

The explaining of some paranormal bio-effects by a thermo-mechanic model of cell membrane' ionic pump functioning

Abstract

In the paper are explained some paranormal effects such as the biotherapy, the telekinesis, the “phantom leaf” effect and theelectric field of the plant “phytologica electrica” by a thermo-mechanic model of cell membrane' ionic pump functioning, which considers a thermo-mechanical effect of the ATP transforming energy in the ions transporting process, obtained by a particular configuration of some reticulate network micro-tubes ends and by the generating of 5÷20% holes into cytoplasm by the action of the ATP's transforming energy but also by an ionizing radiation, generated particularly by intense vibration of electric charges, with high frequency, as in the case of the Kirlian effect.

Keywords: paranormal bio-effects, cell's membrane ionic pump, phantom leaf, telekinesy, levitation, phytologica electrica

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Introduction

It is known that exists persons with bio-therapeutic property of their hands, (healing by bioenergy), explained by a more intense electric potential of hand's bio-field, (10-100V). Apparently, the bio-field component which may produce healing effect is the microwaves component. But for the human body, the intensity of this component of bio-field is low, of $\sim 10\mu\text{W}/\text{cm}^2$,¹ under $20\text{W}/\text{cm}^2$, generally. In this case it may be supposed that the bio-energetic effect is given by another penetrant radiation which may be emitted by the human body, i.e. a scalar radiation, generated by energetic excitations of atomic charges by enzymatic reactions, for examples-by mitochondrial enzymes and by ATP transforming. This possibility may results in accordance with the energy conservation law, by intense vibrating of some charged particles (electrons, protons), with high amplitude and high frequency, by the conversion of quasi-simultaneously captured photons into a scalar quanta formed as doublet of two high energy

photons with bigger mass coupled in antiphase, at a critical value ε_v^0 of charge's vibration energy, $\Delta\varepsilon_v$, according to the equation:²

$$n.\varepsilon_i + m_p c^2 \rightarrow (by\Delta\varepsilon_v) \rightarrow m_p^* c^2 + \varepsilon_w; \quad (1)$$

$$n.\varepsilon_v \cong \varepsilon_w; \Delta\varepsilon_v \geq \Delta\varepsilon_v^0 = \varepsilon_w / K_v$$

where: ε_i ; ε_w are the energy of n captured photons and, respectively, of the emitted scalar quantum and K_v is a constant which can be of over - unity value - according to some experiments.³

A thermo-mechanic model of cell membrane' ionic pump functioning

The bio-therapeutic effect of this considered component of the

bio-field may be explained by a “thermal pump” model of cell's membrane ionic pump, which explains the active transport of Na and K ions by cell membrane. The actual accepted model of Na-K-ionic pump supposes the Na⁺/K⁺-ATP-ase conformation modifying by changing the relative position of its α - and β -units, forming channels for Na⁺-ions releasing and K⁺ions entering, with the osmotic pressure of cytoplasm, generated by ATP (adenosine triphosphate) transformation by hydrolysis: ATP→ADP+P+Energy, in a cycle of phosphorylation/ dephosphorylation, with energy $E_n \sim 9$ Kcal/ATPmol, for $\sim 70 \div 130\text{mV}$ membrane potential difference. It is not very clear how the generated osmotic pressure moves 3 sodium ions out and 2 potassium ions in during a phosphorylation cycle.

By the endoplasmatic reticulate structure, having microtubes with diameter $d \approx 20 \div 25\text{nm}$, it may be considered also a model of “thermic pump” of Na⁺/K⁺ ions,² based on the cytoplasm property of ionic liquid, considering a funnel form of the end of a small proportion of reticulate network microtubes (MT), with the diameter $D \approx 3 \div 5d$, which is fixed to the cell membrane in positions with ATP-ase protein, having also a free “blocking molecule” (BM) which may be also an ATP or ADP molecule, (Figure 1). At the ATP transforming, because the property of ionic liquid of the cytoplasm, with $f = 5 \div 20\%$ holes, the released de-phosphorylation energy increases the proportion of cytoplasm holes by the local temperature and pressure increasing and determines the cytoplasm dilation, phenomenon which determines the obstruction of the reticulate network microtubes by the B-molecule and the expulsion of Na⁺-ions from the inside of MT funnel to the cell exterior through the central channel of ATP-ase α -unit, (Figure 1).

