



Innovative Advances in Homeopathy: Based on Nano Particles Exploration

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Abstract

In 1926, Dr. Samuel Hahnemann presented the homoeopathic drug dynamization theory in the fifth edition of the Organon of Medicine. Before the adoption of new technologies, such as various electronic microscopes, which confirmed the presence of nanoparticles in homoeopathic ultra-diluted medications, the lack of contemporary technological backing for this notion led to harsh criticism from the modern therapeutic system. Gene expression, electromagnetic, mechanical, optical, thermal, chemical, biological, and quantum features that result in improved bioavailability, heightened reactivity, and adsorptive qualities are all shared by ultra-diluted homoeopathic medications and nanoparticles. These technical advancements have helped to close the gap between modern science and Homeopathic philosophy.

Keywords: Dr. Samuel Hahnemann; Drug Dynamization; Homeopathy; Philosophy

Abbreviations

ICP-AES: Inductively Coupled Plasma Atomic Emission Spectroscopy; TEM: Transmission Electron Microscopy; Ferr: Ferrum Metallicum; EDS: Energy Dispersive Spectroscopy; HRTEM: High Resolution Transmission Electron Microscopy; NPCAS: Nanoparticle-Allostatic Cross-Adaptation Sensitization.

Introduction

A tried-and-true empirical healing method that has been around for 200 years is homeopathy. Homeopathic

medications are made using a pharmacological potentization method that involves repeated dilutions with forceful strokes at each stage. The initial amount is divided by 10, 100, and 50,000 for each dilution stage. Information from the serially diluted beginning ingredient may be encrypted by epitaxy on silicon-rich crystalline nanoparticles found in the final homeopathic medication during the harsh strokes required for potentization. The degree of dilution may also affect the 'size' of the data encrypted on nanoparticles. These nanoparticles and the interfacial water on their surface may convey this information—which biological systems can recognize—to the target because homeopathic remedies



have therapeutic benefits. Homeopathy may be a Nano medicine system since different types of silica are known to interact with immune system proteins and cells.

Nano-Perspective

According to the National Nanotechnology Initiative, manipulating matter with at least one dimension between 1 and 100 nanometres is known as nanotechnology. Nanotechnology works with particles as small as nanometres. The manipulation of matter at the atomic, molecular and supramolecular scales are recognized as nanotechnology [1]. Although it is believed that homeopathic medicines made at such extreme dilutions without even a single molecule of the original substance existing physically are theoretically impossible, it has been observed that these highly Potentized homeopathic medicines appear to have biological effects [2]. Utilizing cutting-edge technologies such as energy dispersive spectroscopy, Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES), and Transmission Electron Microscopy (TEM), it was discovered that physical entities in the form of starting metal nanoparticles and their aggregates were present in homeopathic higher dilutions [3].

Ferrum Metallicum (Ferr), a homeopathic medication, was evaluated at high dilutions of 6, 30, 200, 1M, 10Mc, and 50Mc. The results showed that all of these, with the exception of 6c, exceeded Avogadro's number. Energy dispersive spectroscopy (EDS) and high resolution transmission electron microscopy (HRTEM) were used to demonstrate conclusively that all of the high dilutions of Ferr that were studied contained a large number of nanoparticles, with the exception of 50Mc, where larger particles were detected (12.61 nm). Iron was present in nanoparticles in a range of weight percentages; HDs 10Mc and 50Mc had the highest weight percentage of iron [4].

Super-Avogadro Dilutions

Each mole of a substance comprises 6.02254×10^{23} molecules, or as many grams of the substance as its atomic mass. The concentrations of conventional medicine often range from micro molar (10 μ 6M, which is comparable to 6X/3C in homeopathy) to Nano molar (10-9M, which is equivalent to 9X/4.5C in homeopathy). The concentration of the active compound in the water-ethanol solution drops to 1/10 and 1/100 of the initial concentration in the decimal and centesimal scales of dilution, respectively.

Theoretically, the number of molecules drops to 6.022 at 23X and 0.6022 at 24X. Theoretically, the number of molecules decreases to 60.22 at 11C and 0.6022 at 12C. Twelve degrees Celsius has 10 μ 24 moles per litre, or 0.6022 molecules per litre, or one molecule per litre [5]. It is very unlikely, but not

impossible, to identify one molecule out of the n molecules of the original material in potencies of 24X/12C and higher. For a homeopathic solution, the Avogadro's limit (10⁻²³M) is 23X/11C/LM4.

