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# Scientific Research in Homeopathy: An overview, requisites, current scenario, challenges and future

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# **Scientific Research in Homoeopathy**

**An overview, requisites, current scenario, challenges and future**

**Dr. Saurav Arora**

***“Research must be the morning breakfast for all of us”.***

## **Abstract**

For the past 200 years or so we are the preferred target for skeptics, for “material existence”, “proof”, “recognition” and “modus operandi” of Homoeopathy. There are some areas where we lack or being criticized and dragged. It is heartfelt need to strengthen our science as per the scientific methods applied universally. This is the fundamental challenge in front of us now. Constant onslaught from various agencies has made us little more sensitized to prove, present (or both) our science on research oriented backgrounds. We must explore the hidden areas, define the flaws, and open new horizons for future research. There are many peer reviewed published studies and meta-analysis supporting basic, fundamental and evidence based character of Homoeopathic researches and have contributed substantially taking Homoeopathy to newer heights. Such kind of work needs to be replicated at multi-centric levels in larger sample sizes to better understand the depth of Homoeopathic research. We must be able to find the hidden treasures of Homoeopathy and present them to scientific fraternity in a comprehensible manner. The main aim of research is to look into the matter in a scientific and “rational” attitude and the conclusions and benefits must be used for the development of skills, clinical practices, repositories and growth.

**Keywords:** evidence based medicine, homoeopathy, meta-analysis, scientific research, review articles, publication

## **Research Orientation: A must learn process**

For the past 200 years or so we are the preferred target for skeptics, main reasons being our “material existence”, “proof”, “recognition” and “modus operandi”. All of us have a common opinion against these attacks, but the counter approach we adopt may be different. Scientific research, literature review, meta-analysis, criticism, cross allegation, protests, official replies, online discussions are few of the tools being adopted to counteract the situation. ***“The need of hour is research oriented awareness”***. It is heartfelt need to strengthen our science up-to the levels of modern scientific methods applied universally.

We have been *“in fashion”* of research since inception of Homoeopathy by Hahnemann who himself “re-searched” into the history to prove the theory he discovered. There are numerous examples of research activities which one can find while going through ancient writings and teachings (some being available online and few passed to generation by words of mouth). The trend of data keeping, searching and analysing is as old as eternity even when our beloved “computer” was not born. For the past few decades or rather less, we are very fond of searching online resources for advancement, theories and proof. This is one of its own kinds of research. There is a gross change in manner of finding and presenting things but the aim “to explore” is still the same. *The resources must be built as well as used with caution* as one wrong message given, can change the outlook of researchers. It would be appropriate to take here example of Shang et al paper<sup>11</sup> (Lancet) on condemnation of Homoeopathy, comparing it to nothing but placebo. When it was analysed by researchers with open mind, it was found that it was statistically good but with bias and lack of standard of reporting trials and meta-analysis<sup>32</sup>. The clinical effect of Homoeopathy was concluded as placebo effects on the basis of 08 unspecified homoeopathic studies and 06 unspecified conventional studies. It all happened because either the reporting trials were not adequate & up-to the mark of scientific standards or they have been taken in a manner to yield “expected results”. Have there not been the research orientation, the study would have harmed us deeply.

Homoeopathy has been a victim of constant onslaught from various agencies all around the Globe against time to time<sup>4, 11</sup>. Such kind of activities at various levels in the past few years have made us more sensitized to prove, present (or both) our science on research oriented backgrounds.

Research orientation is what we need today; there is a researcher and scientist in every one of us. We must be open minded and “*active contributor*” to the development of science. We must use every possible resource to explore new things and make Homoeopathy an acceptable and accessible science to all.

