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**The principle of similars and importance of arsenic compound as a preventive against Covid-19**

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**Abstract**

In homeopathy, special importance is attributed to the Law of Similars (*SimiliaSimilibusCurentur*, or "let likes be cured by likes."). But an in-depth analysis of this principle is still necessary and important for exploring the science behind diluted homeopathic medicine (or Homed).Recently it has been suggested that Arsenicum album 30 (prepared from arsenic compound) might be a curable preventive medicine against [Coronavirus](https://indianexpress.com/about/coronavirus/) infections. But the recommendation for the use of Arsenicum album 30 or similar other medicines as a preventive against Covid-19 are not beyond doubt as this preventive has notbeen scientifically supported. This is mainly due to the unknown mechanism of the said principle of Similars. Thesymptoms in this principle are viewed as direct manifestation of the diseases to be cured. There exists close relation between the mechanismsof curing diseases by the Homed and the body's self healing (or homeostasis related to T-Cells) which is stimulated by Homed to cure the disease. We find incipient quantum mechanical background of this principle and attempted to justify the use of Arsenicum or similar other medicine against Corona infection based on this principle. The principle of Similars has quantum biological foundation arising from quantum coherence (QC)between the ionic charges around the diseased cell and the carrier of diseased cell and those associated with the medicinal agent present in the Homed termed as NAM (H-bonded nano and micros clusters).This principlejustifies the use of Arsenicum against the Corona infection. It is demonstrated that the principle of Similars has a deeper incipient meaning rooted to the quantum mechanics. This principle is competent to explain many salient features of homeopathy.

**Keywords**: Law of Similars, Quantum entanglement, quantum biology, Covid-19, Arsenicum album

1. **Introduction**

At its 64th meeting, the Scientific Advisory Board of the Central Council for Research in Homoeopathy (CCRH) opined[1-7] that “Arsenicum album 30 could be taken as prophylactic medicine against [Corona virus](https://indianexpress.com/about/coronavirus/) infections''. Several Indian states recommended it for prophylactic (preventive) against [Covid-19](https://indianexpress.com/about/coronavirus/). The use of Arsenicum album 30 or similar other Homed has now become an interesting subject of discussion [3].It was, however, argued that no adequate scientific background in favour of the use of this homeopathic medicine (Homed,in brief) for Coronavirus patients was presented. As reported in the available literature, Arsenicum album may reduce the toxicity of Arsenite in two bacterias E. coli and S. Cerevisae[8]. A study conducted in wheat seedlings was used as proof of protection against genetic modulation by using Arsenicum[9].So research studies were mainly conducted on bacteria, and not conducted in infected humans or even in lab animals and hence they cannot be used as a proof of mechanism of action. Only one study [10]was conducted in humans, but it was to determine the impact of Arsenicum album 30 on arsenic toxicity. Thus, there was no previous study thatproved that low doses of arsenic or any other drug could be therapeutic. Like Arsenicum, proper scientific justification for the use of many other Homeds curing different diseases hasalso not been well represented earlier.

 It is well known that homeopathy is considered to be a para- medical discipline of medical science with its basis on the principle of Similars (*SimiliaSimilibusCurentur*, or "let likes be cured by likes.") and using potentized substances which purportedly carry some cues for remedies. Though this principle was known long before the invention of homeopathy by Hahnemann, it was Hahnemann’s genius that utilized the idea into proper practice. Hahnemann discovered that the preparation of the substances in a certain way, by stepwise dilution and succussion them, and later on by triturating them in lactose, they became more active and powerful. He called those remedies potencies or dynamization of the remedies, and nowadays most Homeds are used in potentized form, although treatment with mother tinctures and crude substances, as well as low potentized medicines are also in use in homoeopathy. To date, empirical investigations have, however, shown conflicting arguments and homeopathy, as a medical theory, is only weakly supported by experimental facts. Though Hahnemann properly utilized the principle of Similars , the origin and scientific background of this principle always remained hiddenor unexplored. This principle hasparamount importance for future advanced research in homeopathy. Critical analysis of this principle is also necessary to elucidate interesting facts about homeopathic science as well as for the development of new medicines even for the new diseases.

In this article we have attempted to explore the incipient scientific background of the principle of Similars and based on this principle, an attempt has been made tojustify the use of a Homed (Arsenicum album, for example) for the cure of corona and other diseases.