By mass loosing and the temperature lowering of the inner cytoplasm, the ionic pump cycle is continued by an inverse process-of exterior liquid and K⁺-ions absorption by the open channels of ATP-ase β -units, these K⁺-ions being thereafter introduced into the cell's interior by the reticulate network microtube re-opening, generated by the difference pressure acting over the B-molecule. The

potential difference across a membrane that separates two electrolyte compartments with different concentrations is obtained by the Nernst equation exchanging the natural logarithm with the common logarithm and putting $n=1$ and temperature $37\text{ }^\circ\text{C}$, the Nernst eqn. becoming:

$$V = -61 \cdot \log(c_e / c_i) [mV] \quad (2)$$

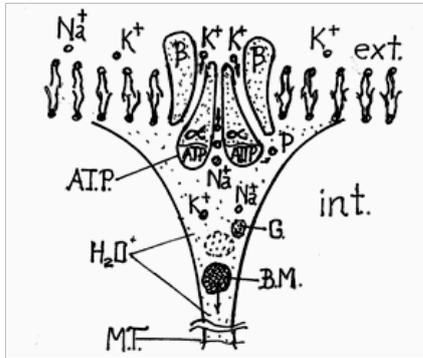


Figure 1 The cell's ionic pump functioning.

where c_i and c_e are the intracellular and extracellular concentrations of one ion species. With external concentration of K^+ , for example, that is 10 times larger than the internal concentration; the intracellular potential is -61 mV . For example, if $\sim 70\%$ of the ATP energy ($4.35 \times 10^{-20}\text{ J/ATP molecule}$) is converted into mechanic work (as in the case of nerve cells), for $3Na^+$ -ions expulsion against a potential difference: 90 mV , (the rest being loosed energy), is necessary only $\sim 1/3$ of this energy for Na^+ -ions displacement, $\sim 2/3$ of this energy ($\sim 3 \times 10^{-20}\text{ J/ATP molecule}$) being used for cytoplasm expulsion. Considering also that the osmotic pressure necessary for Na^+ -ions expulsion is approximate equal with the blood osmotic pressure ($p_s \approx 8\text{ atm}$), the expelled cytoplasm volume has-in isobar conditions, the value:

$$\Delta V = V_f - V_i \approx V_i^o (\Delta f) = L / p_s; \quad (3)$$

$$\Delta V = 2.9 \times 10^{-20}\text{ J} / 8.1 \times 10^5\text{ N} = 35 \times 10^{-27}\text{ m}^3$$

($V_i = V_i^o(1+f)$; $f=0.05 \dots 0.20$ - specific to an ionic liquid), and corresponds to a cytoplasm mass difference: $\Delta m = 35 \times 10^{-24}\text{ kg}$ and to: $V_i \approx 25 \times 10^{-26}\text{ m}^3/\text{ATP molecule}$ for $\Delta f \approx 10\%$. The obtained value of mass difference: Δm_L corresponds to 614 water molecules and 3 Na^+ -ions. So, the model correspond with approximation to the conclusion of a research which showed that the cell's osmotic pressure equilibration is made by the active transport of 300...400 water molecules for every ion species which is expelled from the cell and to the researches showing a direct thermodynamic dependence of ionic activity in ionic solutions as the cytoplasm.⁴