### **Is Research really a “complex of certain things”?**

Research is the first basic thing for a science to root and grow. It must support the science as well as explore the hidden areas, define the flaws, and open new horizons for future research. A basic research process can be defined as, “*An inquiry process that has clearly defined parameters and involves discovery and creation of knowledge for testing, building, revision, confirmation, refutation of knowledge and theory by means of investigation of a problem for local decision making*”<sup>1</sup>. Research in Homoeopathy is known since antiquity and has been carried in one form or another. The first basic thing Hahnemann did to prove, that there exists a science beyond the materials, was by means of experimentation and observation, observing it to the levels of criticism and analysing it to the depths of history<sup>1</sup>. Hahnemann developed for homeopathic pathogenetic trials (HPTs) - often referred as drug proving - and reappraise them in the light of more recent knowledge and protocols for clinical trials involving human subjects. Innovative features and methods introduced by Hahnemann and aimed at reducing bias are noted<sup>2</sup>. This clearly proves the insight of Hahnemann to accept challenges with a futuristic outlook, and to adopt the facts.

Carrying on with the tradition, researchers, schools, Institutions and Individuals have been trying to explore different aspects.<sup>7, 27, 28, 29, 30, 32</sup> The research related issues are also taken on different grounds considering the efficacy of Homoeopathy, quality of drugs prepared, documentary proofs of existing phenomenon, history of Homoeopathy etc. Although majority of these findings

and studies are available online many of us find them difficult to comprehend and follow. This may be accounted to reasons like

- Something which is hard to understand
- Difficult to follow or replicate (at clinics),
- Something which is inaccessible etc.

The material sometimes is also inaccessible on account of

- Paid studies
- Lack of communication
- Non-indexing of work done
- Limited resources etc.

This gap must be shortened or bridged. The main aim of research is to look into the matter in a scientific and “rational” attitude and the conclusions and benefits must be used for the development of skills, clinical practices, repositories and growth. Research must be made simpler by hard work, intellect, scientific attitude and knowledge.

### **Why so much of research: What exactly we should aim at?**

The purpose of research is not only to discover answers through the application of scientific procedures but also to support us. It is not merely a bunch of papers which is hard to understand but a series of observations, results and conclusions, used in a judgemental way. We cannot lead to a fruitful finding until and unless we are clear about objectives. The objectives may be:

- **To gain familiarity with a phenomenon** or to achieve new insights into it (Exploratory or Formulative Research).
- **To portray accurately the characteristics** of a particular individual, situation or a group (Descriptive Research), i.e., drug pictures, disease pictures, individualized case studies, research regarding group studies.

- **To determine the frequency with which something occurs** or with which it is associated with something else (Diagnostic Research), i.e. action of various remedies in specific conditions and vice versa.
- **To test a hypothesis of a causal relationship between variables** (Hypothesis-Testing Research), i.e. clinical trials of (new or old) drugs on conditions which were not appeared in drug proving but were observed in therapeutics, for e.g. action of certain remedies on cancers.

### **Areas which must be explored: The clarity must prevails**

1. **Drug standardization:** Aphorism 122 quotes, *“In these experiments - on which depends the exactitude of the whole medical art, and the weal of all future generations of mankind - no other medicines should be employed except such as are perfectly well known, and of whose purity, genuineness and energy we are thoroughly assured.”* The aim of drug standardization is to ensure quality, genuineness, and authenticity of raw drugs and to evaluate the safety and efficacy of drugs. This aspect is of prime importance for all our future confrontation with the scientific fraternity. We must be familiar with the common question every intellectual asks us- What this drug contains or made up of?
2. **Homoeopathic pathogenetic trials (HPTs):** Drug proving or human pathogenetic trial is the core area we aim for. Drug proving techniques have been elaborated by Hahnemann some 200 years ago and have been rectified and updated time to time. In the recent times, the process and methodology of HPTs has improved greatly. Recent published guidelines<sup>22, 23</sup> on drug proving have strengthened HPT practices around the globe. The technique must be unified to yield & replicate true symptomatology of drugs.
3. **Clinical research:** Clinical research is one of the growing activities in Homoeopathy in the past few years. The concept of “Evidence based medicine” has evolved in conjugation with clinical research. In the past few years many clinical research papers have been published in peer reviewed

journals (references cited elsewhere in article), thus by supporting Homoeopathy at global level.

