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## Research Highlights

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## Research Highlights

### Abstract

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### Acknowledgments and Source of Funding

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## Research highlights

### ANTI-CANCER POTENTIAL OF *ARSENICUM ALBUM* IN BREAST CANCER

**Title:** *Arsenicum album* induces cell cycle arrest and apoptosis and inhibits epithelial–mesenchymal transition in hormone-dependent MCF7 breast cancer cells

**Authors:** Nilanjana Basu, Manoj Garg, Chanderdeep Tandon, Bhudev Chandra Das, Simran Tandon

**Journal:** Homeopathy, 2023; 112(03): 160-169 <https://doi.org/10.1055/s-0042-1755364>.

**Summary:** As per the International Agency for Research on Cancer, cancer of the breast is one of the most diagnosed in the world and appears at the top of the list in 2020. Arsenic trioxide ( $As_2O_3$ ) has been in therapeutic use since the 18<sup>th</sup> century for various types of cancers. ATO in high dilutions (*Arsenicum album*) is used as a homeopathic medicine to treat various disease conditions involving the gastrointestinal, skin, respiratory and neurovascular systems. In this study, breast cancer cells (MCF7) were treated with *Arsenicum album* (Ars 6C) to evaluate its anti-proliferative and apoptotic potential. The effect of Ars 6C was seen on the cell cycle, wound healing, reactive oxygen species (ROS) generation and modulation of expression of key genes which are aberrant in cancer. This study concluded that the inhibitory effect of Ars 6C on breast cancer at the cellular level was primarily reflected by the inhibition of cell cycle progression at the sub-G0 and G2/M phase which was a result of DNA damage brought on by the generation of ROS. Furthermore, treatment with Ars 6C-induced apoptosis in MCF7 cells by modulating both the intrinsic and the extrinsic pathways. Ars 6C also reversed EMT and attenuated the migratory abilities of MCF7 cells. Moreover, Ars 6C revealed no significant cytotoxicity to normal breast epithelial cells. Ars 6C was seen to reverse epithelial to mesenchymal transition and reduce the migration of breast cancer cells. The findings of the study suggest that Ars has significant anti-proliferative and apoptotic potential against breast cancer cells.

**Comments:** The available data highlight the anti-cancer potential of homeopathic *Arsenicum album* against hormone-dependent breast cancer.

### HOMOEOPATHY AS AN ALTERNATIVE FOR ANTIBIOTIC-RESISTANT BOVINE MASTITIS

**Title:** Impact of a novel homeopathic complex medicine on the management of multiple antibiotic-resistant bovine mastitis: An open-label, non-randomised and placebo-controlled trial

**Authors:** Bruna de Fatima Antunes Laginestra, Thaís Camaso de Sá, Jessé Lahos Borges, Matheus Basilio Marçal, João Vitor

Morais Simões, Selma Alves Rodrigues, Zilda Cristiani Gazim, Ranulfo Piau Júnior

**Journal:** Homeopathy, <https://doi.org/10.1055/s-0043-1768465>.

**Summary:** A non-randomised, open-label and placebo-controlled trial was conducted to assess the potential of a novel homeopathic complex medicine in managing bovine mastitis. Bovine mastitis impacts milk production and increases risk to the health of consumers. Antimicrobial drugs are traditionally used in the treatment of bovine mastitis; however, studies have shown resistance of microorganisms to the antibiotics used, which leads to therapeutic failure, loss of milk quality, production losses and impacts on cows' health. Twenty-four lactating Holstein cows with mastitis were divided into two groups: The homeopathic complex group received a homeopathic complex daily for 60 days at a dose of 20 g/day; the placebo group received the calcium carbonate vehicle without homeopathic medicines at the same dose and repetition. The outcome measures were somatic cell count (SCC; cells/mL), milk production (kg/day), milk constituents (percentage of protein, fat, lactose and total milk solids) and serum levels of cortisol, glucose, ammonia and lactic acid. All outcomes were measured at baseline and after 30 and 60 days. Assessment of SCC showed a statistically significant difference favouring the homeopathic complex versus the placebo group at day 60. The results suggest the potential of homeopathic medicines in the management of multiple antibiotic-resistant bovine mastitis, thus offering dairy farmers an additional alternative to antibiotics and making dairy products safer for consumer health and milk production more sustainable. A significant increase in fat content, lactose and total milk solids at 60 days of treatment was also seen, with reduced serum cortisol levels in animals treated with homeopathy, making it possible to obtain superior quality milk, in addition to providing greater welfare of the production animals.

