor cells. As results of these effects Moringa capsules has anti aging influence. The base of this influence is anti-inflammatory effect. This article deals with the review of the basic biophysical-biochemical and biological processes underlying the Moringa capsules. The author is studying their physical-chemical properties and biophysical and biological effects on human organism. Additionally, by using IR, NES, and DNES methods were investigated various samples of water from Bulgarian water springs: the melt water from Glacier Rosenlaui, Swiss Alps, as well as the human blood serum of people with excellent health and cancer patients between 50 and 70 years old. Other experiments were performed on a 1% (v/v) solution of Moringa capsules in deionized water. As an estimation factor in NES and DNES was measured the values of the average energy of hydrogen bonds ($\Delta E_{H...O}$) among H_2O molecules in water samples, as well as a local extremums in the NES and DNES-spectra of various samples of water and the human blood serum at E = -0.1387 eV and λ = 8.95 μm. For a group of people in critical condition of life and patients with malignant tumors the greatest values of local extremums in IR-, DNES-spectra were shifted to lower energies relative to the control healthy group. Further I applied this method for calculation of percent distribution of H_2O molecules in all studied water samples according to energies of hydrogen bonds ranged from (-0.08 to -0.1387 eV). It was shown that mountain water is among the most important factors for human longevity and human health. The variety of ions (K^+, Na^+, Ca^{2+}, Mg^{2+}, Mn^{2+}, Fe^{2+}, Fe^{3+}, Zn^{2+}, SO_4^{2-}, Cl^-, HCO_3^-, CO_3^{2-}), the chemical-physical parameters (pH, electroconductivity) and the decreased content of deuterium in studied water samples renders beneficial effects of these types of water on human health. We are applying the conclusions for the effects of mountain water on human health and longevity as base for the conclusion on the effects of Moringa capsules. The base is also the results with methods NES and DNES on human serum and expected effects from Moringa capsules.
There are directly anti inflammatory effects of Moringa extract on the rhinitis, pharyngitis and laryngitis.

Keywords: Moringa capsules, Moringa extract, anti-inflammatory, 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 the autor 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 (Ignatov&Mosin, 2012; Ignatov & Mosin, 2013). 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.

Moringa native to parts of Africa and Asia, is the sole genus sin the flowering plant family Moringaceae. 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).

2. Materials and Methods

2.1. NES and DNES Spectral Analysis

The device for DNES spectral analysis is made by A. Antonov on an optical principle. For this is used a hermetic camera for evaporation of water drops under stable temperature (+22–24 ^{0}C) conditions. The water drops are placed on a water-proof transparent pad, which consists of thin maylar folio and a glass plate. The light is monochromatic with filter for yellow color with wavelength at $\lambda = 580 \pm 7$ 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 among H_2O molecules in water samples and human blood serum.

2.2. Product of Moringa Capsules

This product has the following chemical composition (Table 1)

Composition	mg per 100 g
Potassium (K)	461
Calcium (Ca)	30
Sodium (Na)	42
Magnesium (Mg)	45
Iron (Fe)	0.36
Manganese (Mn)	0.259
Zinc (Zn)	0.45
Phosphorus (P)	50
Vitamin A equlv	0.004
Vitamin B_1	0.053
Vitamin B_2	0.074
Vitamin B_3	0.62
Dietary fiber	3.2
Fat	0.2
Protein	2.1
Carbohydrate	8.53
Energy	37 Kcal

2.3. Moringa extract
Moringa has extract in liquid form.

3. Results and Discussions

3.1. Results with spectral analysis with methods NES and DNES of 1% water solutions of the products Moringa Capsules and Moringa Extract.

3.1.1. Moringa Capsules
The average energy ($E_{H...O}$) of hydrogen H…O-bonds among individual H_2O molecules in 1% solution of Moringa Capsules is measured at E= -0.1238 eV. The result for the control sample (deionized water) is E= -0.1161 eV. The results obtained with the NES method are recalculated with the DNES method as a difference of the NES (1% solution of Moringa Capsules) minus the NES (control sample with deionized water) equalled the DNES spectrum of 1% solution of Moringa Capsules. Thus, the result for 1% solution of Moringa Capsules recalculated with the DNES method is ΔE=-0.0077±0.0011 eV. The result shows the increasing of the values of the energy of hydrogen bonds in 1% solution of Moringa Capsules regarding the deionized water. The results is effect of stimulation on human body. The result shows 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 Moringa Capsules.

