

SCIENTIFIC FRAMEWORK OF HOMEOPATHY

Evidence Based Homeopathy

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PREFACE

Supplement-2017

The Scientific Framework of Homeopathy is widely accessed and referred document which includes comprehensive information about latest homoeopathic researches and status of homeopathy in the world. The research working group of LMHI has undertaken the updation of the document considering the latest advances in field of homeopathic researches.

The supplement is developed keeping in view number of researches published after the release of framework document. It was found that search word 'Homeopathy' in PubMed for year 2016-2017 shows 233 items; however, the search word 'complementary alternative medicine' in 2016-2017 resulted in 2649 items. All the available homoeopathic publications were sorted and arranged chapter wise as in the main framework document. Special segment with abstract of the significant research papers published in reputed but non-indexed journals is also part of the supplement.

The main scientific framework document includes around 458 references till 2016 and this supplement includes additional 151 publications of peer-reviewed indexed and reputed but non-indexed journals in 2016-2017. There are chapter wise additions of indexed publications, out of which 20 papers added in Basic research, 20 in clinical research, 10 in systematic reviews and around 21 in miscellaneous section (Homoeopathic medicinal products, surveys, negative report etc).

Currently, most of the references included are from journals published in English language. However, efforts are on to make this document all-inclusive by including the publications from German/ French/ Spanish/ Italian/ Russian literature, as far as possible. Considering many publications on Homoeopathy in other languages, I call upon all NVP's, researchers and all those who are publishing in peer-reviewed journals in different languages to collect the information that is not included in this document and forward to us, with at least English translation of abstracts for appropriate inclusion in the next volume.

I hope Homoeopathic researchers, practitioners and all those who need to draft replies on scientific evidence in favour of Homoeopathy will be immensely benefitted by this revised supplement. The feedback and inputs may be sent to rkmanchanda@gmail.com

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Chapter: I

Homeopathy in Healthcare

- 1. Complementary medicine use among general internal medicine inpatients in a Swiss university hospital.** *Int J Clin Pract.* 2017 May 19. doi: 10.1111/ijcp.12952. [Epub ahead of print] Ducrest I, Marques-Vidal P, Faouzi M, Burnand B, Waeber G, Rodondi PY.

BACKGROUND: Complementary Medicine (CM) is frequently used by the general population, but data about prevalence among hospitalised patients are scarce. We evaluated the prevalence and determinants of CM use by inpatients, lifetime, 2 months before and during their hospitalization in a general internal medicine ward.

METHODS: Cross-sectional survey conducted in September 2014 among adult (≥ 18 years) patients hospitalised for at least 1 day in the general internal medicine ward of the Lausanne University Hospital, Switzerland. The association between the socio-demographic data and CM used were assessed using logistic regression model.

RESULTS: Among the 289 eligible patients, 130 (45%, mean age 68.9 ± 16.4 years, 59.2% male) were included. The lifetime prevalence of CM use was 74.6%. One-third (31.5%) and one-tenth of patients reported CM use 2 months prior or during hospitalisation, respectively. The four most reported CM used during lifetime were homeopathy (54.6%), herbal medicine (49.5%), therapeutic massage (47.4%), and osteopathy (44.3%). Herbal medicine, homeopathy, meditation and therapeutic massage were the four main CM used during hospitalisation. On bivariate analysis, lifetime use of CM was significantly associated with higher level of education (apprenticeship: OR 3.2, 95% CI [1.20-8.51], high school/university: OR 7.67, 95% CI [2.59-22.70]; $P=.004$) and healthcare coverage for CM (OR 3.53, 95% CI [1.32-9.46]; $P=.014$), but not with age and gender. During hospitalisation only 3.8% of patients were asked about CM use by physicians.

CONCLUSION: One-third of hospitalised patients used CM 2 months before hospitalisation and one-tenth during hospital stay. CM use is seldom queried by hospital staff; better assessment of CM use among hospitalised patients could prevent potential adverse events or interactions.

- 2. Rudra S, Kalra A, Kumar A, Joe W. Utilization of alternative systems of medicine as health care services in India: Evidence on AYUSH care from NSS 2014.** *PLoS One.* 2017 May 4;12(5):e0176916. doi: 10.1371/journal.pone.0176916. eCollection 2017. PubMed PMID: 28472197; PubMed Central PMCID: PMC5417584.

AYUSH, an acronym for Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa-Rigpa and Homeopathy represents the alternative systems of medicine recognized by the Government of India. Understanding the patterns of utilization of AYUSH care has been important for various reasons including an increased focus on its mainstreaming and integration with biomedicine-based health care system. Based on a nationally representative health survey 2014, we present an analysis to understand utilization of AYUSH care across socioeconomic and demographic groups in India. Overall, 6.9% of all patients seeking outpatient care in the reference period of last two weeks have used AYUSH services without any significant differentials across rural and urban India. Importantly, public health facilities play a key role in provisioning of AYUSH care in rural areas with higher utilization in Chhattisgarh, Kerala and West Bengal. Use of AYUSH among middle-income households is lower when compared with poorer and richer households. We also find that low-income households display a greater tendency for AYUSH self-medication. AYUSH care utilization is higher among patients with chronic diseases and also for treating skin-related and musculo-skeletal ailments. Although the overall share of AYUSH prescription drugs in total medical expenditure is only about 6% but the average expenditure for drugs on AYUSH and allopathy did not differ hugely. The discussion compares our estimates and findings with other studies and also highlights major policy issues around mainstreaming of AYUSH care.

3. **Cottingham P, Adams J, Vempati R, Dunn J, Sibbritt D. The characteristics, experiences and perceptions of homeopaths in New Zealand: results from a national survey of practitioners. *Homeopathy*. 2017 Feb;106(1):11-17. doi:10.1016/j.homp.2016.12.003.**

Background: The popularity of homeopathy is seemingly at odds with the scientific controversy over its effectiveness. Several studies have reported on effectiveness of clinical homeopathy, but few studies have been conducted on practices and perceptions of homeopaths, and none in New Zealand (NZ). To address this gap, this paper reports findings from the first national survey examining the characteristics, perceptions and experiences of NZ-based homeopaths regarding a wide range of issues relating to their role and practice. There were 176 homeopaths in NZ at the time of this survey, who were members of a voluntary register (The New Zealand Council of Homeopaths), homeopaths are not statutorily registered in NZ. Methods: A 65 question, online survey was sent to homeopathic practitioners via their professional associations. A total of 176 homeopaths were invited to participate. Of these 176, 57 (32%) responded. Results: The majority of homeopaths were female (93%). Twelve percent were under 45 years and 20% over 55 years. Most (85%) had qualification in homeopathy of diploma or certificate level and most (66%) were engaged in part-time practice. Mean year of experience was 12.6 and mean caseload per month was 25. 90% considered research useful to validate practice, while 88% considered that it impacted on practice, although only 48% had skills to interpret research papers. There was an association between skills to interpret research and its impact on practice ($p = 0.038$). The majority (87%) were in favour of registration, with a statistically significant association between attitudes to registration and age ($p = 0.027$), the older homeopaths being more in favour. Most (68%) were in favour of integration with conventional practitioners and many referred to conventional practitioners (mean referrals per annum to GPs = 57 and midwives = 30). Homeopaths assessed their contribution to New Zealand Ministry of Health objectives as significant, with 77% perceiving that they improved nutrition, 75% increasing physical activity and 63% reducing smoking. Conclusion: These findings enable greater understanding of the way in which homeopaths practice in New Zealand and how they perceive their role in health care. The findings potentially assist communication between homeopaths and other health professionals. There is a need to further investigate homeopaths' practices and perceptions in NZ.