**Comments:** This study gives evidence that homeopathy can be a possible option for the treatment and prevention of bovine mastitis, improving the quality of dairy production and being a safer option with greater economic value.

### HOMOEOPATHIC RHUS TOX FOR HERPES AND INFLAMMATION

**Title:** Revisiting the therapeutic potential of homeopathic medicine Rhus Tox for herpes simplex virus and inflammatory conditions

**Authors:** Mohini D Shinde, Sheetal A. Patil, Anupam Mukherjee and Vijay Nema

**Journal:** Journal of Ayurveda and Integrated Medicine. 2023 Jul-Aug;14(4):100739 doi: 10.1016/j.jaim.2023.100739

**Summary:** Herpes, caused by herpes simplex viruses Type-1 and Type-2, leads to painful and itchy blisters in genital herpes (mainly HSV-2). Rhus Tox, a homeopathic remedy, has shown potential as an anti-inflammatory agent in previous laboratory studies and is commonly used for herpes. This review explored the drawbacks and side effects of acyclovir, focusing on the possible antiherpetic effects of Rhus Tox. The pathophysiology and preclinical research involving mouse chondrocytes and the MC3T3e1 cell line is described and Natrum Mur with Rhus Tox is compared in HSV infection. It was found that Rhus Tox demonstrated no cytotoxicity *in vitro*, suggesting its suitability for herpes treatment. However, further research, including *in vitro*, *in vivo*, and clinical trials, is necessary to validate these findings.

**Comments:** Homeopathic medicines have been clinically used as a solution for herpes viruses when indicated. Similimum, especially when used long-term, appears to be the most effective in managing the herpes simplex virus.

## HOMOEOPATHIC APPROACHES TO SCHIZOPHRENIA: A COMPREHENSIVE REVIEW

**Title:** Schizophrenia and Homeopathy: A review

**Authors:** Gaurav Gupta

**Journal:** Altern Ther Health Med. 2023 Jul;29(5):164-169

**Summary:** Schizophrenia is a mental condition that affects about 1% of the global population and has significant negative impacts on affected individuals and their families. This study aims to provide an overview of schizophrenia and assess the potential of homeopathy as an alternative treatment for individuals with this condition.

**Comments:** Schizophrenia primarily affects mental processes and homeopathy could be a useful method of treatment. However, to establish its efficacy conclusively, further research, including randomised controlled trials, is recommended.

## CHALLENGING CLAIMS: ADDRESSING SEVERE DILI CASES LINKED TO HOMOEOPATHIC REMEDIES IN SOUTH INDIA

**Title:** Rebuttal to: A series of homeopathic remedies-related severe DILI from South India

**Authors:** Subhash Kaushik, Divya Taneja, Harleen Kaur

**Journal:** Hepatology Communications 2023 Jul; 7(7): e00167  
doi: 10.1097/HC9.000000000000167

**Summary:** This article is an answer to the concerns raised in a publication regarding the safety of homeopathic medicines, in relation to drug-induced liver injury (DILI), referred to as Hom-DILI. It highlights several points in defence of homeopathy's safety like the consideration of the safety of homeopathic medicines by the World Health Organization; standards established for drug manufacturing by the Government of India; and a recent meta-analysis's finding that no discernible

difference in adverse reactions between homeopathic remedies and placebos. Even the National Health Service, which was cited by the authors of the paper, acknowledges the safety of homeopathy. The text concludes that without a thorough investigation into these aspects, it is premature for the authors to solely blame the entire homeopathic system and ultra-diluted homeopathic drugs for hepatotoxicity.

**Comments:** This article defends the safety of homeopathy based on existing standards and guidelines, suggests that the authors should rather have conducted a thorough assessment and claims that factors beyond the therapeutic system itself may be responsible for any observed issues with hepatotoxicity.