3.1.2. Moringa Extract
The average energy ($E_{H...O}$) of hydrogen H…O-bonds among individual H_2O molecules in 1% solution of Moringa Extractis measured at E=-0.1245 eV. The result for the control sample (deionized water) is E=-0.1142 eV. The results obtained with the NES method are recalculated with the DNES method as a difference of the NES (1% solution of Moringa Extract) minus the NES (control sample with deionized water) equalled the DNES spectrum of 1% solution of Moringa Extract. Thus, the result for 1% solution of Moringa Extract recalculated with the DNES method is ΔE=-0.0104±0.0011 eV. The result shows the increasing of the values of the energy of hydrogen bonds in 1% solution of Moringa Extract regarding the deionized water. The results is effect of stimulation on human body. The result shows 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 Moringa Extract.

3.2. Mathematical models of the products Moringa Capsules and Moringa Extract (Ignatov, Mosin, 2013).
The research with the NES method of water drops is received with 1% solutions Moringa Capsules and Moringa Extract and deionized water as control samples. The mathematical models of 1% solutions Moringa Capsules and Moringa Extract give the valuable information for the possible number of hydrogen bonds as percent of H_2O molecules with different values of distribution of energies (Tables 2 and 3; Figures 1 and 2). These distributions are basically connected with the restructuring of H_2O molecules having the same energies.

3.2.1. Moringa Capsules
The research with the NES method of water drops is received with 1% solution of Moringa Capsules, and deionized water as control sample. The mathematical model of 1% solution Moringa Capsules 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 2 and Fig. 1). These distributions are basically connected with the restructuring of H_2O molecules having the same energies.

Table 2: The distribution (%, $(-E_{value})/(-E_{total\ value})$ of H_2O molecules in water samples from Moringa Capsules.

-E(eV) x-axis	1% Water Solution of Moringa Capsules y-axis (%((-E_{value}) */ (-$E_{total\ value}$)**	Control Sample of Deionized Water (%((-E_{value})*/ (-$E_{total\ value}$)**	-E(eV) x-axis	1% Water Solution of Moringa Capsules y-axis (%((-E_{value}) */ (-$E_{total\ value}$)**	Control Sample of Deionized Water y-axis (%((-E_{value})*/ (-$E_{total\ value}$)**
0.0937	0	0	0.1187	0	9.1
0.0962	0	11.3	0.1212	**25.2**[2]	**9.1**[2]
0.0987	0	7.2	0.1237	0	0
0.1012	0	0	0.1262	4.9	4.5
0.1037	0	9.1	0.1287	0	4.5
0.1062	0	9.1	0.1312	4.9	0
0.1087	4.9	0	0.1337	9.8	4.5
0.1112	**15.8**[1]	**22.6**[1]	0.1362	4.9	0
0.1137	0	4.5	0.1387	**19.8**[3]	**4.5**[3]
0.1162	9.8	0	–	–	–

E= -0.1112 eV is the local extremum for relaxing effect on nervous system
E=-0.1212 eV is the local extremum for anti-inflammatory effect
E= -0.1387 eV is the local extremum for inhibition of development of tumor cells of molecular level
The spectrum is begging from E= -0.1112 eV and this shows effects of detoxification.

Notes:

* The result (-E_{value}) is the result of hydrogen bonds energy for one parameter of (-E)
** The result (-$E_{total\ value}$) is the total result of hydrogen bonds energy

Figure 1 shows the distribution (%, $(-E_{value})/(-E_{total\ value})$ of H_2O molecules in and 1% of water solution of Moringa Capsules (red line) and control sample deionized water (blue line).

