

In Search of a Scientific Basis of Homeopathy: Meta-analysis of Results of Blind Spectral Studies of Electronic Copies of Bio-active Substances, Prepared with Water Substrate"

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Homeopathy is used in medical practice for over 200 years. However, in recent years, more and more criticism is expressed regarding it, both in terms of insufficient evidence of the therapy effectiveness with homeopathic preparations, and in terms of homeopathy's lack of a scientifically proven physics-chemical basis.

The aim of the study was a meta-analysis of the results of spectral evaluations of homeopathically-like drugs prepared by means of so-called "electronic copying" procedure.

The main research methods were – multi-band spectral analysis of electronic copies of several parent bio-active substances, statistical analysis of the significance of differences of ensembles (12-15 samples) of amplitudes of spectral samples or spectral parameters of electronic copies in comparison with ensembles of hidden and apparent controls, evaluation of the occurrence of significant differences.

As a result in the analysis of 9 independent blind studies of water electronic copies of several substances, carried out by measuring infrared transmittance spectra (3 experiments), terahertz transmittance and refraction spectra (3 experiments), dynamic light scattering (3 experiments), statistically significant spectral differences were found in some electronic copies with apparent (25 of the total number of compared pairs of 35) and hidden (11 of the total number of compared pairs of 40) controls.

The specificity of the differences between electronic copies and apparent/hidden controls, neither in the substances to be copied, nor in the characteristic wavelengths or spectral parameters, was observed. The domination of differences with apparent control resulting from an estimate of the occurrence of differences of any (without separation according to the copied substances) electronic copies with apparent and hidden controls could be interpreted as making the most changes in the samples not by electronic copy, but by spectral measurement under the conditions of "illumination" by the spectrometer radiation. This allows us to treat the main mechanism of the appearance of these changes as the "observer effect" known from quantum mechanics. If there were any more subtle physical mechanisms explaining the phenomenon of electronic copying, then, according to the results, they are largely masked by the "observer effect".

Since analogous "illumination" by external electromagnetic radiation (Sun and Space) exists everywhere it can be assumed that the main mechanism of the therapeutic action of at least the investigated version of homeopathic medicines in the form of electronic copies may be associated with a combination of the placebo-effect of the patient (proven early) and the "observer effect" of the physician, manifested under the conditions of "illumination" by external electromagnetic radiation.