4. **Lettner S, Kessel KA, Combs SE. Complementary and alternative medicine in radiation oncology : Survey of patients' attitudes. *Strahlenther Onkol*. 2017 May;193(5):419-425. doi: 10.1007/s00066-017-1101-5. Epub 2017 Jan 27. PubMed PMID: 28130601.**

BACKGROUND: Complementary and alternative medicine (CAM) are gaining in importance, but objective data are mostly missing. However, in previous trials, methods such as acupuncture showed significant advantages compared to standard therapies. Thus, the aim was to evaluate most frequently used methods, their significance and the general acceptance amongst cancer patients undergoing radiotherapy (RT).

METHODS: A questionnaire of 18 questions based on the categorical classification released by the National Centre for Complementary and Integrative Health was developed. From April to September 2015, all patients undergoing RT at the Department of Radiation Oncology, Technical University of Munich, completed the survey. Changes in attitude towards CAM were evaluated using the questionnaire after RT during the first follow-up visit ($n = 31$).

RESULTS: Of 634 patients, 333 answered the questionnaire (52.5%). Of all participants, 26.4% used CAM parallel to RT. Before RT, a total of 39.3% had already used complementary medicine. The most frequently applied methods during therapy were vitamins/minerals, food supplements, physiotherapy/manual medicine, and homeopathy. The majority (71.5%) did not use any complementary treatment, mostly stating that CAM was not offered to them (73.5%). The most common reasons for use were to improve the immune system (48%), to reduce side effects (43.8%), and to not miss an opportunity (37.8%). Treatment integrated into the individual therapy concept, e.g. regular acupuncture, would be used by 63.7% of RT patients.

CONCLUSION: In comparison to other studies, usage of CAM parallel to RT in our department is considered to be low. Acceptance amongst patients is present, as treatment integrated into the individual oncology therapy would be used by about two-third of patients.

5. **Zevallos-Morales A, Málaga M, Taype-Rondan A. [Trends in Google searches oncomplementary and alternative medicine]. Rev Med Inst Mex Seguro Soc. 2017Mar-Apr;55(2):161-169. Spanish. PubMed PMID: 28296366.**

Background: The aim of this article is to evaluate the interest in complementary and alternative medicine (CAM) therapies using Google Trends in spanish-speaking countries.

METHODS: An observational study was conducted using GoogleTrends. The search volume of 34 CAM therapies in spanish were evaluated globally and in 21 spanish-speaking countries. Also, the relationship between the median of the most popular searches and the gross domestic product (GDP) per capita in each of the countries was evaluated using Spearman's test.

Results: A decreased trend in search volume was observed in homeopathy, herbal medicine, acupunctureand sensory therapies; and an increasing trend in chiropraxy. A direct association was observed between the GDP per capita and the median between the most popular CAM therapies, this relationship was no significant ($p = 0.432$).

Conclusions: The interest in CAM therapies shows temporal and geographic variations that must be studied in depth. These results can be used for the establishment of an international monitoring for the use of CAM therapies.

6. Josyula KL, Sheikh K, Nambiar D, Narayan VV, Sathyanarayana TN, Porter JD."Getting the water-carrier to light the lamps": Discrepant role perceptions of traditional, complementary, and alternative medical practitioners in government health facilities in India. Soc Sci Med. 2016 Oct;166:214-22. doi:10.1016/j.socscimed.2016.08.038. Epub 2016 Aug 24. PubMed PMID: 27575933; PubMed Central PMCID: PMC5034848.

The government of India has, over the past decade, implemented the "integration" of traditional, complementary and alternative medical (TCAM) practitioners, specifically practitioners of Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa-rigpa, and Homoeopathy (collectively known by the acronym AYUSH), in government health services. A range of operational and ethical challenges has manifested during this process of large health system reform. We explored the practices and perceptions of health system actors, in relation to AYUSH providers' roles in government health services in three Indian states - Kerala, Meghalaya, and Delhi. Research methods included 196 in-depth interviews with a range of health policy and system actors and beneficiaries, between February and October 2012, and review of national, state, and district-level policy documents relating to AYUSH integration. The thematic 'framework' approach was applied to analyze data from the interviews, and systematic content analysis performed on policy documents. We found that the roles of AYUSH providers are frequently ambiguously stated and variably interpreted, in relation to various aspects of their practice, such as outpatient care, prescribing rights, emergency duties, obstetric services, night duties, and referrals across systems of medicine. Work sharing is variously interpreted by different health system actors as complementing allopathic practice with AYUSH practice, or allopathic practice, by AYUSH providers to supplement the work of allopathic practitioners. Interactions among AYUSH practitioners and their health system colleagues frequently take place in a context of partial information, preconceived notions, power imbalances, and mistrust. In some notable instances, collegial relationships and apt divisions of responsibilities are observed. Widespread normative ambivalence around the roles of AYUSH providers, complicated by the logistical constraints prevalent in poorly resourced systems, has the potential to undermine the therapeutic practices and motivation of AYUSH providers, as well as the overall efficiency and performance of integrated health services.

7. **Hussain M. Only 5%-7% of Indians use alternative medicine options such as AYUSH. Natl Med J India. 2015 Sep-Oct;28(5):265-6. PubMed PMID: 27132975.**

Chapter: II

Users of Homeopathy

1. **Gentry-Maharaj A, Karpinskyj C, Glazer C, Burnell M, Bailey K, Apostolidou S, Ryan A, Lanceley A, Fraser L, Jacobs I, Hunter MS, Menon U. Prevalence and predictors of complementary and alternative medicine/non-pharmacological interventions use for menopausal symptoms within the UK Collaborative Trial of Ovarian Cancer Screening. Climacteric. 2017 Jun;20(3):240-247.**

Objectives: The negative publicity about menopausal hormone therapy (MHT) has led to increased use of complementary and alternative medicines (CAM) and non-pharmacological interventions (NPI) for menopausal symptom relief. We report on the prevalence and predictors of CAM/NPI among UK postmenopausal women.

Method: Postmenopausal women aged 50-74 years were invited to participate in the UK Collaborative Trial of Ovarian Cancer Screening (UKCTOCS). A total of 202 638 women were recruited and completed a baseline questionnaire. Of these, 136 020 were sent a postal follow-up-questionnaire between September 2006 and May 2009 which included ever-use of CAM/NPI for menopausal symptom relief. Both questionnaires included MHT use.