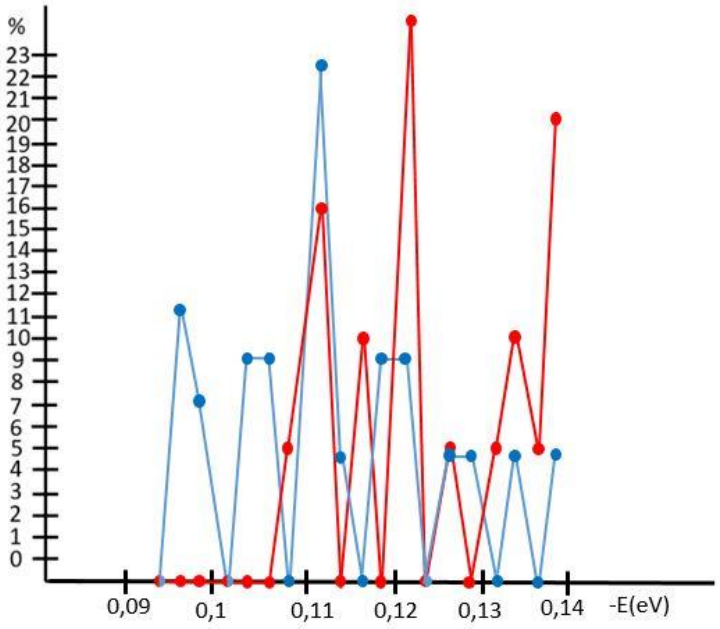

Figure 1. Mathematical model (Ignatov, Mosin, 2013) of 1% water solution of Moringa Capsules

Notes:
E= -0.1112 eV is the local extremum for relaxing effect on nervous system
E=-0.1212 eV is the local extremum for anti-inflammatory effect
E= -0.1387 eV is the local extremum for inhibition of development of tumor cells of molecular level

The experimental data obtained testified the following conclusions from the mathematical model of in 1% water solution of Moringa Capsules and control deionized water. The distribution (%, $(-E_{value})/(-E_{total\ value})$ of water molecules in mathematical model of in 1% water solution of Moringa Capsules and control deionized water. For the value E = -0.1212 eV or $\lambda = 10.23$ μm there is the biggest local extremum (25.2(%, $(-E_{value})/(-E_{total\ value})$) corresponding to the re-structuring of hydrogen bonds among H_2O molecules for anti inflammatory effect. The distribution (%, $(-E_{value})/(-E_{total\ value})$ of water molecules in Moringa Capsules according control sample is different. This difference may indicate on the different number of hydrogen bonds in water samples, as well as their physical parameters**,** 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 anti-inflammatory effects with influence of immunology system. At E = -0.1112 eV or $\lambda = 11.15$ μm there is the local extremum (15.8 (%, $(-E_{value})/(-E_{total\ value})$) corresponding to the re-structuring of hydrogen bonds among H_2O molecules. The value of control sample is higher that the value of sample or (22.6 (%, $(-E_{value})/(-E_{total\ value})$) . The experimental data may prove that influence stipulates the restructuring of H_2O molecules on molecular level and has biophysical effect for relaxing effect on nervous system and improvement of nervous conductivity. However, for the value E = -0.1387 eV or $\lambda = 8.95$ μm there is bigger local extremum (19.8(%, $(-E_{value})/(-E_{total\ value})$) corresponding to the re-structuring of hydrogen bonds among H_2O molecules for inhibition of development of tumor cells of molecular level.
The experimental data for Moringa Capsules 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 relaxing effect on nervous system
E=-0.1212 eV is the local extremum for anti-inflammatory effect
E= -0.1387 eV is the local extremum for inhibition of development of tumor cells of molecular level
The big difference between the local extremums of Moringa extract and control sample at E= -0.1112 eV shows analgesic effect.

As a result of different energies of hydrogen bonds, the surface tension of 1% solution of water samples with Moringa Capsules 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. As effect of big increasing of surface tension and the spectrum is begging from E= -0.1112 eV and this shows effects of detoxification.

3.2.2. Moringa Extract
The research with the NES method of water drops is received with 1% solution Moringa Extract, and deionized water as control sample. The mathematical model of 1% solution Moringa Extract 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 3 and Fig. 2). These distributions are basically connected with the restructuring of H_2O molecules having the same energies.