1. **Method**

With the development of modern medical and physiological sciences close relation between Homeopathy and homeostasis have been revealed[11,12]. In homeopathy, special importance had long been attributed to the principle of Similars. The therapeutic effect of this principle is made use in homeopathy where symptoms of a disease are viewed as a direct manifestation of the body's attempt to self healing (homeostasis). A medicinalmaterial (chemical or medicinal atoms/molecules, for instance, an arsenic compound for our present discussion) is competent to produce some typical symptoms (weak or strong) in the body when given to a healthy person. The body’s haemostasisimmediately startworking to fight the disease producing the typical symptoms of the disease. A Homed attempts to stimulate the patient's own healing capabilities supporting the homeostasis mechanism of self-healing.  If the body is to rebalance itself when something has changed then it makes sense that patients perceive these changes as symptoms.  Homeopaths see these symptoms as good healthy responses made by the body to rebalance it and to inform that something is out of balance.Scientific basis of this principle is rather unclearor unexplored. Broadly speaking, this principle means that a disease shows some symptoms based on which medicine could be produced to curethe suffering patients showing similar symptoms. Different diseases should produce different symptoms (disease and symptom have cause and effect relations).For example, the main symptoms of the cholera patient should not be same as those of the coronavirus or those exhibited by a cancer patient. However, some symptoms might be similar for different diseases. It might also be confusing due to minute differences in two symptoms, difficult to distinguish two identical symptoms.As mentioned above, when a person is infected by a disease, the body itself tries to fight the disease using body’s homeostasis indicating the rise of body temperature due to increase of entropy which is related to the information change discussed earlier [13,14].Diseased cells become disordered and away from the state of equilibrium. To cure the disease, body’s homeostasis brings back the cells in their equilibrium state.Function of homeostasis is to start the healing processby activating the body’s T- cells to bring order and equilibrium with the normal cells.Homeds stimulate or activate the homeostasis function to fight the disease .So it appears that homeostasis and Homeopathy function cooperately. This means, the T-cells of the white blood take part in the self-curing process. This is the function of homeostasis [12-15].The T-cells are white blood cells that are responsible for detecting foreign or abnormal cells - including cancerous ones - and then latching onto them to tell the rest of the immune system that they need to be attacked. Antigens (Ag), according to immunology, are [structures](https://en.wikipedia.org/wiki/Structure) specifically bound by [antibodies](https://en.wikipedia.org/wiki/Antibodies) (Ab) or a cell surface version of Ab ~ [B cell antigen receptor](https://en.wikipedia.org/wiki/B-cell_receptor) (BCR). The [T and B cells](https://en.wikipedia.org/wiki/T_cell)  are cellular components of [adaptive immunity](https://en.wikipedia.org/wiki/Adaptive_immune_system)[15,16].The antigen may originate from within the body which might be termed as self-antigen or from the external environment- non-self antigen. The immune system is supposed to identify and attack non-self invaders from the outside or other harmful substances present in the body and usually does not react to self-antigens under normal [homeostatis](https://en.wikipedia.org/wiki/Homeostatic) onditions due to [negative selection](https://en.wikipedia.org/wiki/Negative_selection_%28immunology%29) of  [T cells](https://en.wikipedia.org/wiki/T_cell) in the [thymus](https://en.wikipedia.org/wiki/Thymus) [16]. The mechanism how the T-cells distinguish the harmful substance and body’s self antigen is similar to that how NAM in a Homed recognize the diseased cell for interaction and cure (to be discussed elsewhere). Once the T cell has received a specific antigen signal and a general signal, it receives more instructions in the form of cytokines. These determine which type of responder the cell will become – in the case of helper T cells, it will push them into Th1 and Th2 types. In these types, the cells are exposed to the cytokine IL-1, IL-4 (for Th1) or IL-17(IL-6, IL-23) (for Th2). Each one of these cells has a specific task to perform in the tissue and in developing further immune responses. The resulting cell population moves out to the site of the infection or inflammation in order to deal with the pathogen. Other cells like neutrophils, mast cells, and epithelial cells present at the tissue site of inflammation also release cytokines, chemokines, short peptides and other molecules which further activate and proliferate T- cells..[17]

The T- cell Homeostatic function can be analyzed in the following way. In practice, adoptive T-cells are transferred. First the patient showing the disease symptom is selected and then T-cells of the same patient’s blood is extracted (not from the blood of other bodies) and using gene transfer, introduce receptors that will aggressively target the specific diseased cell (say, cancer cell, or other deadly disease cells). When such T- cells are again transferred back inside the body, these newly engineered T-cells regenerate from the patients’ blood and create an army of immune cells prepped to take down the disease even the cancerous tumours[17,18] or other virus cells. This is some sort of creating a vaccine from a patient’s source to fight against the DC of the source (patient) itself.