Results: A total of 88 430 (65.0%) women returned a completed follow-up-questionnaire; 22 206 (25.1%) reported ever-use of one or more CAM/NPI. Highest use was reported for herbal therapies (43.8%; 9725/22 206), vitamins (42.6%; 9458/22 206), lifestyle approaches (32.1%; 7137/22 206) and phytoestrogens (21.6%; 4802/22 206). Older women reported less ever-use of herbal therapies, vitamins and phytoestrogens. Lifestyle approaches, aromatherapy/reflexology/acupuncture and homeopathy were similar across age groups. Higher education, Black ethnicity, MHT or previous oral contraceptive pill use were associated with higher CAM/NPI use. Women assessed as being less hopeful about their future were less likely to use CAM/NPI.

Conclusion: One in four postmenopausal women reported ever-use of CAM therapies/NPI for menopausal symptom relief, with lower use reported by older women. Higher levels of education and previous MHT use were positive predictors of CAM/NPI use.

2. **McCusker M, Sidbury R. Nutrition and skin: Kids are not just little people. Clin Dermatol. 2016 Nov - Dec;34(6):698-709.doi:10.1016/j.clindermatol.2016.07.004. Epub 2016 Jul 9. PubMed PMID: 27968929.**

There has been a surge of new data regarding the pathophysiology of skin diseases. We are appreciating the sophisticated interplay among the skin, the immune system, and the environment. More elegant and highly specific medicines have been designed to target certain immune mediators of the adaptive immune system. In parallel fashion, we are learning more about the elegance of the innate immune system and how nutrition as early as the prenatal period can affect the priming of other immune cells. Concerns about the long-term impact of new immune-modulating medicines-especially in the pediatric population-have patients asking their dermatologists for nutritional alternatives to medical therapies. Nutrients and nutritional therapies appear to play a role at different ages for different dermatoses. Probiotics are showing promise as a therapeutic option for patients older than 1 year for atopic dermatitis. Systemic contact allergens appear to be a bigger burden on the adult population with atopic dermatitis. Obesity is a growing concern for both children and adults with psoriasis. Milk and high glycemic foods have a strong impact on the teenage acne population. Vitamins A and D are addressed as piece of the alopecia areata puzzle. Zinc and homeopathy are presented finally as possible treatments to the everlasting wart.

3. **Steel A, Cramer H, Leung B, Lauche R, Adams J, Langhorst J, Dobos G.Characteristics of Homeopathy Users among Internal Medicine Patients in Germany. Forsch Komplementmed. 2016;23(5):284-289. Epub 2016 Oct 7. PubMed PMID: 27811465.**

BACKGROUND: Homeopathy use continues to grow in many European countries, and some studies have examined the characteristics of patients using homeopathy within the general population. The aim of this study was to identify predictors for homeopathy use among internal medicine patients.

PATIENTS AND METHODS: A cross-sectional analysis was conducted among all patients being referred to the Department of Internal and Integrative Medicine at Essen, Germany, over a 3-year period. The analysis examined whether patients had used homeopathy for their primary medical complaint before, the perceived benefit, and the perceived harm of homeopathy use. Odds ratios with 95% confidence intervals were calculated using multiple logistic regression analysis.

RESULTS: Of 2,045 respondents, 715 (35.0%) reported having used homeopathy for their primary medical complaint (diagnosis according to the International Statistical Classification of Diseases and Related Health Problems), with 359 (50.2%) reporting perceived benefits and 15 (2.1%) reporting harm. Homeopathy use was positively associated with female gender, high school level education, suffering from fibromyalgia or subthreshold depression, and being fast food abstinent, while patients with osteoarthritis, spinal or other pain, smokers, and patients with a high external-social health locus of control were less likely to use homeopathy.

CONCLUSION: Personal characteristics and health status may impact on the use and the perceived helpfulness of homeopathy.

4. **Lail G, Luck N, Tasneem AA, Rai A, Laeeq SM, Majid Z. The usage of complementary and alternative medicine in gastrointestinal patients visiting the outpatients' department of a large tertiary care centre-views from Pakistan. Pan Afr Med J. 2016 Jul 15; 24:247. eCollection 2016. PubMed PMID: 27800102; PubMed central PMCID: PMC5075463.**

INTRODUCTION: The use of complementary and alternative medicine (CAM) has increased over the last few years, and an emergent data suggests that some CAM modalities may be helpful in addressing gastrointestinal (GI) conditions. Our aim was to find out the prevalence of such practices for GI condition amongst patients visiting an OPD of a large tertiary care centre of Karachi, Pakistan.

METHODS: Patients visiting outpatient department of Hepatogastroenterology department at SIUT, Pakistan from March 2014 to March 2015, were included in this cross sectional study. A pre designed questionnaire was used that included the demographic data, primary disease of the patient, CAM modality used, reason for the use of CAM therapy and reasons for stopping it. Frequencies of different variables were computed using SPSS version 18.

RESULTS: 906 patients were interviewed, out of which 52% (471) were males. The mean age at presentation was 39.81±12.4 years. 234 (25.8%) of the participants used one of the CAM modalities; Herbal medicine being most common one, seen in 122 (52.13%) followed by spiritual 61 (26%), and homeopathy 33 (14%). The duration of therapy was limited to six months in 161(68%), whereas 7 patients

(2.9%) had prolonged duration of use of more than five years. Reasons for using CAM therapy included advice by family and friends in 66 patients (28%), personal will in 42 (17.94%), no benefit from allopathic treatment in 34 (14.5%), while high cost was the reason of use in 3(5%) of the patients. The most common reason for discontinuation of CAM was no benefit, seen in 113 patients (48.30%), followed by physician's advice in 32 (17%) patients, and side effects in 19 (8%). On the other hand 44 patients (18.80%) reported benefit from the therapy while 14 (5.9%) were still continuing with CAM modality. Among the CAM users 140 (60.09%) were un-educated or had primary education while CAM nonusers had 328 (47%) were either uneducated or had primary education only correlation reveals P value 0.004.

CONCLUSION: Significant numbers of patients used CAM therapy. A lower level of education was associated with increased usage of CAM while cost had no major impact on its usage.

5. **Zarshenas MM, Zargaran A, Blaschke M. Convenient, Traditional and Alternative Therapies for Cardiovascular Disorders. Curr Pharm Des. 2016 Oct 10. [Epub ahead of print] PubMed PMID: 27748196.**

Cardiovascular diseases (CVD) are of major causes of death worldwide. Complementary and alternative medicines (CAM) are considered as new sources to find preventive and treatment approaches with mostly a historical perspective. Chinese medicine (CM), Persian medicine (PM), Ayurveda and homeopathy are as mostpopular traditional systems of medicine among various CAM methods. In this survey, we aimed to review most relevant and approved treatment by current investigations on these CAM systems in the field of CVD to present best traditional remedies and treatment approaches. To this, a search within databases including PubMed, Scopus and Google scholar was performed to find and select traditional approaches for CVD with the help of four CAM systems: CM, PM, Ayurveda and homeopathy. There are numerous cardiovascular and allied complications. Based on the type and group of disorder, the aforementioned complementary and alternative systems of medicine offer convenient and practical treatment approaches which can be considered along with the conventional interventions. Many mono and multi-ingredient preparations have been introduced by those popular systems of medicine. In addition, non-pharmacological treatments such as acupuncture and cupping are reported in some circumstances. Apart from various compound formulations, most of the human studies are limited to the single medicinal plants from modern phytotherapy. Accordingly, more comprehensive assessments are to be performed to distinguish those traditional remedies from popular holistic medical systems.