Table 3: The distribution (%, $(-E_{value})/(-E_{total\ value})$ of H_2O molecules in water samples from Moringa Extract Author: Prof. Ignat Ignatov, assistant: Franziska Achleitner

-E(eV) x-axis	1%Water Solution of Moringa Extract y-axis (%((-E_{value}) */ (-$E_{total\ value}$)**	Control Sample of Deionized Water (%((-E_{value})*/ (-$E_{total\ value}$)**	-E(eV) x-axis	1%Water Solution of Moringa Extract y-axis (%((-E_{value}) */ (-$E_{total\ value}$)**	Control Sample of Deionized Water y-axis (%((-E_{value})*/ (-$E_{total\ value}$)**
0.0937	0	7.7	0.1187	0	0
0.0962	0	7.7	0.1212	**32.2**[2]	**0**[2]
0.0987	0	0	0.1237	0	7.7
0.1012	0	0	0.1262	0	0
0.1037	0	7.7	0.1287	0	3.8
0.1062	0	11.5	0.1312	12.5	3.8
0.1087	0	7.7	0.1337	0	7.7
0.1112	**13.8**[1]	**23.2**[1]	0.1362	0	0
0.1137	6.3	3.8	0.1387	**25.2**[3]	**7.7**[3]
0.1162	10.0	0	–	–	–

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E= -0.1387 eV is the local extremum for inhibition of development of tumor cells of molecular level
The spectrum is begging from E= -0.1112 eV and this shows effects of detoxification.The big difference between the local extremums of Moringa extract and control sample at E= -0.1112 eV shows analgesic effect.
Notes:
* The result (-E_{value}) is the result of hydrogen bonds energy for one parameter of (-E)
** The result (-$E_{total\ value}$) is the total result of hydrogen bonds energy
Figure 2 shows the distribution (%, $(-E_{value})/(-E_{total\ value})$ of H_2O molecules in and 1% of water solution of Moringa Extract (red line) and control sample deionized water (blue line).

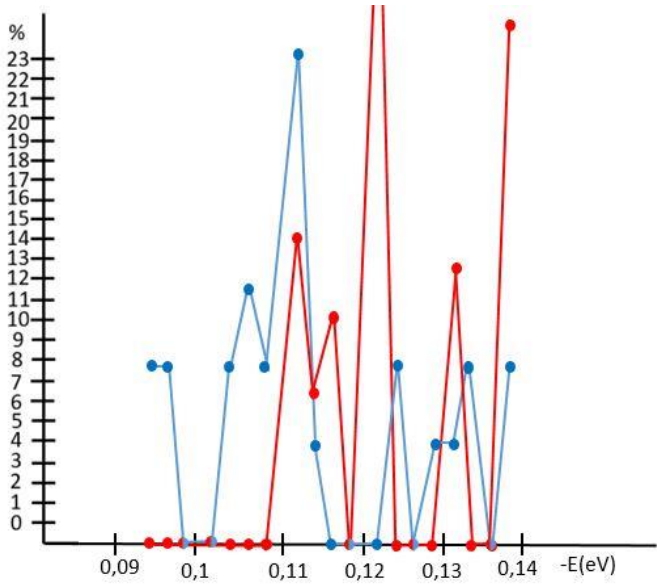

Figure. 2. Mathematical model (Ignatov, Mosin, 2013) of 1% water solution of Moringa Extract

Notes:
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E=-0.1212 eV is the local extremum for anti-inflammatory effect
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The experimental data obtained testified the following conclusions from the mathematical model of in 1% water solution of Moringa Extract and control deionized water. The distribution (%, $(-E_{value})/(-E_{total\ value})$ of water molecules in mathematical model of in 1% water solution of Moringa Extract and control deionized water. For the value E = -0.1212 eV or $\lambda = 10.23$ μm there is the biggest local extremum (32.2(%, $(-E_{value})/(-E_{total\ value})$) corresponding to the re-structuring of hydrogen bonds among H_2O molecules for anti inflammatory effect. The distribution (%, $(-E_{value})/(-E_{total\ value})$ of water molecules in Moringa Extract according control sample is different. This difference may indicate on the different number of hydrogen bonds in water samples, as well as their physical parameters**,** 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 anti-inflammatory effects with influence of immunology system. At E = -0.1112 eV or $\lambda = 11.15$ μm there is the local extremum (13.8(%, $(-E_{value})/(-E_{total\ value})$) corresponding to the re-structuring of hydrogen bonds among H_2O molecules. The value of control sample is higher that the value of sample or (23.2(%, $(-E_{value})/(-E_{total\ value})$) . The experimental data may prove that influence stipulates the restructuring of H_2O molecules on molecular level and has biophysical effect for relaxing effect on nervous system and improvement of nervous conductivity. However, for the value E = -0.1387 eV or $\lambda = 8.95$ μm there is bigger local extremum (25.2(%, $(-E_{value})/(-E_{total\ value})$) corresponding to the re-structuring of hydrogen bonds among H_2O molecules for inhibition of development of tumor cells of molecular level.
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3.3. Clinical studies with human blood serum testing

A convenient method for studying of liquids is non-equilibrium differential spectrum. It was 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 3 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.

