

2-nd European Symposium on Non-Lethal Weapons.

Sincerely Yours Dr. Fadeev

Modeling the effect of non-lethal weapons.

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The infrasound is known to cause panic, fear, state of discomfort and other deviations from the normal state of a human organism. Any of these deviations is connected *a priori* with violation of biochemical processes and changes in the course of chemical reactions in the human organism.

The effect of acoustic oscillations upon chemical reactions is investigated at the chemistry department of the MBSTU using models imitating biochemical structures. The report presented is a short and rather incomplete summary of the results obtained. These data make it possible to demonstrate the mechanism of action of the non-lethal acoustic weapon and to adjust the influence of the weapons depending upon different biological structures. The following models will be discussed.

1. Simulating conversion of low-molecular substances and ions hydrolysis reactions accompanied with changes in the degrees of the components oxidation — disproportioning of iodine with oxidation and recovery.
2. Investigating behavior of polymeric carbohydrate molecules on the basis of structural changes of the natural carbohydrate solution (starch).
3. Investigating clatrate «iodine — starch» simulating the behavior of natural biochemical complexes.
4. Investigating the behavior of iodinol, a medicine with biologically active characteristics.

We consider that the most important results of the experiments are the following.

1. It was determined that every system investigated has its own natural resonance frequency at which its effect becomes maximum. This explains the difference in frequencies which influence the operation of different internal organs of the human organism.
2. The simulated systems make it possible to verify the acoustic effect of infrasonic (and other frequency) oscillations.
3. Infrasonic oscillations in solutions resembling physiological change the state of low-molecular solvated particles and ions.
4. It turned out that the structure of polymeric organic molecules of carbohydrates is sensitive to the sonic frequency oscillations, with the resulting enlargement and coagulation.
5. It was established that the clatrates behavior depends on their structure but in any of the investigated cases the state of the foreign molecule changes corresponding to its low-molecular nature.

Infrasound, biochemical processes, modeling, non-lethal weapons.