6. **Kłak A, Raciborski F, Krzych-Falta E, Opoczyńska-Świeżewska D, Szymański J, Lipiec A, Piekarska B, Sybilski A, Tomaszewska A, Samoliński B. Persons with allergy symptoms use alternative medicine more often. *Pneumonol Alergol Pol.* 2016;84(5):251-7. doi: 10.5603/PiAP.2016.0031. PubMed PMID: 27672066.**

The occurrence of allergic diseases and asthma influences the frequency of alternative medicine use. However the frequency of alternative medicine use does not depend on allergic disease or asthma being confirmed by a doctor.

7. **Park CL, Finkelstein-Fox L, Barnes DM, Mazure CM, Hoff R. CAM use in recently-returned OEF/OIF/OND US veterans: Demographic and psychosocial predictors. *Complement Ther Med.* 2016 Oct;28:50-6. doi:10.1016/j.ctim.2016.08.004. Epub 2016 Aug 18. PubMed PMID: 27670870; PubMedCentral PMCID: PMC5074081.**

OBJECTIVES: Because the use of complementary and alternative medicine (CAM) is increasing among veterans, understanding more about the characteristics of veterans who use CAM is increasingly important. Studies reporting on predictors of use almost always discuss CAM in the aggregate, yet each CAM modality represents a unique approach to healthcare, and each may have different correlates as well as different effectiveness. Very little information is available about veterans' use of each distinct modality, and about psychosocial correlates of various forms of CAM use.

DESIGN: We analyzed data from wave 1 of the Survey of the Experiences of Returning Veterans (SERV) Study, which included 729 veterans returning from Operation Iraqi Freedom (OIF), Operation Enduring Freedom (OEF) and Operation New Dawn (OND).

SETTING: Data were collected by telephone interviews.

MAIN MEASURES: We examined a range of potentially important correlates of CAM use, including demographics, military experiences, and current mental and physical health.

RESULTS: Each predictor related to a unique constellation of CAM modalities; not one of the predictors examined was associated with more than half of the 12 modalities. For example, women were more likely to use acupuncture, massage, yoga, meditation and spiritual healing, and age related only to greater use of homeopathy, while deployment injuries related positively to use of chiropractic, nutrition and meditation.

CONCLUSIONS: Results suggest that in order to understand CAM use, CAM modalities should be considered unique and separate practices. This greater understanding should be useful for future health service provision for veterans.

8. **Vardell E. AMED: The Allied and Complementary Medicine Database. Med Ref ServQ. 2016 Oct-Dec;35(4):434-9. doi: 10.1080/02763869.2016.1220759. PubMed PMID:27657370.**

The Allied and Complementary Medicine Database is a resource from the Health Care Information Service of the British Library. AMED offers access to complementary and alternative medicine topics, such as acupuncture, chiropractic, herbalism, homeopathy, hospice care, hypnosis, palliative care, physiotherapy, podiatry, and rehabilitation. This column features a sample search to demonstrate the type of information available within AMED. AMED is available through the EBSCOhost and OVID platforms.

9. **Soós SÁ, Jeszenői N, Darvas K, Harsányi L. [Complementary and alternative medicine use in surgical patients]. Orv Hetil. 2016 Sep;157(37):1483-8. doi:10.1556/650.2016.30543. Hungarian. PubMed PMID: 27615199.**

INTRODUCTION: Due to the rise in use of non-conventional therapies, we may consider the application of those in perioperative setting.

AIM: The aims of the authors were to measure the attitude of patients waiting for elective surgery towards naturopathic methods, to determine their use and factors influencing their usage.

METHOD: A questionnaire was applied that patients filled in individually and anonymously at the First Department of Surgery of Semmelweis University, between July 1, 2014 and April 30, 2016.

RESULTS: 63.6% of the 519 participants (response rate = 21%) were interested in non-conventional therapies, and 26.8% of them applied naturopathy. In this group there were significantly more females ($p = 0.022$; OR: 1.066-2.3635), patients with university degree ($p = 0.000315$; OR: 1.3915-3.1132), aged 40-49 ($p = 0.012419$; OR: 1.1451-3.2405), and patients with hormonal disease ($p = 0.039482$; OR: 1.0186-5.7242). In terms of lifetime prevalence, the most popular methods were traditional Chinese medicine (8.9%), alternative movement and massage therapy (7.5%) and homeopathy (7.3%). Only 12.9% of the patients reported the application of these methods to the physician.

CONCLUSION: Surgical patients are interested in naturopathic methods, and one-fourth of them actually use them even in the perioperative period.

10. **Italia S, Brüske I, Heinrich J, Berdel D, von Berg A, Lehmann I, Standl M, Wolfenstetter SB. Complementary and Alternative Medicine Use Among Chronically Ill Adolescents from 2 German Birth Cohorts. Forsch Komplementmed. 2016;23(4):246-52. doi: 10.1159/000448444. Epub 2016 Aug 12. PubMed PMID:27607464.**

BACKGROUND: Pediatric use of complementary and alternative medicine (CAM) is popular in Europe, and utilization may be even more prevalent in chronically ill children/adolescents. This study's aim is to assess CAM use among adolescents with chronic conditions.

METHODS: Data on drug utilization (past 4 weeks) and consultation with CAM providers (past year) were collected using a self-administered questionnaire from 4,677 adolescents from the German GINI plus/LISA plus birth cohorts. All reported drugs were classified into therapeutic categories (conventional drugs, homeopathy, herbal drugs, etc.). Additionally, participants were asked to list any chronic diseases (that were parent-reported, physician-verified diagnoses such as allergies, atopic dermatitis, asthma, or other chronic diseases) that they had had over the previous 5 years.

RESULTS: Compared with the total sample, drug utilization in general (60.1% vs. 41.1%), homeopathy use (11.1% vs. 8.1%), and consultation with CAM providers (16.9% vs. 10.9%) was significantly more prevalent among chronically ill adolescents. However, chronically ill adolescents used relatively (proportion of the defined therapeutic category among all drugs used) more conventional drugs than healthy adolescents.

CONCLUSION: Compared with healthy adolescents, CAM use is more prevalent among adolescents with chronic conditions. Nevertheless, CAM may predominantly be used as a complementary treatment option rather than substituting conventional drugs.

- 11. Almeida J. Complementary and alternative medicine's occupational closure in Portuguese healthcare: Contradictions and challenges. Health (London). 2016Sep;20(5):447-64. doi: 10.1177/1363459316660857. PubMed PMID: 27580857.**

This article analyses strategies of closure recently enacted by complementary and alternative medicine practitioners in order to achieve occupation a control over work domains in healthcare, taking Portugal as an example. A combination of the neo-Weberian occupational closure theory of the professions and Abbott's jurisdictional vacancy theory is proposed as the framework for analysis. Acupuncture and homeopathy will be presented as case studies. Data are derived from in-depth interviews with 10 traditional acupuncturists and 10 traditional homeopaths. Data analysis suggests that

(1) professionalisation,

(2) alignment with biomedical science and

(3) expressing 'legitimizing values' of a countervailing nature have been three significant strategies complementary and alternative medicine practitioners have used in an attempt to achieve market closure. It is argued that these strategies are contradictory: some involve allegiances, while others involve demarcation from biomedical science. A further outcome of these strategies is the promotion of complementary and alternative medicine treatments and solutions in everyday life. The success of these strategies therefore, although helping to reinforce the biomedical model, may simultaneously help complementary and alternative medicine to demarcate from it, posing thus challenges to mainstream healthcare.