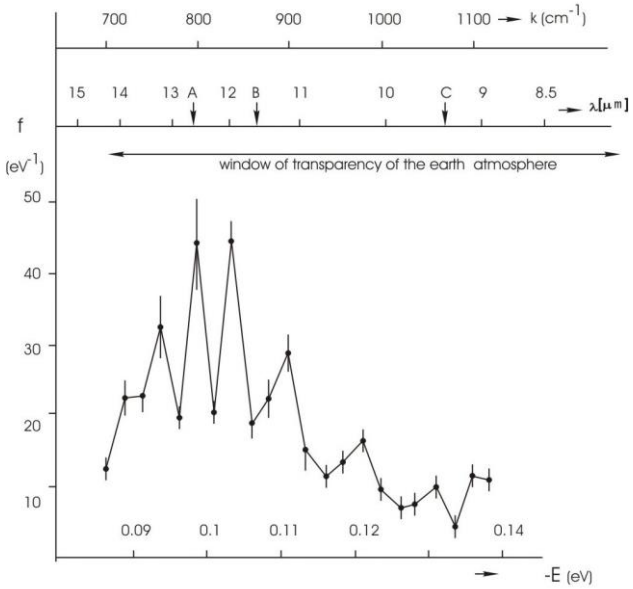

Figure 3: The NES-spectrum of deionized water (chemical purity – 99.99 %; pH – 6,5–7,5; total mineralization – 200 mg/l; electric conductivity – 10 μS/cm): the horizontal axis shows the energy of the H...O hydrogen bonds in the associates – E (eV); the vertical axis – the energy distribution function – f (eV^{-1}); *k* – the vibration frequency of the H–O–H atoms (cm^{-1}); λ – wavelength (μm)

We have conducted studies of 1% (v/v) solution of human blood serum taken from two groups of people between 50 and 70 years of age by IR, NES and DNES spectral analysis. The first group consisted of people in excellent health. The second group consisted of people in a critical state and patients with malignant tumors. The average energy of hydrogen bonds ($\Delta E_{H...O}$) between H_2O molecules in the blood serum was investigated as the main biophysical parameter. The result was registered as a difference between the NES-spectrum of 1% solution

