

Original Article

Effects of homeopathic medicine on physical properties of matter - a classical and QED perspective

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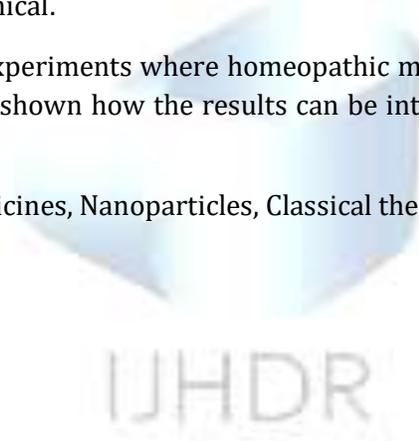
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Abstract

Homeopathic medicines affect physical properties of matter which depend on the characteristic and the potency of the medicine¹. These effects can be explained from two aspects: (a) classical and (b) quantum electrodynamical.

Using three different sets of experiments where homeopathic medicines have affected the physical properties of matter, we have shown how the results can be interpreted from both these points of view.

Keywords: Homeopathic medicines, Nanoparticles, Classical theory, Quantum electrodynamics



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Introduction

Homeopathic medicines are nanoparticles (NP), and higher the potency, the lower is the size of the drug aggregates as has been experimentally shown by us and supported by others². This description helps to explain several aspects of the effects of homeopathic medicines on physical properties of matter.

On the other hand, from quantum electrodynamics (QED) point of view, it has been shown that nano associates of solvent molecules in the form of coherent domains are formed in the ultrahigh diluted, succussed solvents³. When solutes are added, for a higher concentration of the solute ($C > 10^{-4}$ M), the domains get ruptured by the solute molecules. However, for a lower concentration of the solute, few particles enter into the domains and affect the orientation of the solvent molecules. With succussion, the domains break and form electric dipole associates (EDA). At higher potency, i.e., at ultrahigh dilution (UHD), even if there is no particle in the EDA, the arrangement of the solvent molecules is retained.

It is to be noted that ambient electromagnetic field is a necessary condition for the formation of nanoassociates⁴.

Experimental results and their analysis

Here we have selected three experiments, which were performed in our laboratory and shown how the results can be interpreted in terms of the above two aspects: classical and QED.

A. Modulation of liposomal membrane fluidity:

The result shows that inserting a hydrophobic homeopathic medicine into the lipid membrane, the fluidity decreases, whereas the converse is true for hydrophilic ones and the effect increases with increase in potency for both the cases⁵⁻⁷.

Explanation from classical aspect:

For hydrophobic medicines, the lower size of the medicine helps better permeation through the membrane which increases the microviscosity of the lipid milieu. This effect is more prominent at higher potency as the size decreases further. For hydrophilic ones, the medicine interacts with the polar head group of the lipid matrix and the interaction between the fatty acyl chains within the membrane interior increases, decreasing the membrane microviscosity and the effect is more prominent at a higher potency.

From QED point of view:

From the quantum electrodynamical point of view, the EDA, created due to succussion induced breaking of coherent domains, interacts with the membrane. Nature (hydrophobic/hydrophilic) of the drug leaves its signature on the arrangement of the dipoles and the membrane matrix gets rigidified or fluidized accordingly depending upon the nature of the medicine. At higher dilution, i.e., with more succussion, the size of the domains, as well as those of the EDA reduces further, allowing more permeation through the membrane and the effect becomes more prominent.

B. Enhancement of efficiency of solar energy conversion:



The result shows that in presence of homeopathic medicine *Zincum oxydatum*, the solar energy (both heat and light) conversion efficiency increases and the effect increases with increase in potency⁸⁻⁹.

Explanation from classical aspect:

For thermovoltage generation, the ZnO nanoparticles, which are n-type semiconductors, absorb heat energy, which helps electrons to jump to conduction band from valence band. This phenomenon gives rise to increased number of charge carriers, resulting in higher voltage and better efficiency.

Similarly, for photovoltage generation, the ZnO nanoparticles of the medicine provide more surface area for absorption of light energy, giving rise to the higher efficiency. In presence of a suitable dye or mixture of dyes, the extended surface area not only allows more absorption of light but also better adsorption of the dye, resulting in higher conversion efficiency.

For both the cases, at higher potency as the size of the particles reduces the total available surface area for absorption of heat and light energy increases and so the conversion efficiency increase with an increase in potency.

From QED point of view:

As per QED, all polar solvent molecules are oscillating in phase with a self-trapped electromagnetic field in the coherent domains (CDs). The oscillation of the coherent polar solvent molecules takes place between a fundamental state, where electrons are firmly bound (ionization energy of 12.60 eV), and an excited state characterized by a quasi-free electron configuration. The energy of the excited state is 12.06 eV, which means that

only a small amount of energy as (12.60 - 12.06) eV = 0.54 eV is sufficient to extract an electron. More exactly, the almost free electrons have to cross an energy barrier of (0.54 - X) eV, where X ~ 0.1 eV is the electric potential difference at the CDs boundary with the non-coherent ones. This small amount of energy, ~0.44 eV, necessary for the electron extraction, makes the coherent domain a reservoir of quasi-free electrons that can be easily released by quantum tunnel effect or by small external perturbation^{10,11}.

Hence the coherent domains act as a reservoir of quasi-free electrons. With succussion induced tear up of coherent domains, EDA comes to play an important role. With further succussion, the number of EDA increases, increasing the number of electrons.

With the incident heat/light energy, these electrons get excited and add to more carrier concentration, resulting in higher voltage and better efficiency.

C. Effect of homeopathic medicine on electroactive polymer:

Our result shows that incorporation of metallic homeopathic medicine (*Ferrum metallicum* and others) in electroactive polymer film improves the electrical properties of the medium viz. The dielectric constant and electrical conductivity increases, whereas the tangent loss decreases. The effect increases with potency¹²⁻¹⁴.

Explanation from classical aspect:

The AC conductivity increases due to the presence of mobile metal ions in the polymer composites. The tangent loss (tan δ) of a medium includes dielectric damping loss and conductivity loss of the material and its value decreases. The incorporation leads to strong



interfacial interaction between the NPs and the polymer resulting in enhanced dielectric constant of the thin films.

Explanation from QED point of view:

According to Konovalov, when the ultrahigh diluted and succussed solution is evaporated, the free water/polar molecules are removed, but the stable domain structures remain¹⁵. The quasi-free electrons contribute to the electric conduction. More succussion creates more EDA, with the characteristics of the original molecules and the effect increases.

Hence we find that both classical and QED explanations account for the observed experimental results in three cases of the effect of the homeopathic medicine on physical properties of matter. More work is in progress to elucidate the phenomena.

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