



RESEARCH ARTICLE

EFFECT OF SUCCUSSIONS AT NANO LEVEL DURING THE PROCESS OF POTENTISATION OF THE HOMEOPATHIC MEDICINES

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ABSTRACT

It has always been a query in the minds of the homoeopaths and scientists, what actually happens when the magical strokes given to the dilutions of the homoeopathic medicines during the process of potentization. The latent inherent curative powers of the drugs are aroused and increased by the methods of potentization, the crucial stage of which are succussions and trituration. We have carried out a fundamental research on the effect of succussions during the process of potentisation by analysing the Mercurious Solubilis 200 under the high resolution transmission electron microscopy (HRTEM). The observations recorded in two different steps i.e. first "without succussion" and then "with succussions". Microstructural features associated with the 10 stroked sample of Mercurious Solubilis 200 diluted with alcohol in the ratio 1:99 were observed under the HRTEM operated at 300KV and it was found that at different magnifications depict the presence of very fine particles agglomerated in a particular manner. Majority of the particles are found to have circular/round shape particles whose size varying between 3nm to 15nm. Variation in size and shape of these particles have taken place due to the strokes applied on the diluted solution of Mercurious Solubilis 200 as per specified method of homeopathy procedure. High density of nano sized particles observed for Mercurious Solubilis 200 after the 10 stroke is expected to be the reason of high potency of the drug and quick response to disease as experienced by the homoeopathic practitioners.

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INTRODUCTION

Homeopathic potentisation is a mathematico-mechanical process for the reduction, according to scale, of crude, inert or poisonous medical substances to a state of physical solubility, physiological assimilability and therapeutic activity and harmlessness, for use as Homeopathic healing remedies (Close Stuart, 2006). The "mathematics" of potentization or drug dynamization are the scales under which the drug substances in their crude, original form or state are reduced or quantitatively decreased in a definite ratio. This reduction is followed by the mechanical part of potentization. Today, homeopathic medicines are safe for all to use. They are dispensed as highly dilute, sub-molecular remedies that are free of the chemical side effects associated with other medicines. However, this was not always so.

Homeopathic remedies were once prescribed in crude chemical doses just like other medicines and were just as prone to producing side effects in those who took them. With the discovery of potentization, however, all that changed. For many years Hahnemann, the founder of Homeopathy, could only exploit the healing effect of the Law of Similars with crude substances. While his homeopathic approach was highly successful compared to other treatments of the day, his new system of medicine was still troubled with the problem of side effects. For example, mercury preparations had been recognized for centuries as a successful treatment for syphilis. Unfortunately, sufferers ran the risk of being poisoned by their treatment.

Hahnemann had already shown that mercury was effective because it was curing by the Law of Similars or "like treats like" it would produce syphilis-like symptoms if given to the healthy. Not wanting his patients to suffer the poisoning effects of mercury, or any other toxic substance, Hahnemann began to dilute his remedies. He found that while he could do away with

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the toxic side effects of his remedies, he also lost their healing benefits. Stories abound as to how Hahnemann stumbled across the process of potentization. They range from already diluted remedies being bounced in the back of carriages and saddle-bags to Hahnemann pounding one in frustration on his black covered Bible as he tried to work out how to reduce its toxicity. Whatever the truth, Hahnemann discovered that a remedy prepared by a simple series of dilutions interspersed with vigorous agitations produced an extremely powerful yet safe medicine. Potentization was born. The process of potentization involves the repeated dilution and jarring shaking (succussion) of a substance to remove its toxic effects. In the process, healing effects are amplified.

As Hahnemann found, dilution without succussion will not make a medicine: both stages of the process are necessary. While dilution reduces the toxicity of the original substance, succussion somehow releases the dormant energy of that substance into the liquid carrier to give the remedy its healing effect.

Literature Review

Making a homeopathic remedy is as simple as dissolving a substance in a liquid, succussing it (shaking it with a pounding action against the palm of hand or a leather covered book), diluting it further, succussing, diluting again, succussing, and so on. What is truly amazing is that these stages, even if repeated tens of thousands of times, will produce a highly active and curative remedy. The nature of potentization is the mystery of Homeopathy. What is understood is that the potentization process imprints energetic information from the original substance onto the diluting liquid during the stages of succussion. This liquid is then prescribed according to the Law of Similars to the unwell person. They carry the energetic information into the body to trigger a self healing reaction that moves the person back to a state of health. While the effects of potentised substances have been demonstrated by scientists on many living things such as frogs, plants and humans over recent years, physicists are still exploring the mechanism by which these effects occur. In the meantime, homeopaths will continue to exploit this phenomenon to safely and effectively relieve suffering just as they have done for the past many years.