of human blood serum and the NES-spectrum of deionized water control sample – DNES-spectrum, measured as the difference Δf(E) = f (samples of water) – f (control sample of water). The DNES-spectrum obtained from the first group has a local extremum energy ($\Delta E_{H...O}$) at E = -9.1±1.1 meV and from the second group at E = -1.6±1.1 meV. The results between the two groups have a statistical difference in Student's criterion at $p < 0.05$. For the control group of healthy people the value of the largest local maximum in the DNES-spectrum was detected at E = -0.1387 eV, or at a wavelength λ = 8.95 μm. For the group of people in a critical health state and the patients with malignant tumors, the analogous values of the largest local maximums of the DNES-spectrum shifted to lower energies compared with the control group of people. For a group of people in critical health condition and patients with malignant tumors the greatest values of local extremum in the IR-spectrum are shifted to lower energies relative to the control group. In IR-spectrum of human blood serum are detected 8 local maxima at λ = 8.55, 8.58, 8.70, 8.77, 8.85, 9.10, 9.35 and 9.76 μm (Krasnov, Gordetsov, 2009). The resulting peak at λ = 8.95 μm in the IR-spectrum (Ignatov, 2012) approaching the peak at λ = 8.85 μm was monitored by Russian researchers. In the control group of healthy people the average value of the energy distribution function f(E) at λ = 8.95 μm compiles E = 75.3 eV, and in a group of people in critical condition – E = 24.1 eV. The norm has statistically reliable result for human blood serum for the control group of people having cancer at the local extremum of f(E) ~24.1 eV^{-1}. The level of reliability of the results is $p< 0.05$ according to the Student's t-test. In 1995 were performed DNES-experiments with an impact on tumor mice cells in water solutions containing Ca^{2+} (Antonov, 1995). There was a decrease in the DNES-spectrum compared with the control sample of cells from a healthy mouse. The decrease was also observed in the DNES-spectrum of human blood serum of terminally ill people relative to that of healthy people. With increasing of age of long-living blood relatives, the function of distribution of H_2O molecules according to energies at -0.1387 eV decreases. In this group of tested people the result was obtained by the DNES-method at E = -5.5±1.1 meV; the difference in age was of 20–25 years in relation to the control group. It should be noted that many of Bulgarian centenarians inhabit the Rhodopes Mountains areas. Among to the DNES-spectrum of mountain waters the similar to the DNES-spectrum of blood serum of healthy people at λ = 8.95 μm, was the DNES-spectrum of water in the Rhodopes. The mountain water from Teteven, Boyana and other Bulgarian provinces has similar parameters. Tables 1, 2 and 3 show the composition of mountain water springs in Teteven and Kuklen (Bulgaria) and local extremums in NES-spectra of water samples. The local extremums is water samples were detected at E = -0.11 eV and E = -0.1387 eV. The value measured at E = -0.11 eV is characteristic for the presence of Ca^{2+} in water. The value measured at E = -0.1387 eV is characteristic for inhibiting the growth of cancer cells. Experiments conducted by A. Antonov with cancer cells of mice in water with Ca^{2+} demonstrated a reduction of this local extremum to a negative value in spectra. Analysis by the DNES-method of aqueous solutions of natural mineral sorbents – shungite (carbonaceous mineral from Zazhoginskoe deposit in Karelia, Russia) and zeolite (microporous crystalline aluminosilicate mineral from Most village, Bulgaria) showed the presence of a local extremum at E = -0.1387 eV for shungite and E = -0.11 eV for zeolite (Mosin & Ignatov, 2013, Ignatov & Mosin, 2014a). It should be noted that owing to the unique porous structures both the natural minerals shungite and zeolite are ideal natural water adsorbers effectively removing from water organochlorine compounds, phenols, dioxins, heavy metals, radionuclides, and color, and gives the water a good organoleptic qualities, additionally saturating water with micro-and macro-elements until the physiological levels (Mosin & Ignatov, 2013). It is worth to note that in Bulgaria the main mineral deposits of Bulgarian zeolites are located in the Rhodope Mountains, whereat has lived the greatest number of Bulgarian centenarians. It is believed that water in these areas is cleared out in a natural way by mineral zeolite.

4. Results with pH and ORP

There are valid the following results of pH as indicator for acid alkaline medium of the product Moringa capsules. There is the result also of ORP or Oxidation-reduction potential.

The results are for 1% of solutions of Moringa capsules, which are made from deionized water. This research is performed with Georgi Gluhchev from Bulgarian Academy of Science. Table 4 shows the results of pH and ORP.

Table 4. Results of Moringa Capsules for pH and ORP

Product	pH	ORP (mV)	Coordinates Fig. 3
Moringa Capsules	5.33±0.02	+0.25	Point 1 (5.33; 0.25)

Figure 4 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.

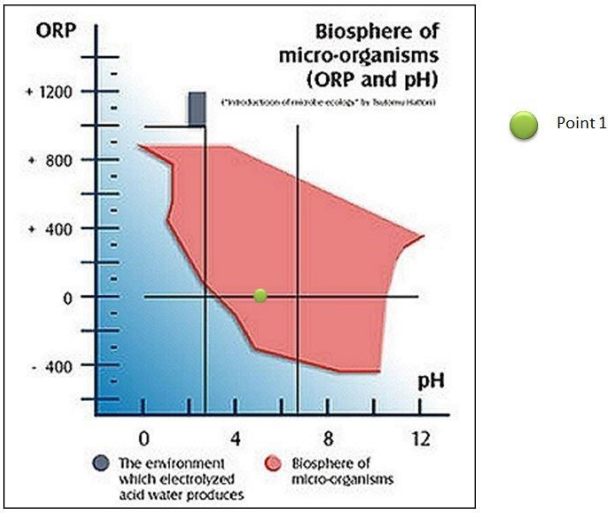

Figure 4. The dependence between acidity and basicity (pH) of solutions and the ORP on the biosphere of micro-organisms (point 1; Moringa Capsules).

