## Superweak information interactions in biological systems E.A. Olkhovatov (FSBEI HPE "Kuban State Agrarian University", Krasnodar, Russia)

Superweak impacts are impacts that are very small in magnitude and difficult to register. At the present stage of the development of this direction of science, biological objects are considered the best indicators of superweak effects, because they can only be found out by the observed result - any reaction of the biological system. The result obtained in this way is not at all a signal, as is customary in a classical experiment. Superweak influences always initiate nonlinear processes in the system, which are infinitely diverse and illogical in their responses to a change in the acting factor. And, even if we do not know which cascade of biophysical processes was initiated by a superweak effect in the object of observation, it is important for the observer that the changes in bioindicators are real, reliably observable and can be recorded during the experiment. In addition, these changes are usually always noticeable, and therefore no additional experimental techniques are required for their quantitative registration.

If a superweak effect occurs within the framework of a directed experiment, its meaning is to fix a clear correlation between the effect produced and the recorded result, which is a change in the readings of the bioindicator, although the physical mechanism of action of the superweak factor is not known for certain and does not manifest itself directly in the experiment. ... It is worth noting that many researchers who have observed and studied the effects of superweak impacts point to a special, in their opinion, role of water in these processes and consider water to be an active participant in the process itself and the result of the impact [5].

Over the past hundred years, a lot of experiments have been accumulated over the past hundred years, in which, on a laboratory scale, phenomena that can hardly be explained by the influence of electromagnetic fields and other known interactions have been observed. In the experiment, the influence of superweak effects on biological systems was shown by A.G. Gurvich, V.P. Kaznacheev, P.P. Garyaev, V.G. Krasnobryzhev and a number of other researchers [6].

If a super-weak impact is of a non-human nature, for example, has a cosmophysical nature, its results are usually noted and recorded only through the study of various kinds of statistical data: massive changes in people's well-being, statistics of diseases, pandemics and epizootics, natural disasters or social upheavals. It was this kind of correlation research that A.L. Chizhevsky, who established a connection between terrestrial processes and cosmic phenomena, which is now not questioned, and new properties of this connection are discovered and widely studied [5, 12, 13].

It is known from quantum mechanics that any elementary particle invariably possesses three fundamental properties: charge and mass, as well as spin, which depends on the first two. The influence of the spin on ability and character the course of chemical reactions has been reliably established by modern science, and quantum chemistry and its subsection spin chemistry are engaged in the study of this issue, from which it is known that chemical reactions are controlled by two fundamental factors - energy and spin.

The mechanism by which carried out information Interaction among living systems from the point of view of official modern science is quite simple: the spin component of elementary particles of the material world is directly involved in it. At the same time, the prohibition of chemical reactions along the back is insurmountable. If in a reaction medium the interacting particles are in a singlet state (with low energy), when their energy is high, then in the overwhelming majority of cases chemical reactions are impossible, and if the interacting particles are in a triplet state (excited), then a chemical bond is formed.

Any chemical reaction is associated with the displacement of the atomic nuclei that make up the reactant molecules, and with the restructuring of their electronic environment. The potential energy of a system of atoms is determined by the arrangement of electrons and nuclei, and since the distribution of electrons is given by the mutual arrangement of nuclei, then any such arrangement corresponds to a single value of the potential energy of the system. The transition of a molecule from one potential energy surface to another is associated with a change in the electronic and / or spin state of the molecule [1, 3, 4, 7].

In biochemical reactions, not only molecular, but also spin dynamics is of great importance, which plays a double role in elementary chemical acts: on the one hand, it actively affects the reaction mechanism and kinetics, and on the other hand, it reacts very sensitively to the molecular dynamics of an elementary chemical act. ...

Specificity spin interactions manifested in influence ordered orientation of one system of nuclear spins to another. In this case, a single "weighted average" orientation of differently directed spins is spontaneously formed. In contrast to chaotic disturbances, the directed nature and the possibility of accumulating the orientational influence may become sufficient for ordering not only micro-, but also macrosystems. And since in any living organism a number of chemical reactions occur simultaneously, then by acting on the spin component of the substances participating in them, it becomes possible to correct certain biochemical processes, initiating them, or preventing them from proceeding.

Such influences are recognized by quantum mechanics, according to which the main role in the establishment of spin-spin equilibrium is played by some special (field) interaction of identical particles, which is fully consistent with the concept "A-fields " [11], based on which each independent parameter of the particle ai, which the satisfies the law of conservation of energy, there corresponds a certain individual material field Ai, through which the interaction is carried outbetween particles according to this parameter. Its development is this concept, which ascribes to long-range action on the back many of the obtained results of the whole a number of carried out laboratory experiments withparticipation some non-electromagnetic radiation generated by special devices was obtained in the works of A.E. Akimov [1] and G.I. Shipov [14], which gave her the name "Concept of torsion fields of Akimov-Shipov". A number of experimental works carried out in the 90s of the twentieth century took place within the framework of this concept. However, this is not the only theoretical concept in which long-range action along the back appears as an integral part, and attempts are being made to explain the obtained results of the conducted experiments [6].

We are conducting research in the direction touched upon by the subject of this work. In order to establish the reality of superweak interactions in biological systems, we study the phenomenon of information transfer [2], which is determined by the possibility of direct and remote influence from the outside on the spin characteristics of the substances of a living organism by wave radiation characteristic of a particular chemical substance or biological object. One of the possible ways of such an effect is the transfer of the properties of a substance or biological object, as well as information about an event (for example, about necrosis or tissue regeneration) onto an intermediate carrier, through which it becomes possible to influence biological objects, controlling their physiological processes and life activity.

The existing demand in modern society for environmentally safe raw materials and foodstuffs requires the creation of new technologies used in the agro-industrial complex, in particular, in the production of crop products, which makes it relevant to search for ways to resolve this issue.

In order to identify the effectiveness of the application of the phenomenon of information transfer in the agro-industrial complex, we are carrying out work, the preliminary results of which allow us to make a positive conclusion about the possibility of using this method in crop production and to determine a number of patterns, based on which, to recommend the algorithm and modes of exposure. Based on the obtained developments, we plan to create appropriate technologies and transfer them to the armament of the mass production of the agro-industrial complex.

We have set up a number of experiments in the field of agricultural crop production to transfer to an intermediate carrier the spin states of various biological and chemical donor objects, which were exposed to a spin field modulated by means of the TRANSFER-P and IMEDIS-BRT-PC devices (set 2, module "Medication selector"), produced by the Center "IMEDIS". When samples of donor objects are introduced into the spin field generator, the resonator of spin states is excited to the required level and such spin states are translated to the receiver in which the intermediate carrier (for example, water or mineral fertilizers) is located, which causes spin changes in the material of the intermediate carrier. which accepts information about the properties of donor objects.

This method has shown itself to be effective in combating pests and diseases of various vegetable and ornamental crops, fruit trees; when rooting

cuttings of various fruit and ornamental crops. At the same time, informational preparations were obtained both by direct transfer from a biological object and / or a chemical preparation, and using the base of the "drug selector", in which there is a group of preparations for plant growing.

The ability to obtain an infinite number of copies from a once formed information product, as an initial matrix, determines the high economic efficiency of the described technology, and the precise targeting of the impact and the absence of a chemical as such in the prepared product contributes to the greening of agricultural production [8, 9, 10].

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