Conference presentation

Physical properties and biological activity of diluted solutions

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Abstract

The aims of the present study were: 1) to establish the correlation between physical properties of potentiated solutions and their biological activities on various model systems; 2) to find possible similarities and/or differences in the biological action of decimal and centesimal dilutions; and 3) to prove or to reject biological activity of potentiated water.

Photoluminescence, electrical conductivity, optical microscopy and weighting methods were used. Spontaneous motility of unicellular freshwater hydrobionts - *Infusoria* and germination of seeds of *Amarantus caudatus* L. were used as biological models. Germination was observed in disposable small plastic Petri dishes, containing 30 seeds and 2 ml of the investigated solutions. The main part of the experiment was done using serial (1x-30x or 1c-30c) dilutions of sodium chloride and sucrose.

All experiments resulted in non-monotonous properties and biological response to various dilutions. Quite similar results for the intensity of photoluminescence were obtained in 2 laboratories in case of sodium chloride decimal dilutions. In addition, strong negative correlation was obtained between the intensity of photoluminescence and spontaneous motility of *Infusoria*. With some dilutions the differences obtained in germination decreased over time, while with other dilutions the difference was not compensated in time, and the difference among various potencies became sharper. Inhibition of germination was observed in most sodium chloride dilutions in both decimal and centesimal scales compared to the control (ordinary distilled water). Inhibitory effects of all dilutions were more pronounced 36 hours after soaking and became partial after 48 hours. In the latter case, most significant effects were observed in the following dilutions of sodium chloride: 7x, 10x, 13x, 19x and 24x, and 17c, 23c, 25c and 27c. The mass of sprouts at 72 hours correlated with germination in salt dilutions. Similar results were obtained with potentiated water, the most pronounced inhibitory effects occurring with potencies 5x, 8x, 12x, 20x and 29x, and 10c, 15c, 21c, 26c and 30c. Negative correlation in germination between potentized water in decimal and centesimal was obtained. All these results were statistically significant at confidence level < 0.05. Other correlations will be discussed in detail.

The established correlation between intensity of photoluminescence and biological activities of salt dilutions might provide an objective basis for the choice of physiologically active potencies. The results obtained demonstrate the biological activity of potentized water.

Keywords: sodium chloride, sucrose, fluorescence, conductivity, germination, *infusoria* motility.

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