It was discussed earlier [13,15]that H-bonded nanoand microclusters (NAMs) formed in the Homed during succussion process work in resonance with the body’s homeostasis [11,12]. It is to be noted that the formation of water domains andtheir quantum electrodynamics interactionswerealso discussed recently by Kalia and his co-researchers [18]. Butthe character and formation mechanism of such water domains are different from the formation and character of the NAM (nano or micro cluster formulation) embedded in the Homed. The contribution of the medicinal molecules was also not considered by Kalia et al.[19]. As discussed earlier [17], theHomed producing process (succussion) and higher dilution actually reduced the toxic effect of the raw medicine (for instance, say arsenic). The dynamic H-bonded NAMcontains the signature of the medicine molecule and the disease curing potency, but not the medicine (say arsenic compound)[13,14] molecule itself or its toxic effects. This means, the NAMs in the dilute Homed works without causing any toxic effect whatever might be the toxic effect of medicinal material like that of arsenic or other toxic chemicals.

1. **Results and discussion**
2. **Arsenic molecules forming NAM in the homeopathic medicines**

  Let us consider the symbols A**↑↓** representing a typical disease produced by a pure Arsenic compound exhibiting the symptoms represented by the up (↑) and down (↓) signs (arrows). Different symptoms are associated with different charge distribution patterns (CDPs) around the cells.The CDP is formed [14]with different enzymes, ions etc. secreted by the DCs. Unlike the CDPs of the normal cell, the CDPs of the DCsare different and asymmetric with higher entropy [13,14,20]. However,as mentioned above, some symptoms exhibited by the arsenic molecule might be common with those of other medicinal molecules used for different diseases and as a consequence one Homed might be suggested for more than one disease. But the use of same medicine for more than one disease,appears to be not appropriate as CDP around NAM produced by a medicinal molecule in the Homed wasconsidered to be disease or symptom specific[14]. Here, problem might also arise due to the uncertainty in the diagnosis process of all the minute changes of symptoms for a typical disease.It is to be notedthat theBody’shomeostasis (self healing process) has also some important role to cure the disease.Immunomodulatory response of homoeopathic medicines through cytokine induction as evidenced in vivo and in vitro studies is an important development of homeopathic science**[**21,22].Homed stimulates this healing process. The body’s homeostasis, associated with the T- cells of different types, hasthe self healing mechanism. Homeopathic medicinesenhance/stimulate the functioning of the body’s homeostasis. All Homedsare used to cure the disease or remove the symptom. So any typical medicine (with different potency) may have varying healing capacity to cure different diseases (here healing process might be very slow or quick). This is because, the ionic charge distribution pattern (CDP) of an arsenic molecule/atom, say, may also interact (i.e. transfer or ions, proton or electrons) with the CDP of different other diseased cells and if the interaction is favorable i.e. supports body’s homeostasis, the Homed produced with the arsenic molecules, for instance, might also cure other diseases.In this case, it is, however, difficult to assess which interactions process (ion tunnelingfrom NAM to the DC) would be effective (as required by the DC for its normalization) to cure the disease. So, there is always a probabilitythat a single Homed might have some healing effect of any disease (of course, it should depend on the potency and other factors). This is because, the ionic charge distribution pattern around NAM must have some interactions (that is, tunneling of protons or other ions, as said above) with that around the diseased cell and in some cases, such interactions will be effective to stimulate the body’s homeostasis (to bring the cells in order and equilibrium to the normal state) and cure the disease, may be slowly. However some adverse effects, if the said interaction does not favour the homeostasis process, might also happen. This is why; there is always uncertainty for the use of a particular medicine for healing different diseases.However, for our subsequent discussion, we consider signatures of different diseases are different.

The up (↑) and down (↓) arrows(also known as spin signs to designate electron or proton spins) signify the symptoms or the signatures of the diseases produced by arsenic molecules of our present discussion in this article. There is a close relation between the symptom and the corresponding disease. As mentioned above, NAMs  carrying the signature  of the medicine molecule (As compound ) are actually different H- bonds coupled with aqueous electrons [23]already exist in every liquid medium produced by breaking of H or other ionic bonds.