In the bio-field therapy, in the case of relative deficit of ATP, the bio-field component which is enough penetrant and intense for replace the effect of ATP-molecule energy in the process of cytoplasm holes generating, is the scalar field component, which may have an ionizing effect, according to eq. (1) of CGT. The bio-field therapy practice using alternative hands approaching (bio-energetic "passes"), is explained with the proposed model by the necessity to produce alternatively atomic holes within cytoplasm, for the Na^+/K^+ ionic pump functioning, in condition of a weak natural functioning by ATP's transforming. The previous explanation may be correlated

also with the therapeutic effect of decimetric microwaves. The ionizing scalar radiation, as possible component of the biofield, may explain also the ectoplasm forming as cold and weak ionizing state, produced by parts of human body, according to some controversial but scientific observations.¹ It may be argued also² that the ectoplasm producing is essential for generate some proved telekinetic effects, as the biological "magnetism", i.e metallic objects attraction or plastic ball attraction by the subject's hands, for example, (Nina Kulaghina case,⁵), phenomenon which may be explained (only) by air pressure difference produced by the ectoplasm formed between the object and the biologic organ, (by ectoplasm ions mutually repulsion).

For example, for sustain a body of $S = \pi r^2 = 50\text{ cm}^2$ surface ($r \approx 4\text{ cm}$) and $M=0.1\text{ kg}$ "attracted" by a hand, is necessary an atmospheric pressure difference: $\Delta P_a = 2 \times 10^2\text{ N/m}^2 = 0.002 P_0$, (P_0 - the atmospheric pressure), which generates a "levitation" force $F \approx S \cdot \Delta P$ that compensates the gravitation force, $F_G = Mg$, may be obtained with a cold plasma with $n_i^o \approx 1.8 \times 10^{19}$ positive ions/ m^3 generated between the M-body and hand by the hand's bio-field.²

This value n_i^o may be approximated in the next way: Considering an initial concentration of the air molecules: $n^o = 2.4 \times 10^{25}/\text{m}^3$ which

corresponds to the air density: $\rho_a \approx 1.3\text{ kg/m}^3$, each positive ion i^+ attracts a number f of electrically polarized air molecules. Because the resulted positive clusters repels each other and have a low vibration energy (and temperature T), we may approximate that the formed positive clusters c^+ lower the concentration of air molecules that generates the air pressure $P = n_0^i k_B T$, to a value:

$$n_0^i = n_i^o = n^o - \Delta n^o = n^o - f \cdot n_i^o \approx (1 - 0.002) n^o; \quad (4)$$

$$n_0^i = 2.395 \times 10^{25} / \text{m}^3$$

The number f of air molecules of a c^+ -cluster which surround a positive ion i^+ by interaction: ion-electric dipole, may be approximated considering that the c^+ -cluster's radius is equal with the Landau length of the ion-dipole interaction defined- in this case, as the radius r_c for which the ion-dipole interaction energy is equal with the kinetic energy of an attracted dipolar molecule at temperature T :

$$\frac{e \cdot p}{4\pi\epsilon_0 r_c^2} = k_B T \quad (5)$$

Because the distance between the O atoms of a O_2 molecule is $r_m \approx 1.2\text{ \AA}$, approximating that the dipole p_c is formed by a two charge centers of $0.5e$ separated by a distance $l_d \approx 1\text{ \AA}$, ($p_c \approx 10^{-10}e\text{ [C}\cdot\text{m]}$), it results from eqn. (4), for $T \approx 300\text{ K}$ (the room's temperature), that:

$$r_c \approx 1.65 \times 10^{-9}\text{ m}; f \approx (r_c / r_m) \approx 2.6 \times 10^3,$$

$$\text{and: } n_i^o = \Delta n^o / f = 4.8 \times 10^{22} / 2.6 \times 10^3 \approx$$

$$1.8 \times 10^{19} / \text{m}^3, \text{ resulting an air ionization degree:}$$

$n_i^o/n^o = 0.75 \times 10^{-6}$ - under the superior limit: 10^{-4} of cold plasma existence. This possibility of levitation force generating by asymmetrical air ionizing was verified experimentally in relation with the Biefeld-Brown effect which evidenced a displacing force generation in the case of a charged spherical capacitor, in the sense of the positive charged part.⁶ Mathematically, the scalar wave corresponds to the term: $\text{div} E$ from the wave equation:

$$\Delta E = \text{grad. div} E - \text{rot. rot} E = (1/c^2) \partial^2 E / \partial t^2 \quad (6)$$