- 12. Qiu J, Grine K. Complementary and Alternative Treatment for Allergic Conditions. Prim Care. 2016 Sep;43(3):519-26. doi: 10.1016/j.pop.2016.04.012.Review. PubMed PMID: 27545740.**

This article explains the proposed pathophysiology, evidence of efficacy, and adverse effects of several complementary and alternative medicine modalities, for the treatment of allergic conditions, such as traditional Chinese medicine formula, herbal treatments, acupuncture, and homeopathy.

- 13. Olchowska-Kotala A, Barański J. Polish physicians' attitudes to complementary and alternative medicine. Complement Ther Med. 2016 Aug;27:51-7. doi: 10.1016/j.ctim.2016.05.004. Epub 2016 May 20. PubMed PMID: 27515876.**

OBJECTIVE: The aim of the study was to assess and compare attitudes, beliefs, and desire for education regarding CAM among Polish junior and senior doctors.

DESIGN: A descriptive survey.

SETTING: Between October 2014 and April 2015, 170 physicians were surveyed (89 senior and 81 junior doctors). The respondents were participating in vocational refresher courses for physicians or in specialist training organized by the Polish Chamber of Physicians and Dentists.

METHODS: The beliefs about CAM were surveyed by a structured, self-administrated questionnaire. The additional section contained questions concerning the respondents' attitudes toward 6 CAM methods: acupuncture, energy therapy, homeopathy, chiropractice, visualization and herbal medicine. For each treatment respondents were asked to indicate whether they believed (1) it should be recommended to patients, (2) it should be accepted that patients use it, or (3) patients should be actively discouraged from using it.

RESULTS: Senior doctors had more positive attitudes towards CAM than doctors who had just started their medical practice, although scepticism or uncertainty about the value of CAM was prevalent in the sample as a whole. Despite their skepticism physicians are open to conducting scientific research on CAM and discussing CAM with their patients.

CONCLUSION: Given the views held by doctors that the training and activities of CAM therapists should be regulated by the Chamber of Physicians and Dentists, the integration of CAM into medical curriculum and the Polish public healthcare does not yet seem feasible. There is a need for a public debate about CAM and a legal framework regulating practice of CAM in Poland.

- 14. Beer AM, Burlaka I, Buskin S, Kamenov B, Pettenazzo A, Popova D, RiverosHuckstadt MP, Sakalinskas V, Oberbaum M. Usage and Attitudes Towards Natural Remedies and Homeopathy in General Pediatrics: A Cross-Country Overview. GlobPediatr Health. 2016 Jul 1; 3:2333794X15625409. doi: 10.1177/2333794X15625409.eCollection 2016. PubMed PMID: 27493983; PubMed Central PMCID: PMC4959793.**

In order to better understand the global approach and country differences in physicians' usage, knowledge, and attitudes towards natural remedie and homeopathy in pediatric practice, an online survey involving 582 general pediatricians and general practitioners treating pediatric diseases was conducted in 6 countries. Overall, 17% of the pediatric prescriptions refer to phytotherapy and 15% refer to homeopathic preparations. Natural remedies and homeopathic preparations are more frequently used in upper respiratory tract infections, infant colic, sleep disturbances, and recurrent infections. In the majority of cases, they are used together with chemical drugs. Both treatment options are typically used if parents are concerned about side effects of conventional drugs or prefer natural remedies for themselves. Physicians express high interest in natural remedies and homeopathy; however, their knowledge is variable. Lack of proven efficacy, knowledge on mechanism of action, and information on indications are main factors that limit their usage.

- 15. Escher M, Büssing A, Ostermann T. Survey on hand gestures relevance inpatient practitioner communication: a homeopathic example. Homeopathy. 2016Aug;105(3):233-9. doi: 10.1016/j.homp.2016.02.005. Epub 2016 May 13. PubMed PMID:27473544.**

BACKGROUND: Gestures play an important role in medical communication.

METHODS: 94 homeopaths (Mean age 49.6 years, 20% male) completed a 20-item questionnaire on utilization and relevance of gestures in patients' symptom description.

RESULTS: After excluding nine items due to low validity ($n = 4$) or low item total correlation ($n = 5$), factor analysis of the questionnaire resulted in the following three dimensions explaining 66.6% of variance: 'Hand gestures in relation to verbal expressions' (5 items; Cronbach's $\alpha = 0.81$), 'Hand Gestures describing the experience of bodily and mental symptoms' (4 items; Cronbach's $\alpha = 0.74$) and 'practitioners' behavior and active attitude in observing hand gestures' (2 items; Cronbach's $\alpha = 0.86$).

CONCLUSION: The survey shows how homeopathic therapists view patients' hand gestures, whether they use these diagnostically and how this relates to their homeopathic practice. Practitioners with only homeopathic influence on this topic are highly congruent to findings on hand gestures from other domains.

- 16. Should I try homeopathic cold and flu remedies? Consum Rep. 2016Mar;81(3):15. PubMed PMID: 26878744.**
- 17. Hartmann N, Neininger MP, Bernhard MK, Syrbe S, Nickel P, Merckenschlager A, Kiess W, Bertsche T, Bertsche A. Use of complementary and alternative medicine(CAM) by parents in their children and adolescents with epilepsy - Prevalance, predictors and parents' assessment. Eur J Paediatr Neurol. 2016 Jan;20(1):11-9.doi: 10.1016/j.ejpn.2015.11.003. Epub 2015 Nov 10. PubMed PMID: 26614551.**
- 18. Frawley J, Sibbritt D, Broom A, Gallois C, Steel A, Adams J. Women's attitudes towards the use of complementary and alternative medicine products during pregnancy. J Obstet Gynaecol. 2016 May;36(4):462-7. doi:10.3109/01443615.2015.1072804. Epub 2015 Oct 15. PubMed PMID: 26472482.**

The aim of this study was to analyse women's attitudes towards the use of complementary and alternative medicine (CAM) products during pregnancy. The study sample was obtained via the Australian Longitudinal Study on Women's Health or ALSWH. A response rate of 79.2% (n = 1,835) was attained. Women who use herbal medicines (34.5%, n = 588) view CAM as a preventative measure, are looking for something holistic and are concerned about evidence of clinical efficacy when considering the use of these products during pregnancy. Women who use aromatherapy (17.4%, n = 319) and homoeopathy (13.3%, n = 244) want more personal control over their body and are concerned more about their own personal experience of the efficacy of CAM than clinical evidence of efficacy. As CAM use in pregnancy appears to be increasingly commonplace, insights into women's attitudes towards CAM are valuable for maternity healthcare providers.