Figure -1 showed the representative picture of a dynamic NAM coupled with aqua electron [e-aq] (also known as wetelectron) and other H-bonded ionic charges. The ionic structures of the H-bonded NAMs are differently modified by different medicine molecules due to succussion or mechanical stirring along with the medicinal molecules (in our present case arsenic compound) with the liquid.

The aqua electrons [e-aq] along with H-bonded ions might form  even in pure water or alcohol[17,19] by vigorous agitation, radiation etc. and even sun light and radiation produce aqua electrons which  are  coupled forming dynamic NAMs which may move, break and reform or re-join continuously. Every symptom (like ↑ and ↓ of the disease) has its own distinguished ionic charge distribution pattern (CDP) with different structures around the diseased cell DC. This is true for every medicinal material (M= Arsenic compound molecules or atoms or a disease producing agent) which has its own atomic or molecular charge distribution pattern forming the NAMs. A Homed prepared with an element M =Arsenic compound(AS ,in brief) can  be used to cure the disease of a patient showing the typical symptoms as produced by the arsenic compound itself, but the final Homed does not contain any ion or molecule of the arsenic salt  at all. As discussed earlier, the medicine contains the signature of M= AS embedded in NAM. This means one cannot get As salt back in any form (nano or micro particles) form the high diluted Homed produced from arsenic salt by using any physicochemical means (evaporating the medicine or by precipitation). Though there is no medicinal molecule in the dilute homeopathic medicine, signatures of the medicines can be observed even from the ultraviolet (UV) and Fourier transform infra red (FTIR)or Raman spectra. The signatures of a typical homeopathic medicine (prepared by succussion method) and those of the pure liquid medium (without succussion) are found to be differentin their respective spectral patterns and structures [24] which could be attributed to the formation of different structures of the NAM clusters in the medicine which carry the signature of the medicinal molecules.Even arsenicof different strengths (30C and 200C taken in liquid forms),supposed to contain no medicinal molecules, their FTIR (Fourier transform infra red) spectra showed[24]different signatures and patterns which could be due to different structural patterns of the CDPs around NAMs associated with two strengths of the same medicine.

1. **Principle of Similars and the use of Arsenicum for Covid-19treatment**

As mentioned above, the diluted medicine (Homed) actually does not contain material molecule M=ASand its toxicity is removedbut the NAM formed in the Homed contains the signature of the medicine molecules (M=AS). The symptoms appearing in a normal healthy man, when the pure medicine moleculesM=AS is taken by him,should also be exhibited by the patent to be cured by the NAM produced by medicinal molecule (AS). In this case the CDP around NAM interact with that of the diseased cells and protons/electrons transfer takes place to normalize the diseased cells.The NAMsin the Homed within the body somehow (quantum coherence, a quantum mechanical phenomena discussed below) recognize the same signatures, for interaction, possessed by the CDPs of the DCs exhibited by the patient.That is, the signatures of ?embedded in NAMs should be similar to those exhibited by the diseased patient to be cured by the said NAMs present in the Homed which was prepared frommedicinal molecules using standard procedure. If these signatures are different there will be no NAM-diseased cell interaction and no cure of the disease. Here lies the justification of the well known principle of Similar.

A deeper understanding of the principle of Similars is complicated involved with quantum mechanical phenomena. For a qualitative analysis of this mechanism (or why this principle is universally valid), let us call the symptom (signature) of AS carried by NAM in the Homed produced with molecules M=ASbe denoted by (NAM)↑↓ . The disease of the patient showing the symptoms (NAM)↑↓ can be cured by the Homed produced from M=AS.When medicinal molecule M=AS produces the disease in a healthy man exhibiting symptoms (↑ and ↓), the entropy of the affected diseased cells (DCs) with its constituentsincreases (due to increase of disordered) .This entropy change is associated with information change communicated to the brain through neurons [17].The charge distribution pattern with the signatures (↑and ↓) of the typical Homed would only interact (or a resonance occurs) with the corresponding CDP of the DCs produced by producing the similar symptoms (↑ and ↓). This indicates the origin and validity of the so called similarity principle. As the (NAM)**↑↓** produced from the medicine using M=AS possesses the same signature as that of the medicinal molecule, it can recognize the CDP produced around the DCs because of identical spin (we mean arrows) structure patterns and symmetry of the CDP and NAM**↑↓**. Here both spin structures, one produced by M = ASin the Homed during succussion and the other in the body around the DC, operate coherently (i.e. quantum mechanically entangled, discussed below) which is important for curing the disease. Such coherence was also reported in water solution[25,26].