4. **Clinical verification:** To make clinical proving and research more authentic and scientific, clinical verifications are now carried at multi-centric levels. This helps us to gain finer shades of remedies in terms of ethnicities, climates, populations etc.
5. **Fundamental or Philosophical research:** This is one of the areas of interest for historians and many clinicians. These 200 years of evolution of Homoeopathy have been in turmoil for such a vast concept. Evolution in these years is really an area of interest for many. Hahnemannian writings, case studies, his mode of living etc are now studied with in-depth scientific attitude to extract finer information he applied. This will help us to present our concepts in more audacious manner.

### Common types of research in Homoeopathy

There are numerous ways by which research can be carried out. There are several types of research which may be:-

<p><b>Classification-1</b></p> <ul style="list-style-type: none"> <li>• Evidence based</li> <li>• Clinical verification and meta-analysis</li> <li>• Fundamental research</li> <li>• Drug based research</li> <li>• Clinical trials</li> <li>• Disease based research</li> <li>• Historical, philosophical and literary research</li> </ul>	<p><b>Classification-2</b></p> <ul style="list-style-type: none"> <li>• <b>Descriptive:</b> as in description of drugs and their Symptomatology.</li> <li>• <b>Analytical:</b> as in analysing already proved drugs for new spheres of actions.</li> <li>• <b>Conceptual:</b> as in making new treatment concepts in different diseases.</li> <li>• <b>Empirical:</b> research based on experience or observations.</li> <li>• <b>Quantitative:</b> as in drug standardization.</li> <li>• <b>Qualitative:</b> as in action of different potencies in different conditions.</li> <li>• <b>Applied:</b> as in application of remedies in specific conditions.</li> <li>• <b>Fundamental:</b> as in clinical proving, clinical verifications and collaborative research.</li> <li>• <b>Diagnostic:</b> as in action of various remedies in specific conditions and vice versa.</li> </ul>
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**Table No. 1: Classification of types of research**

## **What else is needed to make it vital?**

Research simply aims to make complex things easier and certain pre requisites ingredients are needed to carry out a good research activity. Some of them are:

- **A dedicated team** of members comprising of hierarchy of officials for specified task, e.g. Principal investigator, Research officer, Assistant Research officer, Consultants, Specialists, Research fellows, technical assistant etc.
- **Institutional or clinical support:** A good place is where one inspires to work and make others work too. This gives them the authenticity of work and support too.
- **Research funding and grants:** Money is not only the solution but it is the biggest challenge for researchers too. In absence of proper funding several research studies fails to execute or complete on time. This must be avoided and proper financial help must be sought of.
- **Review of literature and scientific methods:** This part must be repeated before and after every research activity several times, as it gives us the insight of what has been achieved or can be undertaken. Review must be done by panel of experts in a proper manner. Inter and Intra analysis is the need of hour. Team members should analyse the reports, manuscripts, write ups and offer them to other colleagues for judgemental and critical review. A manuscript thus prepared will be free of bias.
- **Scientific and technical awareness:** This is one of the must for all types of researches. In the era of technology and communication we must be able to utilize the resources available online and offline. We must be able to pen down the vastness of research in simple and comprehensible manner.
- **Publications:** A good and published work is a dedication for the upliftment of science. Words must be converted to meaningful sentences to convey scientific work to masses.
- **Reading habit:** To keep oneself updated with the latest research help us to gain new ideas, draw conclusions and collect material for research articles. We should also nurture habit of library reading and forming.

- **Electronic exposure:** - Now days everything is given online and we must be efficient to search, utilize and contribute to development of research.

### **Current scenario and practices: *Facts, Pitfalls or Advancement?***

Every science must be verified by nature, individuals and time. There are some areas where we lack or being criticized and dragged. Some of them may be:

- Avogadro's theory and its relation to Homoeopathic preparations
- Lack of "temper proof" scientific explanation of vital force or dynamization theory
- "Too much" philosophical explanation of doctrines and principals of Homoeopathy (theoretical research)
- Lack of large number of high quality clinical trials especially double and triple blind RCTs<sup>21</sup>.
- Reporting errors of studies done or being undertaken
- Lack of technical awareness and openness
- Publication bias<sup>3, 33</sup>