The aspect of homeopathy that is implausible for many people is that the medicines are often – though by no means always – diluted to the point where there may be no molecules of original substance left. One of the leading current proposals for how such ‘ultramolecular’ dilutions work is that water is capable of storing information relating to substances with which it has previously been in contact (Bellavite, 2002). Recent research on hydrogen bonds in water provides some support for this ‘memory’ theory. The Swiss chemist, Louis Rey, found that the structure of hydrogen bonds in homeopathic dilutions of salt solutions is very different from that in pure water (Rey, 2003). He reached the conclusion that the phenomenon results from the vigorous shaking of solutions that takes place during homeopathic ‘succussion’. Moreover, using the laboratory technique called spectroscopy, other researchers have found that different homeopathic medicines and different dilutions of the same medicine can be distinguished from each other, even though all should contain nothing but water (Rao, 2007). An alternative mechanism is suggested by the results of research from South Korea. Studies

on molecular clustering in water solutions showed that as a solution is made more and more dilute, very stable and larger ‘clumps’ of material develop in dilute solutions rather than in more concentrated solutions (Samal, 2001). This means that residual molecular clusters of the original substance might just be present in homeopathic dilutions. Succussion might also be responsible for creating very tiny bubbles (nanobubbles) that could contain gaseous inclusions of oxygen, nitrogen, carbon dioxide and possibly the homeopathic source material. There is increasing evidence that homeopathic dilutions have a demonstrable effect on living organisms examined under laboratory conditions. Researchers in Germany have observed an inhibitory effect of an ultra-diluted chemical on the bacterium *Vibrio fischeri* (Brack, 2003). And there is important work from a consortium of European laboratories showing that very high dilutions of histamine may exert a biologically significant effect on the white blood cells that take part in the immune response (Belon, 2004). Identification and characterization of nano particles in *Hypericum perforatum* 6C, 30C, 200C, AM, 10M, 50M and CM has been done by the scientists recently and the presence of nanoparticles and quantum dots are established in all scales of the dilutions of the homeopathic medicines (Rajendran, 2017). With this experiment and observation while it was to the satisfaction to the physicists that even higher dilutions of the homeopathic medicines contain the starting materials but yet there has been no answer to the effects of strokes to these dilutions. The present study was the attempt to study those effects in the *Mercurius Solubilis* 200.

Experimental

Mercurius Solubilis 200 was diluted in the ethanol in the ratio 1:99. A small amount of this solution was put on carbon coated copper grid with the help of micropipette. After complete drying of the grid, it was transferred to sample holder of TEM and inserted into the microscope column. A high resolution transmission electron microscope (HRTEM) make, FEI, model: Technai G2 F30 STWIN operated at 300 kV has been used to study the microstructural features associated with the *Mercurius Solubilis* 200 sample. Photograph of the *Mercurius Solubilis* taken in the present investigations is shown in Fig.1. Transmission electron microscopy is a unique solution that allows detailed microstructural examination through high resolution and high magnification imaging in terms of particle shape and size analysis at nano scale level. phase identification, lattice imaging, defects study and many more. In Transmission Electron Microscopy (TEM), a beam of electrons is transmitted through an ultra-thin specimen, interacting with the specimen as it passes through it. Sample loaded on the copper grid was thoroughly scanned under the electron beam and the electron micrographs were recorded at suitable areas and magnifications.

Merc Sol 200 diluted with alcohol in the ratio 1:99 was characterized for the microstructural features associated with the diluted solution examined under TEM. Electron micrographs were recorded at suitable areas and magnifications. *Mercurius Solubilis* 200 diluted with the alcohol in the ratio 1:99 was further applied to 10 strokes as per the specified method of homeopathy procedure to further increase the potency of the homeopathy drug. Microstructural features associated with the 10 stroked sample of *Mercurius Solubilis* 200 diluted in the ethanol in the ratio 1:10 were also observed under the HRTEM operated at 300KV.



Fig. 1. Photograph of the Mercurius Solubilis 200 taken in the present investigations

RESULTS AND DISCUSSION

Mercurius Solubilis 200 diluted in the ethanol in the ratio 1:99 and a small amount of this solution was put on carbon coated copper grid with the help of micropipette. After complete drying of the grid, it was transferred to sample holder of TEM and inserted into the microscope column. Sample loaded on the copper grid was thoroughly scanned under the electron beam and the electron micrographs were recorded at suitable areas and magnifications revealed the following observations:

