

Homoeopathy and Nanotechnology

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ABSTRACT

Homoeopathy has baffled the material scientific world since its inception because the material substance in the potentized medicines above 12 c were not visible in the past to the human eyes even with best of the instruments. The advancements in nanotechnology and development of high precision instruments have shown the path that nano particles of the original material exist in the potentized above the 12 C potency.

Keywords - Homoeopathy, Nanoparticles, Dynamisation, TEM, ICP-AES, Hormesis, Exclusion Zone.

Introduction

Homoeopathy was discovered by a German allopathic doctor Samuel Hahnemann. He proposed the principle “similia similibus curentur” which means likes cure likes. He proposed the doctrine of drug dynamisation which states that on dilution and potentization the inherent power seemingly inert substances are also aroused and are used as homoeopathic medicines.

Nanotechnology a respite for Homoeopathy - Nanoparticles are ultrafine unit with dimensions measured in nanometers(nm;1nm=10⁻⁹).

The British medical association had rubbished homoeopathy as a witchcraft and stated that it has no scientific basis. Modern medicine has always criticized Homoeopathy as a placebo effect as the

micro dilutions surpass the Avogadro’s number (6.023 x 10²³).

High resolution instruments like transmission electron microscopy (TEM) and electron diffraction and chemical analysis by inductively coupled plasma-atomic emission spectroscopy (ICP-AES) have been used to prove that Homoeopathy is not a witch craft or a placebo effect.

Dr. Jayesh Bellare from the chemical engineering department at IIT Bombay has stated that “certain highly diluted homoeopathic remedies made from metals still contain measurable amounts of starting material, even at extreme dilutions of 1 part in 10 raised to 100 parts (200c)”. He has further added that “homoeopathic pills get potent upon dilution”.

His student Prashant Chikramane has presented a Homoeopathy paper titled “extreme homoeopathic

dilutions retain starting materials: a nanoparticulate prespective” as a part of his doctoral thesis.

This study has used market samples of metal derived medicines from two reputable manufacturers in India for their study and have demonstrated the presence of nanoparticles of their starting materials and their aggregates even at extreme high dilutions.

They have further shown that despite large differences in degree of dilution from 6c to 200c, there were no major differences in the nature of the particles of the starting material and their absolute concentration.

Homoeopathic medicines are Nano Medicines- E S Rajendran in his article ‘Homoeopathy material science and individualised nano medicine -nano particle characterisation of Aurum met C6 -CM and Carbo Veg C6-CM’ concludes that plenty of particles in nanometer and quantum dots (QD-less than 10nm) scale were seen in Aur. Met with presence of gold in all the potencies of aurum.

Enormous particles were identified in all the potencies of Carbo-veg in nanometer scale.

Hormesis -Homeopathy -Nanoparticles- Hormesis according to Mattson is defined as a ‘toxicological term for a biphasic dose response to an environmental agent that has beneficial effects at low doses and inhibitory or harmful effect at high doses’

Dana Ullman in the article ‘Exploring Possible Mechanism of Hormesis and Homoeopathy in the light of Nanopharmacology and Ultra High Dilutions’ states that many different research groups have shown that various chemicals/drugs diluted Homoeopathically even beyond Avogadro’s limit can stimulate hormetic response in living cells.

Calabrese EJ has suggested that Chikramane’s paper is a step forward toward unification of hormesis and homeopathy.

Studies suggest that Nanoparticles can cause a hormetic dose-response (Iavicili I,2010 Pub Med). In succussed ultrahigh dilutions of drugs/toxic substances used in homeopathy as medicines, such nanoparticles

are present. (Upadhyay RP, Konovalov, Bell IR, Rajendran ES)

Fourth Phase of Water Has Memory- Dana Ullman has in the same paper has reported that Upadhyay and Nayak had also explored homeopathic medicines with nanoscience tools with self-made samples. They observed the silicon-rich nanoparticles in them and suggested that the source-drug specific information they might have through epitaxy. They further suggested that these nanoparticles along with the exclusion zone water on their surface might carry this information “to the target in the ‘size’ increasing with dilution degree of the medicine.”

Water as conventionally known with chemical formula H₂O virtually does not have memory. In presence of oxygen, under pressure, exclusion zone water (H₃O₂-) builds up, particularly on a hydrophilic surface. Prigogine medal awardee Pollack calls it the fourth phase of water. He and colleagues have studied it in detail for its extraordinary properties. It excludes nearly everything like dirt, dust and even solutes from it and so got the name. It forms honeycomb type hexagonal lattice and so can have “memory”: “When reports of information storage in water surfaced in the late ‘80 s, world reaction was skeptical. This seemed impossible. Water molecules are known to jiggle around randomly at a furious pace; there seemed no possible substrate for long-term memory. That changed with the advent of EZ water. The structural lattice is essentially fixed. Oxygen and hydrogen atoms lodge at fixed positions within the lattice, and if any one of those atoms could get modified, that would constitute information. Modification possibilities abound: oxygen atoms have 5 possible oxidation states: -2, -1, 0, +1, +2. Hence the potential for high-density information storage is extraordinary.”