**(c) Involvement of Quantum mechanics**

The saidmechanism of NAM disease cell interaction can only be explained by quantum mechanical theory which is based on probability theory. The quantum coherence or quantum entanglement (QETM)[27-30]which allows recognition of the signature of the disease cell (DCs) by the corresponding similar signature carried by CDP of NAM produced from the medicinal molecules, electrons or protons.Walachalso proposed [31] quantum entanglement model of Homeopathy in a different way. We also noticed microscopic quantum coherence of water molecules discussed earlier [25,27]. In our present procedure, the situation is, however, different. Here quantum coherence (or some kind of synchronization) of the electrons /protons tunnelling between the NAMs and the diseased cell charge distribution patters are involved.In our present work, QETM is to transmit quantum information from one place (cell or molecule) to another through a phenomenon known as [quantum entanglement](https://www.sciencealert.com/entanglement), or "spooky action at a distance", as Albert Einstein called it. Entanglement, in quantum mechanics is known as Einstein-Podolsky-Rosen (EPR) co- relatedness within quantum systems[32-34]. In quantum mechanics, the entanglement occurs between the quantum states of particles. In our present case, these states are the states associated with the protons, electrons and ions that tunnel from the NAMs to the DCs to bring the equilibrium of the DCs. This means that any measurement done or incident happened on one system (of the particles) affects that of the entangled system of particle independent of distance between them [34-37]. The systems might be located even at large distances. That's where two quantum particles (or groups of particles) are coherently interlinked or entangled, so that one understands (recognizes) the properties of the other, no matter how far apart they are in physical terms. Here quantum information transformation, entropy as discussed in [16] are involved [38-44]. Electrons/protons with spin up and spin down signsshow quantum entanglement. This gives rise to the principle of similar. Here, the symptoms (spin structure) of the DC commute with the symptoms (spin structure) produced by the medicinal molecules or the NAM. This is possible because of QETM.Therefore, for QEMT to work, the symptom around NAM due to the medicinal molecule M=AS (in our present discussion) must be identical with the symptom produced by the diseased cell and in that case NAM can only interact with the DCs because of similar spin structure (symptom) they recognize each other[32]. Because of quantum entanglement, the principle of Similarsbecomes successful indicating that this principle is of quantum mechanical origin where knowledge of chemistry, biology along with the quantum concept of dualism of particle and wave of physics are involved.

The probability of relation between two separate systems was discussed mathematically by Schrodinger [45,46]. If there isa common observable in the two systems ( in our case the ion transfer between NAM and the diseased cell and between NAM and medicinal molecules) When such two observable related coherently to some of their states to the two systems by some definite common observable (ions transfer in both the MAM and DC systems) one to one correspondence persists as time advances and the observables of the first system (say NAM) change their ions/electrons in the way that the observables in the second system (say in the DC)undergo a certaincontact-transformation [47,48].Definitely the situation is complexexecuting a new field of research, called Quantum Biology[49-52](where physics meets biology), which is still in the rudimentary state. Further, research is required in this direction. The principle of Similars or “like treats the like” rule is a universal one with its foundation on quantum mechanism.

1. **Justification in favour of using Arsenicum against Covid-19 infection**

Let us examine,on the basis of the principle of Similars, if Arsenic compound (AS) might be suitable therapeutic agent for the Corona viral diseases.ASs are definitely toxic. But as discussed above, the dilute Homed does not contain Arsenic in the medicine in the molecular or atomic form. Only the signatures of Arsenic compound are carried by NAMs in the medicine which carries the cues to cure the disease. Most common symptoms of arsenic poisoning [53]may include: (i) red or swollen skin, (ii) skin changes, such as new warts or lesions, (c) abdominal pain, (d) nausea and vomiting, (e) diarrhoea, (f) abnormal heart rhythm, (g) muscle cramps, (h) tingling of fingers and toes, (i) Long-term exposure to arsenic can cause more severe symptoms. Following symptoms are also experienced after arsenic exposure viz. (i) darkening skin, (ii) constant sore throat, (iii) persistent digestive issues.