Concentrations (molecules) of the remedy's source material and nanoparticles are present in potencies up to 23X/11C/LM4. Pharmacologically active substances in quantifiable amounts have a distinct, impartial impact on human health [6].

Modus Operandi of Homoeopathy

Through improved bioavailability, anti-inflammatory, antioxidant, and immunomodulatory properties, herbs and minerals containing nanoparticles can heal infections [7]. The Nanoparticle-Allostatic Cross-Adaptation Sensitization (NPCAS) Model is modulated by homeopathic remedies with a variety of dynamic short- and long-term effects. Similimum remedy nanoparticles reverse the direction of dysfunctional response to external stressors by acting as novel mild stressors that correlate to the organism's dysfunction and causing time-dependent cross-sensitization [8]. In homeopathy, a mild salient stressor (Hormetin) for the entire organism is the proper homeopathic therapy [9].

Silicate

Epitaxial on silicone-rich crystalline nanoparticles in the final homeopathic medicine encrypts information from the starting material throughout the succession process. The size of the information encrypted on nanoparticles changes according to the degree of dilution. Therefore, homeopathy may serve as a model for the Nano medicine system [10]. During the homeopathic medication synthesis process, surface adsorbed elements from the container's surface alter the bio reactivity of silica nanoparticles, may carry the fingerprint of the original material, and may intensify the information from the original source into larger potencies. According to a study, the particle size of plant source materials would decrease into the nanoscale region as the number of successions increases [11].

Potentization

The kinetic energy (in succession) or mechanical energy (in trituration) is transformed and stored as potential energy when homeopathic medicines are diluted and Potentized; this is consistent with the equation $E=MC^2$, which states that energy cannot be created or destroyed, only transformed into a different form [10]. The mechanical energy imparted during the drug potentization process most likely causes the drug aggregates to get smaller. The medication then readily passes past the membrane barrier, resulting in increased

medication activity [12]. Along with extremely high forces and temperatures that stay constant with the size and structure of the metal nanoparticles, crucial Nano bubbles are created during the succession process. This Nanoparticle-Nano bubble complex formation serves as a starting material for the subsequent dilution, and as the succession process progresses, more Nanoparticle-Nano bubble complexes will be formed as a result of the production of Nano bubbles [13].

These Nano bubbles are characterized by their low buoyancy, durability, and tremendous energy release upon collapse or burst. When dilution increases to the extent of the ultra-molecular range, Nano bubbles, which are linked to superstructures, grow in size [14]. The degree of contact between nanoparticles and CT-DNA varies according to their origin, reflecting variations in their binding capabilities. The varying sizes of the nanoparticles cause variations in their cellular entrance and biological function [15].

Homeopathy is a type of Nano pharmacology in which the therapeutic material is broken down into nanoparticles during the potentization process. According to a study, mother tinctures with 200C potencies of homeopathically made plant and metal medicines contain 1-4000 picograms/millimetre of nanoparticles (5-100 nanometre size) [16].

Search for Nanoparticles in Homeopathic Solutions

The French Book *Recherché experimental modern homeopathic* (Modern Experimental Research in Homeopathy), written in 1967 by Maurice Plazy and Robert Mergerin, was the first to mention the existence of molecules of the original substance above Avogadro's limit. The potency of metal-derived homeopathic medicines was found to contain 1-4000 picograms/millilitre of fine nanoparticles (5-15 nanometre size) of the original starting material (one molar concentration) in 200c (dilution of 1 part in 10 raised to 400 parts), according to research conducted by a team from the Department of Chemical Engineering, Indian Institute of Technology Bombay (IIT-B) and published in *Homeopathy* (Elsevier) in 2010 [17]. This study discovered that the amount of nanoparticles presents in homeopathic medications that maintain their effectiveness even when diluted to a nanometre or one-and-a-half billionth of a meter can be measured using transmission electron microscopy, electron diffraction, and atomic spectroscopy. [18].

Do Homeopathic Medicines Qualify as Nanomedicines?