Some of the famous negative statements given by skeptics were:-

- "The American illusionist James Randi offered a million dollars to anyone able to prove that homeopathic remedies can really cure people", either science was fundamentally wrong or millions of people were being fooled<sup>12</sup>.
- Homeopathy is best described as a belief system rather than a system of medicine. Homeopathy also qualifies as a pseudoscience. It contradicts the known laws of physics, chemistry, and pharmacology; it is also dogmatic, relies on anecdotes rather than evidence, requires special pleading to explain its failures, and relies heavily on the magical thinking of both its proponents and its consumers<sup>13</sup>.
- There are many small studies which show it works, although they tend to be poorly designed and conducted by homeopaths themselves<sup>14</sup>
- Homeopathy: there's nothing in it<sup>15</sup>

- Homoeopathic remedies in dermatology: a systematic review of controlled clinical trials<sup>16</sup>
- Systematic reviews of RCTs in homeopathy: Systematic reviews conclusively show that homeopathic remedies are placebos<sup>17</sup>

**N.B.:-** There have been many more such kind of reviews which are not mentioned here, but one can find them online.

### ***Reviews, analysis and series of advancements: Decline or Rise?***

Although research is as old as Homoeopathy, its utility has been observed in past few years. The first systematic review was published in 1991<sup>5</sup> of 105 trials with interpretable results, 81 indicated positive results, which included RCTs that received high quality rating for randomization blinding, sample size and other methodological criteria. The authors came to conclusion that “based on this evidence we would ready to accept that Homoeopathy can be more efficacious; if only the action were more plausible” and “the evidence presented in this review would probably be sufficient for establishing homoeopathy as a regular treatment for certain indications<sup>6</sup>”

In 1996 Rolland R Conte, Henri Berliocchi, Yves Lasne and Gabriel Vernot published a work in the form of a book “*Theory of high dilutions and experimental aspects*” wherein scientific explanation was attributed to functioning of high dilutions on the basis of Cantonian statistics and Solovay’s theory. It was shown by team of experts that Homoeopathic dilutions act on the basis of wave theory where original matter may disappear but a “white hole” (in contrast to black hole) is formed. The work was able to answer many of the hidden facts based upon quantum physics<sup>37</sup>. The work was continued and a subsequent edition of the book named “*Theory of high dilutions: Application to life*” was published in year 2000.

In 1996 – HMRG (founded by European Commission including researchers from conventional medicine and Homoeopathy) identified 184 controlled trials, including high quality randomized placebo controlled trials. It concluded “some evidence that homoeopathic treatment are more effective than Placebo (p<0.001),

it also concluded that strength of this evidence is low because of low methodological trials<sup>7</sup>.

A meta-analysis published in 1997 (Lancet) included 186 placebo controlled and only referred to 89 from data was extracted<sup>8</sup>. Although overall mean odd ratio was 2.45 (95% confidence level) the main conclusion was that “the results were not compatible with the hypothesis that the effects of Homoeopathy are completely due to placebo”. In subsequent analysis of same data set Linde and Collegues concluded that studies with higher quality scores had less tendency to be positive than those with lower quality scores<sup>9</sup>.

A further review aimed to clarify the clinical effectiveness of homeopathy based on systematic reviews only<sup>10</sup> stated that the clinical evidence for homeopathy was lacking. In particular, there was no medical condition that responded convincingly better to homeopathic treatment than to placebo or other control interventions.

In 2005, Shang et al. (Lancet Study) published a meta-analysis comparing 110 placebo-controlled trials of homeopathy and 110 matched trials of conventional medicine<sup>11</sup>. Homeopathy and conventional medicine showed a similar positive treatment effect overall. Twenty-one homeopathy trials and 9 in conventional medicine were judged ‘of higher quality’. From these, the results of 14 unspecified ‘larger trials of higher quality’ (8 homeopathy, 6 conventional medicine) were analysed. The mean odds ratio was 0.88 (95% CI, 0.65-1.19) for the 8 homeopathy trials, and 0.58 (95% CI, 0.39-0.85) for the 6 conventional medicine trials. In contrast with Linde et al. in 1997, an odds ratio less than 1.0 indicated an effect greater than placebo. The authors concluded that there was “weak evidence for a specific effect of homoeopathic remedies, but strong evidence for specific effects of conventional interventions. This finding is compatible with the notion that the clinical effects of homoeopathy are placebo effects.” The review has been criticised for its lack of transparency or sensitivity analysis.