The most common symptoms of COVID-19 are fever, tiredness, and dry cough. Some patients may have aches and pains, nasal congestion, runny nose, sore throat or diarrhoea. There is difficulty in breathing. It appears that many of these symptoms are very common with those of Corona patients. Fever is a common symptom of many diseases. The symptoms might alsobe patient dependent. Moreover, there are almost twenty six types of corona type virus [55] and can be divided into four groups: Alpha, Beta, Gama and Delta. This division has been made on the basis of their different possible genetic changes. Depending on the host and environment their genetic modulations or mutation might occur. They have different antigenic cross-reactivity and genetic makeup. So it appears, considering the principles of similar,Arscenicmalbum -30 or its higher dilution might be useful for fighting against the corona. Since this virus might have different genetic changes (mutations) with corresponding changes of symptoms, use of arsenicumappears to have special importance. Other medicines agreeing with the said symptoms, or exhibiting many different symptomsmight also be helpful.

**3. Conclusion**

The hydrogen bonded nano and micro clusters ( NAMs) formed coupled with aqueous electrons and other ions carry the signature of the medicine which cure the disease. Homeopathic medicines are generally prepared following the principles of Similars (*SimiliaSimilibusCurentur*, or "let likes be cured by likes."). We have looked for quantum mechanical background of this principle used in homeopathic medicine and no alternative to this principle would be applicable to prepare Homed and cure the disease. This is because, there will be no quantum coherence between the ionic states of NAM and those of the diseased cell charge distribution pattern similarities. Disease healing mechanism of homeostasis (self healing mechanism) and homeopathy are identical; homeopathic medicine stimulates the body’s homeostasis to cure the disease. Using the principle of Similars, the use of Arsenicumalbum or some other Homedsfor the cure of corona virus infection might be justified. As diluted homeopathic medicine contains no medicinal molecules, the toxic effect of the medicine molecule does not arise. Finally we must mention that the contents of the present work done based on completely new ideas and concept of quantum mechanics is provisional requiring further development and modification, might stimulate the researchers to understand and enlighten the longstanding problem of dilute homeopathy.

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**References**

1.[Barnagarwala](https://indianexpress.com/profile/author/tabassum-barnagarwala/) T. Maharashtra allows use of homeopathy, ayurveda medicines to prevent Covid. Indian Express.Mumbai  Updated: 2020;June 13.

2.Shelar J. Homeopathy drug untested for efficacy against COVID-19 widely distributed in Mumbai. The Hindus. 2020.

# 3. Central Council for Research in Homoeopathy. Homoeopathic Perspectives in COVID‑19 Coronavirus Infection. Available from: https://www.ccrhindia.nic.in/showimg.aspx?ID=15677. [Last accessed 2020 Apr 30].

# 4. [Ghatwai](https://indianexpress.com/profile/author/milind-ghatwai/) M. Govt homeopathy college claims mild COVID-19 cases treated successfully, The Ind. Express. Bhopal.2020; 2020.

# 5. [Express Web Desk](https://indianexpress.com/agency/express-web-desk/). AYUSH ministry recommends homeopathy, ayurveda to prevent coronavirus; draws flak. Indian [Express.](https://indianexpress.com/agency/express-web-desk/)2020..

# 6. Financial Exp[ress. Coronavirus treatment: Ministry of AYUSH issues advisory; says Homoeopathy, Ayurveda, Unani useful in preventing nCoV.

[FE Online](https://www.financialexpress.com/author/feonline/) , New Delhi, 2020

7. Barnagarwala T. Explained: The debate over Arsenicum album 30, a homoeopathic drug touted as effective in fight against Covid-19.Indian Express 2020.

8. Das D, De A., Dutta S, Biswas R, Boujedaini N, Khuda-Bukhsh AR. Potentized homeopathic drug Arsenicum Album 30C positively modulates protein biomarkers and gene expressions in Saccharomyces cerevisae exposed to arsenate. Zhong Xi Yi Jie He XueBao; 9: 752-760.2011.

9 .Marotti I, Betti L, Bregola V, Bosi S, Trebbi G, Borghini G et al. Transcriptomeproling of wheat seedling following treatment with ultrahigh diluted arsenic trioxide. Evid Based Complement Altern Med.2014.

10. Khuda-Bukhsh A.R., Banerjee A., Biswas S.J., Karmakar S.R., Banerjee P., Pathak S. et al. An initial report on thecacy of a millesimal potency Arsenicum Album LM 0/3 in ameliorating arsenic toxicity in humans living in a high-risk arsenic village. Zhong Xi Yi Jie He XueBao: 596-6.2011

11. Schultz SG. Homeostasis, humpty dumpty, and integrative biology.News PhysiolSci 1996; 1:238–246.

12. Schulki J. Rethinking Homeostasis: Allostatic Regulation in Physiology and Pathophysiology, 2002; MIT Presss.

13.ChaudhuriBK. A novel phenomenological model for the unusual behaviorof high dilution molecular mixture applicable in high diluted homeopathic medicine. Int. J. Homeopathic Sciences.2018; 2(4):06-12.