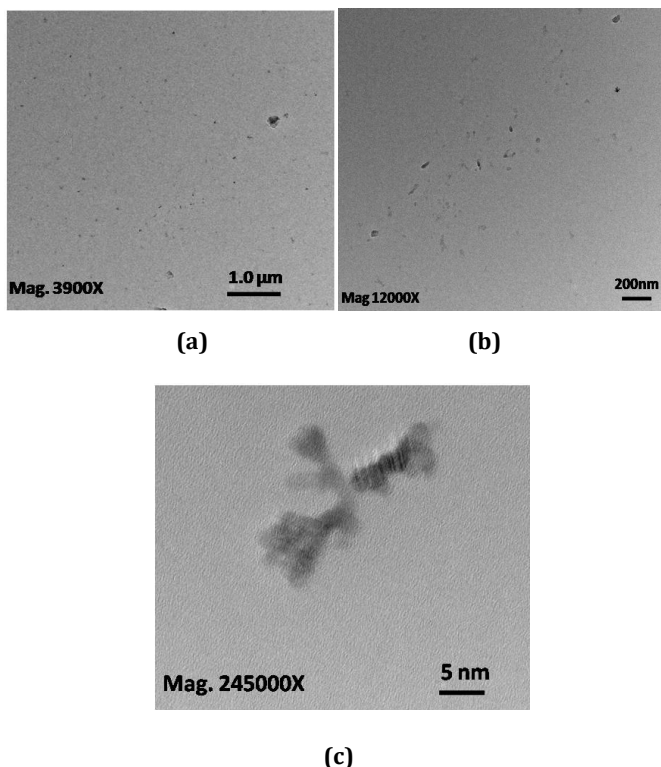


Fig. 2. TEM image of Mercurius Solubilis 200 diluted in the ethanol in the ratio 1:99. recorded at different magnifications are (a) at 3900X, (b) at 12000X and (c) at 245000X

From the TEM micrographs as shown in Fig. 1(a), it is revealed that the presence of fine particles of flake-like shape are seen which are found to be sparsely distributed throughout the sample. High magnification image as shown in Fig. 1(b) shows that the particles are found to be elongated in particular direction. TEM image was further recorded at very high

magnification (245000X) which shows some of the particles of size about 10-15 nm seem to be joined together in an irregular manner as depicted in Fig. 1(c). Mercurius Solubilis 200 diluted in ethanol in the ratio 1:99 and was further applied to 10 strokes (Successions) as per the specified method of homeopathy procedure in order to further increase the potency of the homeopathy drugs. After the Successions of Mercurius Solubilis 200 was further diluted in ethanol in the ratio 1:10. A small droplet taken from this 10-stroked sample was poured onto a carbon-coated copper grid with the help of micropipette. After proper drying, the sample was inserted in the specimen holder of the TEM and inserted into the microscope column for microstructural investigations. Changes in microstructural features after successions and dilution were recorded under the high-resolution transmission electron microscope (HRTEM) operated at 300 kV. The observations revealed the following characteristics.

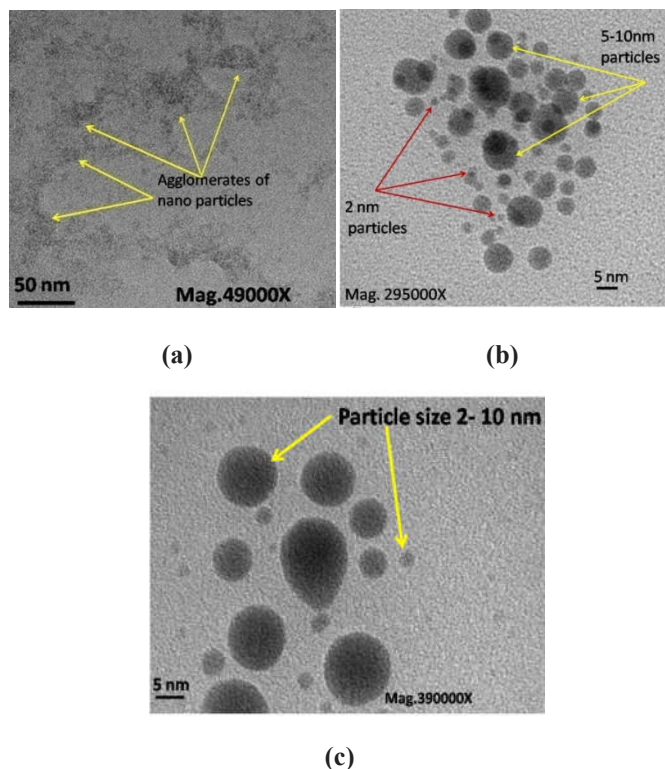


Fig. 3. TEM Micrographs of Mercurius Solubilis 200 diluted in the ethanol in the ratio 1:10 and further 10 strokes were applied as per the specified method of homeopathy procedure

Changes in microstructural features associated with Mercurius Solubilis 200 diluted in ethanol in the ratio 1:10 and further application of 10 strokes as per the specified method of homeopathy procedure have been shown in Fig. 2(a-c). Figure 2(a) represents the TEM image which revealed the presence of densely populated very fine particles agglomerated in a particular manner. Majority of the particles are found to have circular/round shape particles whose size varies between 2 nm to 10 nm as depicted in Fig. 2(b) and (c) when recorded at much higher magnifications as shown on the micrographs.

Summary and Conclusion

Variation in size and shape of these particles may have taken place due to the strokes applied on the diluted solution of Mercurius Solubilis 200 as per the specified method of homeopathy procedure. High density of agglomeration and

further reduction in of the nano sized particles observed for Mercurious Solubilis 200 after the 10 stroke as depicted in Fig. 2(a) may be the reason of high potency of the drug and quick response to disease as the smaller size particles are absorbed rapidly in body as experienced by the homeopathy practitioners. Hence dilution and succession process of the homeopathy medicines are more effective to the patients.

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