4. Conclusions

4.1. Moringa Capsules

From the NES and DNES spectrum and mathematical model of 1% solution of Moringa Capsules and deionized water as control sample are valid the following conclusions for biophysical effects for Moringa Capsules.

E= -0.1112 eV is the local extremum for relaxing effect on nervous system

E=-0.1212 eV is the local extremum for anti-inflammatory effect

E= -0.1387 eV is the local extremum for inhibition of development of tumor cells of molecular level

The big difference between the local extremums of Moringa extract and control sample at E= -0.1112 eV shows analgesic effect.

In 1% solution of Moringa Capsules 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 Moringa Capsules are connected also with antioxidant effects. Moringa Capsules is recommended as anti aging solution for prophylaxis (Ignatov, Gluhchev, Karadzhov et al. 2015). The scientific studies show that the inflammations are one of the basic reasons for aging. The recommendation is connected with additionally using of Moringa Capsules inanti-inflammatory and anti-aging practice. The chemical composition of Moringa is connected with anti aging effects. The structuring of water clusters with highest energy of hydrogen bonds at λ =10.23 μm makes the water in human body more “active” as medium of biochemical and biophysical processes. This is similar like the human organism to be younger (Ignatov, Mosin, 2012). The quality of the water with which will be using is very important. There are types of water which will increase the effects. As a result of different energies of hydrogen bonds, the surface tension of 1% solution of water samples with Moringa Capsules 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;

4.2. Moringa Extract

From the NES and DNES spectrum and mathematical model of 1% solution of Moringa Extract and deionized water as control sample are valid the following conclusions for biophysical effects for Moringa Extract.

E= -0.1112 eV is the local extremum for relaxing effect on nervous system
E=-0.1212 eV is the local extremum for anti-inflammatory effect
E= -0.1387 eV is the local extremum for inhibition of development of tumor cells of molecular level
The spectrum is begging from E= -0.1112 eV and this shows effects of detoxification.

As a result of different energies of hydrogen bonds, the surface tension of 1% solution of water samples with Moringa Extract 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. As effect of big increasing of surface tension and the spectrum is begging from E= -0.1112 eV and this shows effects of detoxification. The big difference between the local extremums of Moringa extract and control sample at E= -0.1112 eV shows analgesic effect.
In 1% solution of Moringa Extract 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 Moringa Extract are connected also with antioxidant effects. Moringa Extract is recommended as anti aging solution for prophylaxis (Ignatov, Gluhchev, Karadzhov et al. 2015). The scientific studies show that the inflammations are one of the basic reasons for aging. The recommendation is connected with additionally using of Moringa Extract inanti-inflammatory and anti-aging practice. The structuring of water clusters with highest energy of hydrogen bonds at λ =10.23 μm μm makes the water in human body more “active” as medium of biochemical and biophysical processes. This is similar like the human organism to be younger (Ignatov, Mosin, 2012). The quality of the water with which will be using is very important. There are types of water which will increase the effects. As a result of different energies of hydrogen bonds, the surface tension of 1% solution of water samples with Moringa Extract 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;

4.3. Additional conclusions
According to the analysis of various water samples by the NES and DNES methods can be drown the main conclusions:
- The results show the substantial increasing of the values of the energy of hydrogen bonds in 1% solutions of Moringa Capsules regarding the deionized water. This is effect of stimulation on human body.
- The results show the substantial increasing of the values of the energy of hydrogen bonds in 1% solutions of Moringa Extract regarding the deionized water. This is effect of stimulation on human body.
- The energy of hydrogen bonds of water in the samples was differed because of the different number of hydrogen bonds in the water samples, which may result from the fact that different waters have a different structure and various intermolecular interactions – various associative elements with different structure, clusters of formula $(H_2O)_n$ with different n, connected into the molecular associates;
The conclusions are a result of common publications with Oleg Mosin. The author expresses thankful to the student Teodora Todorova for the preparation of the figures.

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

- relaxing effect on nervous system;
- anti inflammatory effect;
- inhibtion of development of tumor cells of molecular level;

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