- 19. Pedersen IK, Hansen VH, Grünenberg K. The emergence of trust in clinics of alternative medicine. *Sociol Health Illn.* 2016 Jan;38(1):43-57. doi:10.1111/1467-9566.12338. Epub 2015 Sep 24. PubMed PMID: 26403077.**

Demands for alternative medicine have increased since the 1970s in nations in which western scientific evidence has become the basis for health care. This paradox has been the impetus to examine how trust emerges in clinics of alternative medicine. Alternative practitioners are self-regulated and the clients pay out of their own pockets to attend non-authorised treatments with very limited scientific evidence of their effects. Trust is a key issue in this context. However, only a few studies have dealt with the ways in which alternative practitioners win their clients' trust. Drawing on three qualitative studies and informing the empirical findings with a sociological concept of trust, this article provides new empirical insights on how trust emerges in Danish clinics of acupuncture, reflexology and homeopathy. The analysis demonstrates how trust is situational and emerges through both clients' susceptibility and practitioners' individual skill development and strategies, as well as from objects, place and space. Trust is developed on relational and bodily as well as material grounds. It is argued that the dynamics and elements of trust identified do not only minimise uncertainties but sometimes convert these uncertainties into productive new ways for clients to address their ailments, life circumstances and perspectives.

- 20. Sadeghi M, Rabiepoor S, Forough AS, Jabbari S, Shahabi S. A Survey of Medical Students' Knowledge and Attitudes Toward Complementary and Alternative Medicine in Urmia, Iran. *J Evid Based Complementary Altern Med.* 2016 Oct;21(4):306-10. doi: 10.1177/2156587215605751. Epub 2015 Sep 21. PubMed PMID: 26396087. *this practice. Forsch Komplementmed.* 2015;22(1):30-5. doi: 10.1159/000377644. Epub 2015 Feb 18. PubMed PMID: 25824402.**

Personal beliefs of medical students may interfere with their tendency for learning Complementary and Alternative Medicine concepts. This study aimed to investigate the knowledge and attitudes of medical students toward complementary and alternative medicine in Urmia, Iran. A structured questionnaire was used as data collection instrument. One hundred questionnaires were returned. Thirty-one percent of students reported use of alternative medicine for at least once. Iranian Traditional Medicine was the main type of alternative medicine used by medical students (93.5%). Neuromuscular disorders were the main indication of alternative medicine use among students (34.4%). Ninety percent of participants demonstrated competent knowledge about acupuncture while the lowest scores belonged to homeopathy (12%). Study results showed that 49% of medical students had positive attitudes and demonstrated a willingness to receive training on the subject. Thus, there appears a necessity to integrate complementary and alternative medicine into the medical curriculum, by taking expectations and feedbacks of medical students into consideration

Chapter V

Ethical issues in Homeopathy

1. **Häuser W, Petzke F, Kopp I, Nothacker M. [Impact of conflicts of interest on guideline recommendations: Empirical study within the second update of the German interdisciplinary S3 guidelines on fibromyalgia syndrome]. Schmerz. 2017Apr 28. doi: 10.1007/s00482-017-0218-x. [Epub ahead of print] German. PubMedPMID: 28455823.**

A total of 42 persons from different healthcare professions and patients participated in the online voting on recommendations. Of the participants 29% had no COI according to the predefined criteria, 53% met the criteria of academic and 33% the criteria of financial COI. In the case of exclusion of participants with a COI related to a specific recommendation, 2 out of 23 recommendations (homeopathy, tramadol) were not accepted. In all votes, there were more participants without COI than with COI.

2. **Gray B. How Should We Respond to Non-Dominant Healing Practices, the Example of Homeopathy. J Bioeth Inq. 2017 Mar;14(1):87-96. doi:10.1007/s11673-016-9760-y. Epub 2016 Dec 14. PubMed PMID: 27975156.**

The debate around the ethics of homeopathy in recent issues of the journal has been approached as a binary question; is homeopathy ethical or not? This paper suggests that this is an unhelpful question and instead discusses a framework to establish the extent to which the dominant (medical) culture should tolerate non-dominant health practices such as homeopathy. This requires a sophisticated understanding of the placebo effect, a critical evaluation of what evidence is available, a consideration of the harm that the non-dominant practice might cause, and a consideration of how this might be affected by the culture of the patient. This is presented as a matter of cultural competence. At a clinical level clinicians need to respect the values and beliefs of their patients and communicate with all the practitioners involved in a patient's care. At a societal level there are a number of factors to be considered when a community decides which practices to tolerate and to what extent.

3. **Mendel J, Goldacre B, Ernst E, Whittle S. Problems with ethical approval and how to fix them: lessons from three trials in rheumatoid arthritis. BMJ. 2016 Sep9;354:i4626. doi: 10.1136/bmj.i4626. PubMed PMID: 27613703.**
4. **Math SB, Moirangthem S, Kumar NC, Nirmala MC. Ethical and legal issues incross-system practice in India: Past, present and future. Natl Med J India. 2015Nov-Dec;28(6):295-9. Review. PubMed PMID: 27294458.**

Recent changes in policies allowing practitioners of Ayurveda, Yoga, Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) to integrate into the mainstream of healthcare and also allowing practitioners of Ayurveda and Homoeopathy to perform medical termination of pregnancy (MTP) under the proposed amendment to the MTP bill have brought cross system practice into the limelight. We evaluate cross-system practice from its legal and ethical perspectives. Across judgments, the judiciary has held that cross-system practice is a form of medical negligence; however, it is permitted only in those states where the concerned governments have authorized it by a general or special order. Further, though a state government may authorize an alternative medicine doctor to prescribe allopathic medicines (or vice versa), it does not condone the prescription of wrong medicines or wrong diagnosis. Courts have also stated that prescribing allopathic medicines and misrepresenting these as traditional medicines is an unfair trade practice and not explaining the side-effects of a prescribed allopathic medicine amounts to medical negligence. Finally, the Supreme Court has cautioned that employing traditional medical practitioners who do not possess the required skill and competence to give allopathic treatment in hospitals and to let an emergency patient be treated by them is gross negligence. In the event of an unwanted outcome, the responsibility is

completely on the hospital authorities. Therefore, there is an urgent need to abolish cross-system practice, invest in healthcare, and bring radical changes in health legislations to make right to healthcare a reality.

Chapter VI

Meta-analyses – Systematic Reviews

1. **Banerjee K, Mathie RT, Costelloe C, Howick J. Homeopathy for Allergic Rhinitis: A Systematic Review. J Altern Complement Med. 2017 Feb 16. doi:10.1089/acm.2016.0310. [Epub ahead of print] PubMed PMID: 28437146.**

The aim of this study was to evaluate the efficacy and effectiveness of homeopathic intervention in the treatment of seasonal or perennial allergic rhinitis (AR). Randomized controlled trials evaluating all forms of homeopathic treatment for AR were included in a systematic review (SR) of studies published up to and including December 2015. Two authors independently screened potential studies, extracted data, and assessed risk of bias. Primary outcomes included symptom improvement and total quality-of-life score. Treatment effect size was quantified as mean difference (continuous data), or by risk ratio (RR) and odds ratio (dichotomous data), with 95% confidence intervals (CI). Meta-analysis was performed after assessing heterogeneity and risk of bias.