In 2003 a report from the Federal University of Rio de Janeiro - Program of Biomedical Engineering (COPPE) - Rio de Janeiro/RJ, Brazil concluded that “as a result of the recent scientific research on homoeopathy, it can be concluded that

ample evidence exists to show that the homoeopathic therapy is not scientifically justifiable.

In 2005 a guest editorial by Iris B Bell<sup>32</sup> was published with in depth analysis of Shang et al paper<sup>11</sup> with conclusion that the body of scientific evidence on Homoeopathy extends far beyond the limitations of the Shang et al<sup>11</sup> study, homoeopathy needs a much more extensive research based upon individualised treatment planning. Followed in 2006 Lex Rutten<sup>19</sup> in his letter to editor “Homeopathy” analysed the study published by Lancet and enumerated the flaws.

In year 2005, 2006 and 2009<sup>34</sup> European Network for Homeopathy Researchers (ENHR) published “An overview of the positive Homoeopathy Research and Surveys stating a list of studies supporting Homoeopathy. It also enlisted the Safety of homeopathic treatment, Reviews and meta-analyses, key trials and surveys, cost benefit, basic research, treatment of animals etc. enumerating the highlights of the work done in Homoeopathy from time to time. In year 2007, a review article was published by F. Dantas et al<sup>21</sup> stating the need of improvement of methodological trials in Homoeopathy.

In year 2010 Nuhn T<sup>35</sup>, concluded in his meta-analysis on placebo effect size that “Placebo effects in RCTs on classical homeopathy did not appear to be larger than placebo effects in conventional medicine” on hypothesis that randomised, placebo-controlled clinical trials (RCTs) of classical (individualised) homoeopathy often fail because placebo effects are substantially higher than in conventional medicine.

Besides these, review articles and meta-analysis, some peer reviewed studies supported basic, fundamental and evidence based character of Homoeopathic researches and contributed substantially taking Homoeopathy to newer heights. Some of the studies worth mentioning here are:-

- Pathogenetic trial of boric acid in bean and tomato plants<sup>24</sup>
- Development of a Test System for Homeopathic Preparations Using Impaired Duckweed (Lemnagibba L.)<sup>25</sup>

- Germination and vigor of lettuce seeds (*Lactucasativa* L.) pelleted with homeopathic preparations Alumina and Calcarea carbonica subjected to toxic levels of aluminum<sup>26</sup>
- Decreased intensity of Japanese Encephalitis virus infection in chick chorioallantoic membrane under influence of ultradiluted Belladonna extract<sup>27</sup>
- Evidences of Protective Potentials of Microdoses of Ultra-high Diluted Arsenic Trioxide in Mice Receiving Repeated Injections of Arsenic Trioxide<sup>28</sup>
- Dual effect of Toxicodendron pubescens on Carrageenan induced paw edema in rats<sup>29</sup>
- Domains of Water Molecules Provide Mechanisms of Potentization in Homoeopathy<sup>30</sup>
- An Exploratory Study on Scientific Investigations in Homoeopathy Using Medical Analyzer<sup>31</sup>
- Similitude in modern pharmacology<sup>36</sup>
- Histamine dilutions modulate basophil activation<sup>20</sup>

### **Challenges (Past, Present and Future)**

Challenges keep us moving and must be taken with wisdom. There are some fundamental challenges in front of us now and they must be encountered to make future better. The inherent challenges which Homoeopathy has been facing are:

- High quality clinical trials and verifications<sup>21</sup>
- Replication of HPTs, clinical trials and verifications to support results obtained earlier
- Rational, multi-centric, large sample size studies
- Publication bias<sup>3, 33</sup>
- There is a need of extensive research based upon individualised treatment planning in Homoeopathy<sup>32</sup>