14 .ChaudhuriBiswadeep, Chaudhuri BK. Proposed interaction mechanism between medicine and the diseased cell in diluted homoeopathic medicineIndian Journal of Research in Homoeopathy Volume 14 Issue 1 January-March 2020.747

15. Sharpe M . Natalie Mount Genetically modified T cells in cancer therapy: opportunities and challenges Disease Models & Mechanisms 2015 8: 337-350; doi: 10.1242/dmm.018. https://doi.org/10.1016/j.synbio.2018.08.001

16. 13. Si W, Li C, Wei P. Synthetic immunology: T-cell engineering and adoptive immunotherapy, Synthetic and Systems Biotechnology.2018: 3179-185.

17. Schmidt M E, Varga S M. CD8-Tcell response to respiratory virus infection. Fomenter in Immunology, 2028; 3, Article :678, doi : 10.3389/fimmu.2018.00678.

18. [Yamaguchi T, Sakaguchi](https://www.sciencedirect.com/science/article/pii/S1044579X05000751#!) S. Regulatory T cells in immune surveillance amd treatment of cancer. Seminars in Cancer Biology, 16, 115-123-2006.

20. Yinnon TA, Kalia K, Kikar DN. Liquids Prepared by Serially Diluting and Vigorously Shaking of Aqueous Solutions: Unveiling Effects of the Solute on their Properties. 2019, Water. 10,115-134.

20. Mathur M, Kapoor A. A review on immunomodulatory response of homoeopathic medicines through cytokine induction as evidenced in in vivo and in vitro studies. Indian J Res Homeopath 2020;14:122-8

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21. KhuranaA. Homoeopathy in epidemics: Bridging the gap. [Downloaded free from http://www.ijrh.org on Monday, July 20, 2020, IP: 115.187.53.216

23. Herbert JM, Coons MP. The hydrated electrons.Annu. Rev. Phys. Chem. 2017. 68:447–72

24. Chaudhuri B and Chaudhuri B K (unpublished)

25. Del G E, Preparata G, Fleischmann M

QED coherence and electrolyte solutions. J. Electroanal Chem. 2000; 482:110–116.

26.Arani R, Bono I, Del Giudice E, Preparata G. (1995).

QED coherence and the thermodynamics of water.Int J. Mod Phys B 9:1813-1841.

27. Marletto C, Coles D M, Farrow T, Vedra V, Entanglement between living bacteria and quantized light witnessed by Rabi splitting, J Phys Commun,2018; 2:101001.

28. Tournier A. A new quantum theory to explain homeopathy.HAI News Letts.2010; 7: 1-2.

**29.** Offord C. Quantum biology may help solve some of life’s greatest mistry. The Scientist, Exploring life Inspiring Innovation.2019; Jun 1.

30. Del G E, Preparata G. A new QED picture of water”, in Macroscopic Quantum Coherence, Sassaroli E, Srivastava YN, Swain J,Widom A (eds) World Scientific, Singapore).1998.

31.Bell J S. Speakable and Unspeakable in Quantum Mechanics.CERN.ISBN 0521334950)].Cambridge University Press. 1989

33. Einstein A, Podolsky B, Rosen N. Can Quantum-Mechanical Description of Physical Reality Be Considered Complete? Phys. Rev. 1935.47: 777.

34. Kimble H J. The quantum internet. Nature.2008; 453:1023–1030.

35.Krauter H. et al. Deterministic quantum teleportation between distant atomic objects. Nature Phys. 2013; 9: 400–404.

36.Olmschenk S. et al. Quantum teleportation between distant matter qubits. Science . 2009; 323, 486–489.

37.Gao W. B. et al. Quantum teleportation from a propagating photon to a solid-state spin qubit. Nature Commun. 2013; 4:3744 .( doi: 2013 10.1038/ncomms3744).

38. ZhoudunmingTu, Dmitri E. Kharzeev, and Thomas Ullrich Einstein-Podolsky-Rosen Paradox and Quantum Entanglement at Subnucleonic Scales Phys. Rev. Lett. 2020;124: 062001.