RESULTS: Eleven studies were eligible for SR. All trials were placebo-controlled except one. Six trials used the treatment approach known as isopathy, but they were unsuitable for meta-analysis due to problems of heterogeneity and data extraction. The overall standard of methods and reporting was poor: 8/11 trials

were assessed as "high risk of bias"; only one trial, on isopathy for seasonal AR, possessed reliable evidence. Three trials of variable quality (all using Galphimia glauca for seasonal AR) were included in the meta-analysis: nasal symptom relief at 2 and 4 weeks (RR = 1.48 [95% CI 1.24-1.77] and 1.27 [95% CI 1.10-1.46], respectively) favored homeopathy compared with placebo; ocular symptom relief at 2 and 4 weeks also favored homeopathy (RR = 1.55 [95% CI 1.33-1.80] and 1.37 [95% CI 1.21-1.56], respectively). The single trial with reliable evidence had a small positive treatment effect without statistical significance. A homeopathic and a conventional nasal spray produced equivalent improvements in nasal and ocular symptoms.

CONCLUSIONS: The low or uncertain overall quality of the evidence warrants caution in drawing firm conclusions about intervention effects. Use of either Galphimia glauca or a homeopathic nasal spray may have small beneficial effects on the nasal and ocular symptoms of AR. The efficacy of isopathic treatment of AR is unclear.

2. **Mathie RT, Ramparsad N, Legg LA, Clausen J, Moss S, Davidson JR, Messow CM, McConnachie A. Randomised, double-blind, placebo-controlled trials of non-individualised homeopathic treatment: systematic review and meta-analysis. Syst Rev. 2017 Mar 24;6(1):63. doi: 10.1186/s13643-017-0445-3. PubMed PMID:28340607; PubMed Central PMCID: PMC5366148.**

BACKGROUND: A rigorous systematic review and meta-analysis focused on randomised controlled trials (RCTs) of non-individualised homeopathic treatment has not previously been reported. We tested the null hypothesis that the main outcome of treatment using a non-individualised (standardised) homeopathic medicine is indistinguishable from that of placebo. An additional aim was to quantify any condition-specific effects of non-individualised homeopathic treatment.

METHODS: Literature search strategy, data extraction and statistical analysis all followed the methods described in a pre-published protocol. A trial comprised 'reliable evidence' if its risk of bias was low or it was unclear in one specified domain of assessment. 'Effect size' was reported as standardised mean difference (SMD), with arithmetic transformation for dichotomous data carried out as required; a negative SMD indicated an effect favouring homeopathy.

RESULTS: Forty-eight different clinical conditions were represented in 75 eligible RCTs. Forty-nine trials were classed as 'high risk of bias' and 23 as 'uncertain risk of bias'; the remaining three, clinically heterogeneous, trials displayed sufficiently low risk of bias to be designated reliable evidence.

Fifty-four trials had extractable data: pooled SMD was -0.33 (95% confidence interval (CI) -0.44, -0.21), which was attenuated to -0.16 (95% CI -0.31, -0.02) after adjustment for publication bias. The three trials with reliable evidence yielded a non-significant pooled SMD: -0.18 (95% CI -0.46, 0.09). There was no single clinical condition for which meta-analysis included reliable evidence.

CONCLUSIONS: The quality of the body of evidence is low. A meta-analysis of all extractable data leads to rejection of our null hypothesis, but analysis of a small sub-group of reliable evidence does not support that rejection. Reliable evidence is lacking in condition-specific meta-analyses, precluding relevant conclusions. Better designed and more rigorous RCTs are needed in order to develop an evidence base that can decisively provide reliable effect estimates of non-individualised homeopathic treatment.

3. Vithoulkas G. Serious mistakes in meta-analysis of homeopathic research. JMed Life. 2017 Jan-Mar;10(1):47-49. PubMed PMID: 28255376; PubMed Central PMCID: PMC5304371.

The article discussed the immanent problems of meta-analyses selecting a number of independent trials in homeopathy, within which, the purpose was to examine the effectiveness of homeopathic treatment. Our focus lied in clarifying that the complex effects of homeopathic treatment known from history and day-to-day practice have not been respected so far. The examination of most of the homeopathic trials showed that studies rarely account for homeopathic principles, in order to assess the effectiveness of the treatment. The main flaw was that trials reflect the point of view that the treatment with a specific remedy could be administered in a particular disease. However, homeopathy aims to treat the whole person, rather than the diseases and each case has to be treated individually with an individualized remedy. Furthermore, the commonly known events during the course of homeopathic treatment, such as "initial aggravation" and "symptom-shift" were not considered in almost all the studies. Thus, only few trials were eligible for meta-analyses, if at all. These and other factors were discussed and certain homeopathic principles were suggested to be respected in further trials. It is expected, that a better understanding of homeopathic principles would provide guidelines for homeopathic research, which are more acceptable to both homeopathy and conventional medicine.

4. Doehring C, Sundrum A. Efficacy of homeopathy in livestock according to peer-reviewed publications from 1981 to 2014. Vet Rec. 2016 Dec 17;179(24):628.doi: 10.1136/vr.103779. Epub 2016 Dec 12. PubMed PMID: 27956476; PubMed CentralPMCID: PMC5256414.

Homeopathy is widely used in livestock, especially in order to reduce the use of antibiotics, although it is often seen as controversial. A comprehensive literature review has been conducted to assess the efficacy of homeopathy in cattle, pigs and poultry. Only peer-reviewed publications dealing with homeopathic remedies, which could possibly replace or prevent the use of antibiotics in the case of infective diseases or growth promotion in livestock were included. Search results revealed a total number of 52 trials performed within 48 publications fulfilling the predefined criteria. Twenty-eight trials were in favour of homeopathy, with 26 trials showing a significantly higher efficacy in comparison to a control group, whereas 22 showed no medicinal effect. Cure rates for the treatments with antibiotics, homeopathy or placebo varied to a high degree, while the remedy used did not seem to make a big difference. Looking at all the studies, no study was repeated under comparable conditions. Consequently, the use of homeopathy currently cannot claim to have sufficient prognostic validity where efficacy is concerned. When striving for high therapeutic success in treatment, the potential of homeopathy in replacing or reducing antibiotics can only be validated if evidence of efficacy is confirmed by randomised controlled trials under modified conditions.

5. Teixeira MZ. Biological therapies (immunomodulatory drugs), worsening of psoriasis and rebound effect: new evidence of similitude. Homeopathy. 2016Nov;105(4):344-355. doi: 10.1016/j.homp.2016.09.002. Epub 2016 Oct 12. Review.PubMed PMID: 27914574.

Background: Employing the secondary action or adaptative reaction of the organism as therapeutic response, homeopathy uses the treatment by similitude (*similia similibus curentur*) administering to sick individuals the medicines that caused similar symptoms in healthy individuals. Such homeostatic or paradoxical reaction of the organism is scientifically explained through the rebound

effect of drugs, which cause worsening of symptoms after withdrawal of several palliative treatments. Despite promoting an improvement in psoriasis at the beginning of the treatment, modern biological therapies provoke worsening of the psoriasis (rebound psoriasis) after discontinuation of drugs. **METHOD:** Exploratory qualitative review of the literature on the occurrence of the rebound effect with the use of immunomodulatory drugs [T-cell modulating agents and tumor necrosis factor (TNF) inhibitors drugs] in the treatment of psoriasis.