## GUIDELINES FOR RANDOMISED CONTROLLED TRIALS IN HUMAN AND VETERINARY HOMOEOPATHIC MEDICINE

**Title:** Recommendations in the design and conduction of randomised and controlled trials in human and veterinary homeopathic medicine

**Authors:** Katharina Gaertner, Klaus von Ammon, Philippa Fibert, Michael Frass, Martin Frei-Erb, Christien Klein-Laansma, Susanne Ulbrich-Zuerni, Petra Weiermayer

**Journal:** Complementary Therapies in Medicine 2023;76:102961. doi: 10.1016/j.ctim.2023.102961

**Summary:** This paper aimed to address the shortcomings in the design, conduct, analysis and reporting of randomised and controlled trials (RCTs) involving homeopathic interventions by providing guidelines specific to the field of homeopathy through a structured process. A literature review was conducted and homeopathy experts were consulted to identify specific requirements and considerations unique to homeopathic RCTs, which was organised into a checklist format. The Standard Protocol Items: Recommendations for Interventional Trials statement was used as a reference to incorporate homeopathy-specific elements. The created checklist was then cross-checked against other relevant criteria and guidelines, such as the Red-Hot criteria, the Pragmatic-Explanatory Continuum Indicator Summary criteria and a qualitative evaluation checklist, to ensure that the homeopathy-specific checklist was comprehensive and aligned with broader clinical research standards. Guidelines specific to veterinary homeopathy were considered, such as the REFLECT statement (Reporting Guidelines for Randomised and Controlled Trials for Livestock and Food Safety) and the Animal Research: Reporting of *In Vivo* Experiments Guidelines 2.0. This indicated a holistic approach to guideline development, encompassing both human and veterinary applications of homeopathy.

**Comments:** The paper summarises the key findings and recommendations from the homeopathy specific RCT checklist, emphasising the importance of adhering to these guidelines to enhance the quality of RCTs in the field of homeopathy. This summary could serve as a reference for researchers, clinicians and journal editors involved in homeopathic research.

## EFFICACY OF HOMOEOPATHY IN THE MANAGEMENT OF PRE-DIABETES

**Title:** A double-blind, randomised, placebo-controlled and clinical trial to evaluate the efficacy of individualised homeopathic medicines in pre-diabetes

**Authors:** Nilanjana Guha, Shubhamoy Ghosh, Sanjukta Mandal, Aakash Deep Das, Chithra Palanisamy, Shukdeb Maiti, Priyanka Ghosh, Navin Kumar Singh, Munmun Koley, Subhramil Saha

**Journal:** Homeopathy, DOI: <https://doi.org/10.1055/s-0043-1769506>.

**Summary:** Pre-diabetes (PD) is an intermediate state of hyperglycaemia. PD is strongly associated with cardiovascular disease and stroke. A 6-month long, double-blind, randomised and placebo-controlled trial was conducted to explore the efficacy of individualised homeopathic medicines (IHMs) in the treatment of PD. Sixty participants with PD were randomised to receive either IHMs ( $n = 30$ ) or identical-looking placebos ( $n = 30$ ). Concomitant care measures were advised to both groups of participants in terms of dietary advice, yoga, meditation and exercise. The primary outcome measures were fasting blood sugar (FBS) and the oral glucose tolerance test (OGTT); the secondary outcome was the Diabetes Symptom Checklist-Revised (DSC-R) score. All the outcomes were measured at baseline and after 3 and 6 months of treatment. Intergroup differences and effect sizes (Cohen's  $d$ ) were calculated using two-way repeated measures analysis of variance models after adjusting baseline differences using analysis of covariance on the intention-to-treat data. Between-group differences in FBS were statistically significant and favoured IHMs against placebos ( $F_{1,58} = 7.798, P = 0.007$ ) but not for OGTT ( $F_{1,58} = 1.691, P = 0.199$ ). The secondary outcome, DSC-R total score, favoured IHMs significantly compared with placebos ( $F_{1,58} = 15.752, P < 0.001$ ). The study concluded that IHMs produced significantly better results than placebos in FBS and DSC-R scores.

**Comments:** Individualised homeopathic medicines produced significantly better results than placebos in the Fasting Blood Sugar and Diabetes Symptom Checklist, but not in the OGTT. Homeopathy thus has a potential role in treating pre-diabetes.