39. Nielsen MA, Chuang IL, editor. Quantum Computation and Quantum

Information. Chapter-11, Title: Entropy and information, Cambridge ,University Press; 2010. p. 500-22.

40. Allemann RK, Scrutton NS.Quantum Tunneling in EnzymeCatalysed Reactions. Cambridge, UK: RSC Publishing; 2009.

41. Brookes JC. Quantum effects in biology: Golden rule in enzymes,

olfaction, photosynthesis and magnetodetection. Proc Math PhysEngSci 2017;473:20160822

42. Cha YJ, Murray CJ, Klinman J P. “Hydrogen tunneling in enzyme reactions,” [Science](http://science.sciencemag.org/content/243/4896/1325.long).1989; 243:1325–30.

43. GittPanitchayangkoon, Dugan Hayes, Kelly A. Fransted, Justin R. Caram, EladHarel, Jianzhong Wen, Robert E. Blankenship, and Gregory S. Engel . Long-lived quantum coherence in photosynthetic complexes at physiological temperature.  [PNAS](https://www.pnas.org/content/107/29/12766).2010; 107:12766–70.

44. Matson J.(13 August 2012). Quantum teleportation achieved over record distances.nature.2012.

45. Schrödinger E (1935) Discussion of probability relations between separated systems. Math ProcCambPhilos Soc.; 31:555–563,1935

46. [E. Schrödinger](https://www.cambridge.org/core/search?filters%5BauthorTerms%5D=E.%20Schr%C3%B6dinger&eventCode=SE-AU). Probability relations between separated systems

Mat. Prof. Cambridge Philosophical.Sco. 1936;32:446-452.DOI: <https://doi.org/10.1017/S0305004100019137>.

47. Disease briefing- Corona viruses. Clarivate Analytics. 2020.

Doi:[https://clarivate.com/wp content/uploads/dlm\_uploads/2020/01/CORONAVIRUS-REPORT-1.30.2020.](https://clarivate.com/wp%20content/uploads/dlm_uploads/2020/01/CORONAVIRUS-REPORT-1.30.2020.pdf).

48. Mozumder S, Bej A,Srinivasan K, Mukherjee S.Sengupta J. Comprehensive structural modeling and preparation of human 5-HT2A G-protein coupled receptor in functionally active form.Biopolymers. 2020;111:e23329.

DOI: 10.1002/bip.23329 ,https://doi.org/10.1002/bip.23329.

49.Brookes JC. Quantum effects in biology: Golden rule in enzymes,

olfaction, photosynthesis and magnetodetection. Proc Math PhysEng 7,473-481, 2017

50. Elizabeth M. A Dictionary of Biology. 6th ed. Oxford: Oxford University

Press. 315-6.2008

51. Stanley Schultz SG, Homeostasis, Claude Bernard Lecture: Humpty

Dumpty, and Integrative Biology.Physiologyonline.11.5.238.1996

52. Schrödinger E. What is Life? UK: Cambridge University Press; 1994

53. Vahidnia A, van der Voet, GB, de Wolff FA. Arsenic neurotoxicity A review. Human & Experimental Toxicology.; 26 (10): 823–832. 2007.

54. Ratnaike R N .Acute and chronic arsenic toxicity.Postgraduate Medical Journal. 2003;79 (933): 391–396. doi:10.1136/pmj.79.933.391. PMC 1742758.PMID 12897217.

55. Ole A. A review of pitfalls and progress in chelation treatment of metal poisonings.Journal of Trace Elements in Medicine and Biology.2016; 38: 74–80. doi:10.1016/j.jtemb.2016.03.013. hdl:11250/2430866. PMID 27150911.

56. Hughes MF, Beck BD, Chen Y, Lewis AS, Thomas DJ. (October 2011). Arsenic exposure and toxicology: a historical perspective. Toxicological Sciences.123 (2): 305–32. 2011.

57. Joca L, Sacks JD, Moore D, Lee JS, Sams R, Cowden J .Systematic review of differential inorganic arsenic exposure in minority, low-income, and indigenous populations in the United States. Environment International.2016; 92-93: 707–15. doi:10.1016/j.envint.2016.01.011. PMID 26896853.

58. Yaci Liu, Xia Tian, Shengwei Cao, Yi Li, Huijun Dong, Yasong Li. Pollution characteristics and health risk assessment of arsenic transformed from feed additive organoarsenicals around chicken farms on the North China Plain. 130438, 278, 2021