- Selection of isopathic studies for meta-analysis (i.e. studies using a homoeopathically prepared specific agent that triggers specific local symptoms, as it is not Homoeopathy by definition<sup>18</sup>) may affect the level of comparison with conventional RCTs. There must be separate RCT guidelines for Homoeopathy and also comparing RCTs of Conventional and Homoeopathic medicines<sup>32</sup>.
- Global guidelines for clinical research
- Centralized database of research activities accessed globally
- Promotion of primary health care research in conjugation with Homoeopathic practices
- Funding and resource related challenges

### **Conclusion note: Beginning of a new era**

- If a science exists there exist routes to prove it.
- Scientific research is the next decade challenge for all of us. It must comply with the nature's law, *survival of fittest*.
- We must be able to find the hidden treasures of Homoeopathy and present them to scientific fraternity in a comprehensible manner. Research studies must be taken on a larger sample size at multi-centric levels to better understand Homoeopathy.
- Every generation must be inspired and motivated to contribute towards the development of science first. There is a need to “re-searched” and “re-validation” of the existing work with newer outlooks and thoughts.
- We must inculcate reading and forming libraries at our own level. There is a strong need of platforms dedicated to deliberate and open discussions on research related activities.
- Evidenced based medicine standards must be amended and made mandatory at every level of Homoeopathic practices, be it individual, clinical, hospital, Institutional, or research level.

- The main aim of research is to look into the matter in a scientific and “rational” attitude and the conclusions and benefits must be used for the development of skills, clinical practices, repositories and growth.

## References

1. Research in homoeopathy: present and future perspective, Archana Narang, Saurav Arora; *Homoeopathic Heritage, June 2010*
2. Hahnemann and the methodology of pathogenetic trials in healthy volunteers: A reappraisal (Special article), Jim Rogers, *Int. Journal of High Dilution Research*, 2010
3. Timothy Caulfield and Suzanne Debow, A systematic review of how homeopathy is represented in conventional and CAM peer reviewed Journals, *BMC Compl and Alt Med* 2005, 5:12
4. Homeopathy: there's nothing in it, [www.1023.org.uk](http://www.1023.org.uk)
5. Kleijnen J, Knipschild P, terRiet G. Clinical trials of homoeopathy *British Medical Journal*, 1991; 302: 316–323.
6. Faculty of Homoeopathy ([www.facultyofhomeopathy.org](http://www.facultyofhomeopathy.org))
7. Cucherat M, Haugh MC, Gooch M, Boissel JP. Evidence of clinical efficacy of homeopathy – A meta-analysis of clinical trials. *European Journal of Clinical Pharmacology*, 2000; 56: 27–33.
8. Linde K, Clausius N, Ramirez G, et al. Are the clinical effects of homoeopathy placebo effects? A meta-analysis of placebo-controlled trials. *Lancet*, 1997; 350: 834–843.
9. Linde K, Scholz M, Ramirez G, et al. Impact of study quality on outcome in placebo controlled trials of homeopathy. *Journal of Clinical Epidemiology*, 1999; 52: 631–636.
10. Ernst E. A systematic review of systematic reviews of homeopathy. *British Journal of Clinical Pharmacology*, 2002; 54: 577–582.
11. Shang A, Huwiler-Muntener K, Nartey L, et al. Are the clinical effects of homoeopathy placebo effects? Comparative study of placebo-controlled trials of homoeopathy and allopathy. *Lancet*, 2005; 366: 726–732.
12. [news.bbc.co.uk/2/hi/health/2512105.stm](http://news.bbc.co.uk/2/hi/health/2512105.stm)
13. [www.ukskeptics.com/homeopathy.php](http://www.ukskeptics.com/homeopathy.php)