## MANAGEMENT OF DIABETIC PERIPHERAL NEUROPATHY: A HOMOEOPATHIC APPROACH

**Title:** Individualised homeopathic medicines in the treatment of painful diabetic peripheral neuropathy: A single-arm, pre-post comparison trial

**Authors:** Srimonti Sanyal, Shubhamoy Ghosh, Abhijit Dutta

**Journal:** Homeopathic Links, DOI <https://doi.org/10.1055/s-0043-1772490>

**Summary:** Diabetic neuropathy is the presence of symptoms and/or signs of peripheral neurodysfunction in a patient with diabetes, following the exclusion of other causes. Painful peripheral neuropathy is one of the most common microvascular

complications of long-continued, uncontrolled diabetes mellitus. A single-arm, pre-post-pilot trial was conducted to explore whether homeopathic treatment could alleviate symptoms and improve the quality of life (QoL) in patients experiencing peripheral neuropathy (PDN). This study was conducted to assess the impact of individualised homeopathic treatment on pain intensity in patients with painful diabetic PDN. Thirty-nine patients diagnosed with PDN were included in the trial. The visual analogue scale (VAS) for pain and the 36-item Short Form Survey (SF-36) were the outcome measures and were administered at baseline and after 3 months of intervention. Homeopathic medicines were prescribed using a precision-guided approach based on individualised principles. The changes in VAS score and SF-36 domains were analysed using the Wilcoxon matched-pairs signed rank test. Statistically significant reductions in neuropathic pain (median: 8.0; interquartile range [IQR]: 7.0–9.0) compared with baseline (median: 6.0; IQR: 5.0–7.0) were observed ( $Z_{1/4} = 5.34; P < 0.001$ ). Moreover, improvements were seen in various SF-36 domains related to physical and emotional well-being, social functioning, pain, general health and health change after 3 months of treatment. Individualised homeopathic treatment significantly reduced pain and enhanced the QoL in individuals suffering from PDN. The findings of this study provide preliminary evidence on the effect of individualised homeopathic treatment in improving the symptoms of PDN.

**Comments:** Homeopathic treatment, combined with lifestyle modifications, can be effective in managing complications associated with diabetes mellitus.

## DEFENDING HOMOEOPATHY: HOMOEOPATHIC DRUG-INDUCED LIVER INJURY – A BIASED STUDY

**Title:** Letter to the Editor: Homeopathic drug-induced Liver Injury — An Example of Biases About Roussel Uclaf Causality Assessment Method

**Authors:** Arun Krishnan P., Muraleedharan K. Charan

**Journal:** Hepatology Communications, 2023 Jun 14;7(7):e00177. doi: [10.1097/HC9.000000000000177](https://doi.org/10.1097/HC9.000000000000177)

**Summary:** This article raised concerns about a publication regarding homeopathic remedies-related severe drug-induced liver injury from South India. This article shows some serious flaws in data capturing and depiction in the study, especially concerning the Roussel Uclaf Causality Assessment Method (RUCAM) and observations related to gas chromatography-mass spectroscopy analysis (GC/MS). RUCAM warrants transparent reporting of baseline and final scores for each patient and product for appropriate causality assessment. Many violations of the RUCAM method were observed in patient data. The authors recalculated the RUCAM score and found that four patients out of nine must be excluded from the study. Of the five patients included, four are under the “unlikely” and one under the “possible” category. It is also stated that the histopathology data are irrelevant for diagnosing drug-induced

liver injury (DILI) as per the updated RUCAM. Unfortunately, the article cites discrepancies indicating the inadequacy of the data, making the study findings invalid. The data on GC/MS analysis failed to provide any quantitative information about any of the components in terms of units of measurement. No supporting documents have been provided to define the exposure (homeopathic remedies) detailing their prescription, doses and frequency, which would have supported the claim of DILI. The text concludes that the authors should have depicted the data appropriately.

**Comments:** The article shows selection and information biases in various instances with a weak causality link between homeopathic remedies and DILIs. This letter states that the conclusions derived from the given article are irrelevant.

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### Conflicts of interest

None declared.

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