Silica of the Glass Bottles in which Medicines are Triturated form Nanoparticles- Water is a universal solvent and silica is found everywhere in nature. Solutes in it and leaching from glass walls form nanoparticles. During succussions, up to 6 ppm of silica fragments fall from the glass into the water and

pressure in the glass bottle increases substantially. Further, oxygen in air mixes with water under extra pressure and this leads to the formation of EZ (Exclusion Zone). But EZ erodes with time naturally by combining a hydronium ion (H_3O^+) with EZ structural unit (OH^-), resulting in 2 water molecules. However, EZ growth, by absorbing infrared energy from the environment balances the natural EZ erosion reaching a steady state. Thus, it cannot retain information for a prolonged period.

Upadhyay suggested that nanoparticle and exclusion zone together as nanoparticle-exclusion zone shell can retain substance-specific information for a prolonged period of time as its memory.

Homeopathic medicines are not only made in glass but also in porcelain to carry out trituration process for non-soluble drugs and occasionally in plastic too. These different containers release nanoparticles from its constituent parts which can adsorb a medicinal agent due to their increased surface areas: be it glass that would release silicon quantum dots and silicates that can form silica nanoparticles or be it plastic that would release carbon quantum dots and larger carbon nanoparticles. Research on nanoparticles has confirmed substances placed in water solutions become embedded with the nanoparticle materials of the container.

The Nanoparticle-Exclusion Shell Zone- Keeping in view the properties of nanoparticle and exclusion zone, Upadhyay suggested “The Nanoparticle-Exclusion Shell Model” to explain the nature and bioactivity of a serially diluted succussed solution as: during the first 3 centesimal iterations, the drug/toxic substance modifies the structure of nanoparticles present in the solution. During the violent strokes, the drug can be adsorbed, doped or can make imprints on the nanoparticle. Thus, the nanoparticle acquires drug-specific information in “crude and condensed form,” so does the exclusion zone builds up around it after the violent strokes. In the further iteration, one part of this solution is taken as “seed” and added to 99 parts of water and violent strokes are made. The

exclusion zone shells get peeled off and spread in the whole solution. Then, new exclusion zone shells, containing a fraction of the previous exclusion zone, build up on all the nanoparticles present in the solution. The information gets amplified during this process and shared with all the nanoparticles present in the solution to alter their structure for permanent storage. Iterations can be continued further with advantage till the information is amplified enough to be fully decipherable to biological systems.

Homeopathic Medicines are not sensitive to impurities- Upadhyay’s “The Nanoparticle—EZ Shell Model” is successful in explaining homeopathic medicine and its bizarre appearing properties. For example, it is a common observation that homeopathic medicines lose their properties around 70 degrees C and above. This neutralization can be explained because heat favours EZ growth and excessive heat does so excessively reverting the information containing modified EZ to the generic one. Further, this model also successfully handles 2 big challenges. One is that despite being in extreme dilution, homeopathic medicine is not as sensitive to impurities as it should be. Thus, “This model explains why homeopathy could take birth 2 centuries ago at the time of impure chemistry when Hahnemann even made his medicine occasionally in whisky.” Another is virtually unlimited shelf-life of homeopathic medicines as, among polar liquids, water forms the thickest EZ, and it cannot be removed from the surface of a hydrophilic nanoparticle at room temperature.

Thus, it is fair to accept that serially diluted succussed solution of a drug/toxic substance, even beyond its physical presence, is bioactive because of nanoparticle-exclusion zone shells present in it, which can carry drug-specific information in an amplified form.

Independent reviewers have concluded, “there is empirical evidence for physiochemical characteristics of homeopathic preparations (i.e., measurable differences to succussed controls, such as increased

UV absorption and increased NMR T1/T2 relaxation time ratios). Further, a number of physical and environmental influences were identified: Differences to controls seem to increase with time, moderate temperature, small sample volume, and in ionic medium, whereas high temperatures seem to abolish differences to controls.”

Conclusions- Researchers have attempted to find the missing gap between the Ultra High Dilutions of Homeopathic Medicines and Modern Science. They have tried to bridge this gap with the help of Nanoparticles and Exclusion Zone Water. With the help of Nanoparticles, it has been possible to explain how dilutions of Homoeopathic Medicines above the 12C dilution are capable of retaining the starting material.

Exclusion Zone shells -Nanoparticles of the Starting Material in Ultra High Dilutions of Homoeopathic Medicines are capable to produce their characteristics in healthy individuals (Drug Proving) and remove the same in the Diseased persons (Similimum, Remedy) if the symptoms of the diseased person are similar to those produced by the same substance in a healthy individual.

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