Even if a patient's dose of homeopathic medication may contain few or no molecules or atoms of the initial chemical, this does not imply that homeopathic medications

are Nano medicines. Toomey contrasted homeopathic and Nano medicines, stating that the former are different from the latter, using the example of Aurimune. The primary distinction between homeopathic and Nano medicines is that the former use a known quantity of medication. Furthermore, in Aurimune Nano medicine, gold nanoparticles serve as the active agent's delivery system to the target. Crystalline silica (or silicon) nanoparticles with interfacial water on their surface, together with other trace elements that leach from the vial's glass wall, may absorb the structural information of the initial substance during the potentization process in the case of homeopathic medications. The starting-source is 'immaterial' but probably zero in medium and high potencies, which are frequently utilized in clinical practice. The 'size' of the potential encrypted data, possibly in conjunction with the starting-substance's electromagnetic signature, could be considered the crucial factor in this case. Such 'size' may result from the degree of dilution of the homeopathic remedy, as different potencies of homeopathic medications have varied effects and characteristics.

Moreover, silicon (or silica) nanoparticles may potentially serve as information carriers. Such Nano carriers may be able to deliver the starting-substance's information, which biological systems can recognize, to the target that the molecules of the starting-substance alone cannot. However, as homeopathy is regarded as a holistic therapy that is thought to function through the immune system, the aim is unlikely to be local. It is important to note that different types of silica have been shown to interact with immune system proteins and cells. Homeopathic remedies may be considered Nano medicines since they may contain the "size" of the information of the diluted beginning chemical as well as the carriers required to deliver this information to the target, which biological systems may recognize. Therefore, it is crucial to compare the nature, composition, and surface characteristics of the crystalline material (as well as interfacial water) found in homeopathic medications to controls. These need to be looked into more thoroughly while also monitoring any potential electromagnetic emissions. Appropriate advancements in the domains of materials and interfacial water are necessary for this inquiry [19].

Variant Potency, Variant Effects

By means of direct local ligand receptor interactions at very low potencies, homeopathic medicines function as enhanced micro and nanoscale versions of their source material. At higher potencies, a systemic adaptive network generates dynamical effects through the electromagnetic, thermal, biochemical, optical, and quantum mechanical properties of nanoparticles. Therefore, it can be claimed that the preparation methods used in homeopathic medicine, such as dilution, alter the sizes, shapes, and

surface charges of nanoparticles, leading to variations in their physiochemical characteristics and biological consequences [20]. Nanoparticles are present in ultra-diluted homeopathic medicine, and extremely high potencies (sub-nanoscale or above sub-nanoscale) adhere to the laws of quantum physics [21]. According to a study, the amount of medication needed is lowered by orders of magnitude when it is in nanoparticle form, which complies with homeopathic principles [22].

Nanopharmacology

In actuality, homeopathy is a type of Nano pharmacology, which is medicine made using a particular pharmacological potentization/trituration technique. Pulverization in a grinding machine is used to perform trituration, which is repeated grinding with lactose powder. As a result, the medication breaks down into nanoparticles [23]. There is biological activity in nanoparticles. Homeopathic remedies contain nanoparticles that have biological effects on the body. Hormesis can be brought on by nanoparticles. Low levels of stimulation and strong doses of inhibition cause hormesis, an adaptive response. Hormesis is comparable to the nonlinearity between dose and reaction that is the subject of Arndt Schultz Law.

Therefore, it seems that homoeopathically made treatments might also elicit a similar reaction, resulting in a particular hormesis that maintains homeostasis and, consequently, combats illness in a therapeutic way [24]. In addition to suggesting that medicine be administered in Nano grams, Samuel Hahnemann also provided its preparation process. As a result of recent research, it is now possible to say that up to 200c potencies of homoeopathically made plant and metal treatments include $1\frac{1}{2}4000$ picograms/millilitre of nanoparticles ($5\frac{1}{2}100$ nanometre size) in mother tincture.

Conclusion

Homoeopathy is a type of Nano pharmacology in which the therapeutic material is broken down into nanoparticles during the potentization process. The properties of ultra-diluted homeopathic medicines, such as gene expression, electromagnetic, mechanical, optical, thermal, chemical, biological, and quantum properties, are similar to those of nanoparticles. These properties lead to improved bioavailability, increased reactivity, and adsorptive capacity, which in turn causes adaptive changes in hormesis. When it comes to homeopathic medication, less is more. Therefore, one of the evidences supporting the Nano pharmacological nature of homeopathic medicine action is the existence of nanoparticles. These technical advancements have helped to close the gap between modern science and homeopathic philosophy.

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