14. [www.sciencebase.com/science-blog/does-homeopathy-work](http://www.sciencebase.com/science-blog/does-homeopathy-work)
15. [www.1023.org.uk](http://www.1023.org.uk)
16. [www.ncbi.nlm.nih.gov/pubmed/21668433](http://www.ncbi.nlm.nih.gov/pubmed/21668433)
17. [onlinelibrary.wiley.com/doi/10.1211/fact.15.2.0007/abstract](http://onlinelibrary.wiley.com/doi/10.1211/fact.15.2.0007/abstract)
18. Hahnemann S., *Organon of the Medical Art*, 6<sup>th</sup> ed., O'Reilly WB, Decker S., Redmond, WA: Birdcage books, 1843.
19. [www.audesapere.in/reviewarticles/Rutten.pdf](http://www.audesapere.in/reviewarticles/Rutten.pdf), 2006
20. Belon P, Cumps J, Ennis M, Mannaioni PF, Roberfroid M, Sainte-Laudy J, Wiegant FA, Histamine dilutions modulate basophil activation, *Inflamm Res*. 2004 May;53(5):181-8. Epub 2004 Apr 21.
21. F. Dantas et al, A systematic review of the quality of homeopathic pathogenetic trials published from 1945 to 1995, *Homeopathy* Volume 96, Issue 1
22. [www.homeopathyeurope.org/publications/guidelines/homeopathic-provings](http://www.homeopathyeurope.org/publications/guidelines/homeopathic-provings)
23. [www.ccrhindia.org/drugproving.asp](http://www.ccrhindia.org/drugproving.asp)
24. Solange Monteiro de Toledo Piza Gomes Carneiro et al; Pathogenetic trial of boric acid in bean and tomato plants, *Int J High Dilution Res* 2011; 10(34): 37-45
25. Jäger T, Scherr C, Simon M, Heusser P, Baumgartner S, Development of a test system for homeopathic preparations using impaired duckweed (*Lemna gibba* L.); *J Altern Complement Med*. 2011 Apr;17(4):315-23. Epub 2011 Apr 8.
26. Bonfim, F., Rodrigues das Dores, R., Martins, E., Casali, V., Germination and vigor of lettuce seeds (*Lactuca sativa* L.) pelleted with homeopathic preparations Alumina and Calcarea carbonica subjected to toxic levels of aluminium, *International Journal of High Dilution Research*, Vol.9 ( 33) 2010.
27. Bhaswati Bandyopadhyay et al, Decreased Intensity of Japanese Encephalitis Virus Infection in Chick Chorioallantoic Membrane Under Influence of Ultradiluted Belladonna Extract; *American Journal of Infectious Diseases* 6 (2): 24-28, 2010
28. Khuda-Bukhsh et al, Evidences of Protective Potentials of Microdoses of Ultra-high Diluted Arsenic Trioxide in Mice Receiving Repeated Injections of Arsenic Trioxide, *eCAM* 2009
29. Patil CR, Gadekar AR, Patel PN, Rambhade A, Surana SJ, Gaushal MH, Dual effect of *Toxicodendron pubescens* on Carrageenan induced paw edema in rats, *Homeopathy*. 2009 Apr;98(2):88-91.

30. Czerlinski G., Ypma T, Domains of Water Molecules Provide Mechanism of Potentization in Homeopathy
31. Mishra N, Muraleedharan KC, Paranjpe AS, Munta DK, Singh H, Nayak C (2011), An Exploratory Study on Scientific Investigations in Homeopathy Using Medical Analyzer. Journal of Alternative and Complementary Medicine, 17:705-710.
32. Iris B Bell, All evidence is equal, but some evidence is more equal than others: Can logic prevail over emotion in the Homeopathy Debate? The Journal of Alt and Compl Med, 11(5), 2005, pp – 763-769
33. Vickers AJ., Clinical trials of homeopathy and placebo: analysis of a scientific debate, J Altern Complement Med. 2000 Feb;6(1):49-56.
34. <http://www.homeopathy-ecch.org/content/view/33/49/>
35. Nuhn T, Lütke R, Geraedts M, Placebo effect sizes in homeopathic compared to conventional drugs - a systematic review of randomised controlled trials, Homeopathy. 2010 Jan;99(1):76-82.
36. MZ Teixeira, Similitude in modern pharmacology, British Homeopathic Journal (1999) 88, 112±120
37. Theory of high dilutions (<http://www.high-dilutions.net>)

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