An effect which suggests the bio-field's existence also to plants is the "phantom leaf effect" observed by the Kirlian photography which evidenced an almost integer aura to a leaf with cut tip, (usually- to a cissus leaf, (Figure 2)⁷ but because the Kirlian apparatus generates also emission of ionizing scalar radiation from vibrated electric charges, a possible explanation of the phenomenon may be a higher vibration intensity of the ions existent to the surface of the cutting zone cells and the interference of the generated electromagnetic waves and the scalar radiation, with the generated phase points to the sides of an imaginary triangle corresponding to the cut tip of the leaf, at the lever of air molecules that also becomes secondary sources of electromagnetic and scalar radiation.



Figure 2 The "Phantom leaf" effect.

However, it is known also a plant: "phytologica electrica", (from Nicaragua), with an electric field which action by a discharge of 100-200V, with measurable effect until 2-2.5 m from it, but only under the sunlight,⁸ phenomenon which indicates the correlation of the effect with the sunlight intensity, probably with the intensity of an ionizing component of the sunlight (of the UV radiation) or also of its bio-field, which increases the number of ions at the cells membrane's surface, in concordance with the proposed model of thermo-mechanic ionic pump of cell's membrane. It is supposed that their intense electric potential is correlated to the fact that the quantity of Fe in their leaves is higher than those of other plants, fact that explains also their magnetism.

Because the membranes of the plants cells are similar to those of the animals bodies, having also 'aquaporins' (for aqueous liquid transporting) and 'permeases' with channels for active transporting of cellular molecules, we may suppose that the UV radiation generates also a more intense functioning of the active transporting mechanism of the cell membrane during the action of the sunlight by the UV component. It is known in this sense that plants converts sunlight energy into chemical energy through the process of photosynthesis, the blue light being the component that promotes vegetative leaf growth and the (infra)red light being necessary to flourish. We suppose that the plants dependency to the light energy is correlated also with the influence of the UV radiation component in the cell membrane ionic pump functioning. It is known in this sense that UV-B radiation applied to some plants species such as *Avena fatua* and *Setaria viridis* induced changes in leaf and plant morphology, decreasing the plant height, fresh mass of leaves, shoots and roots as well as leaf area and causing the leaf curling,⁹ effects which may be caused also by an excessive removal of nutrients from inside the cell by the pseudo-thermo-mechanical effect of the holes generated in the cytoplasm of the cell by the UV radiation, according to the model.

Conclusion

It results from the paper that some paranormal effects such as the biotherapy, the telekinesis, the "phantom leaf" effect and the electric field of the plant "phytologica electrica" may be explained at least partially by a thermo-mechanic model of cell membrane' ionic pump functioning, which considers a thermo-mechanical effect of the ATP transforming energy in the ions transporting process, obtained by a particular configuration of some reticulate network micro-tubes ends and by the generating of 5÷20% holes into cytoplasm by the action of the ATP's transforming energy but also by an ionizing radiation, generated particularly by intense vibration of electric charges, with high frequency, as in the case of the Kirlian effect, this ionizing radiation being –most probably, a scalar radiation generated by the conversion of n photons of IR radiation or of visible light into a heavier scalar quantum, as consequence of the photon's absorption and conversion by vibrated electric charges, by the increasing of their quantum volume penetrability over a critical value of the vibration energy. It results also the possibility of cells membrane producing and functioning without ATP, in special conditions, with a thermo-mechanic ionic pump activated by periodically action of a ionizing radiation, such as-UV radiation or scalar radiation, which may have similar properties to the common known cells and which may generate vegetal or even micro-animals which may resist in extreme life conditions, as the known "tardigrades", for example- to a planet with water and stellary source of pulsed ionizing radiation.

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Conflicts of interest

The author declares there is no conflict of interest.

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