Results: Several researches indicate the rebound effect as the mechanism of worsening of psoriasis with the use of efalizumab causing the suspension of its marketing authorization in 2009, in view of some severe cases. Other studies also have demonstrated the occurrence of rebound psoriasis with the use of alefacept, etanercept and infliximab.

Conclusion: As well as studied in other classes of drugs, the rebound effect of biologic agents supports the principle of similitude (primary action of the drugs followed by secondary action and opposite of the organism).

- 6. Pellow J, McGrath L. Herbal medicine for low sexual desire in menopausal women: A clinical review. Complement Ther Clin Pract. 2016 Nov;25:122-129. doi:10.1016/j.ctcp.2016.09.007. Epub 2016 Sep 17. Review. PubMed PMID: 27863600.**

Many women typically experience a significant reduction in sexual desire during the late perimenopausal and early postmenopausal stages, with the biggest decline in sexual desire occurring from three years prior to two years after the final menstrual period. Despite being a prevalent female complaint, currently no standard treatment for low sexual desire exists. Herbal medicines have been used therapeutically all around the world, and are an important component of Traditional and Complementary Medicine. There have been numerous trials and pharmacological studies of specific herbal preparations related to the treatment of low sexual desire. This article serves to provide a clinical review of the evidence relating to the herbal treatment options for this common condition.

- 7. Waisse S, Bonamin LV. Explanatory models for homeopathy: from the vital force to the current paradigm. Homeopathy. 2016 Aug;105(3):280-5. doi:10.1016/j.homp.2016.02.003. Epub 2016 Apr 6. PubMed PMID: 27473550.**

Facing claims for and against the scientific status of homeopathy, one is entitled to ask: is there a scientific model for homeopathy? In this study we reconstructed the model put forward by Hahnemann. The results showed that it was essentially based on the assumption of a 'vital force' exclusive to living beings. While the vital force was a basic element of 18th-century science, the existence of such a sui generis force of nature was refuted with the formulation of the law of the conservation of energy by mid-19th century. As a function of that fact for homeopathic theory, we discuss the history of the rise and demise of the theory of the vital force from the last quarter of the 18th century to 1830. Finally, we call the attention to the paradigm shift biology underwent starting at the end of the 19th century as the framework for contemporary views on the functioning of living beings and consequently, of the effects of pharmacological agents on them.

- 8. Chatfield K Preston Uk, Mathie RT London Uk, Bonamin LV São Paulo Brazil, Oberbaum M Jerusalem Israel, Fisher P London Uk. The publication in Homeopathy of studies involving animal experimentation. Homeopathy. 2016 Aug;105(3):211-6. doi:10.1016/j.homp.2016.07.001. PubMed PMID: 27473541.**

- 9. Boltman-Binkowski H. A systematic review: Are herbal and homeopathic remedies used during pregnancy safe? Curationis. 2016 Apr 13;39(1):1514. doi:10.4102/curationis.v39i1.1514. Review. PubMed PMID: 27246791.**

BACKGROUND: Herbal and homeopathic remedies have been used to assist with child bearing and pregnancy for centuries. Allopathic ('Western') medicine is traditionally avoided during pregnancy because of limited drug trials and the suspected teratogenic effects of these medications. This has led to an increase in the use of herbal and homeopathic remedies, as they are viewed to have no teratogenic effect on the developing foetus. Health providers are faced with questions from their clients regarding the safety of these remedies, but much of the evidence about these herbal and homeopathic remedies is anecdotal and few remedies have been tested scientifically.

OBJECTIVES: By conducting a systematic review, the primary objective was to evaluate maternal and neonatal outcomes of ingested herbal and homeopathic remedies during pregnancy.

METHOD: A systematic review was conducted to synthesise all the evidence with the purpose of evaluating the safety of herbal and homeopathic remedies based on adverse maternal and neonatal outcomes. Only randomised and quasi-randomised controlled trials that met all inclusion criteria were included in the review.

RESULTS: The ingestion of ginger for nausea and vomiting during pregnancy was shown to have no harmful maternal or neonatal effects. Ingestion of castor oil for induction of labour showed a tendency towards an increase in the incidence of caesarean section and meconium stained liquor, warranting further research into its safety issues.

CONCLUSION: Larger randomised controlled trials need to be conducted, especially in South Africa, to establish the safety and efficacy of commonly-used remedies.

10. Ho D, Jagdeo J, Waldorf HA. Is There a Role for Arnica and Bromelain in Prevention of Post-Procedure Ecchymosis or Edema? A Systematic Review of the Literature. Dermatol Surg. 2016 Apr;42(4):445-63. doi:10.1097/DSS.0000000000000701. Review. PubMed PMID: 27035499.

BACKGROUND: The management of post procedure skin care is of significant interest to dermatologists and other physicians. Ecchymosis and edema are common temporary post procedure unwanted effects. Two botanically-derived products, arnica and bromelain, are used internationally by physicians to limit ecchymosis and edema that occur secondary to cosmetic, laser, and surgical skin procedures.

OBJECTIVE: The authors review the published literature and provide evidence-based recommendations on arnica and bromelain for prevention and treatment of post procedure ecchymosis and edema.

METHODS AND MATERIALS: A search of the computerized bibliographic databases Medline, EMBASE, Scopus, and CINAHL was performed on March 23, 2015. The key terms used were "arnica," and "bromelain."

RESULTS: This review contains clinical trials that evaluated prevention and/or treatment of post procedure ecchymosis or edema with oral arnica (11), topical arnica (2), and oral bromelain (7). No studies on topical bromelain were found. Clinical trials on arnica and bromelain have demonstrated mixed results. Some randomized controlled trials reported improvement post procedure with arnica (4/13) and bromelain (5/7). **CONCLUSION:** Based upon published studies, there is insufficient data to support use of arnica and bromelain post procedure, and the authors recommend additional research to determine the efficacy and safety of arnica and bromelain to prevent and/or treat ecchymosis and edema in patients.

Chapter VII

Clinical Research

1. **Macías-Cortés ED, Llanes-González L, Aguilar-Faisal L, Asbun-Bojalil J. Is metabolic dysregulation associated with antidepressant response in depressed women in climacteric treated with individualized homeopathic medicines or fluoxetine? The HOMDEP-MENOP Study. Homeopathy. 2017 Feb;106(1):3-10. doi:10.1016/j.homp.2016.11.002. Epub 2017 Jan 10. PubMed PMID: 28325221.**

Background: Climacteric is associated with both depression and metabolic dysregulation. Scarce evidence suggests that metabolic dysregulation may predict poor response to conventional antidepressants. Response to depression treatment has not been studied in homeopathic medicine. The aim of this study was to investigate the prevalence of metabolic disorders in depressed climacteric women treated with homeopathic medicines, fluoxetine or placebo, and if these alterations have any association with response to depression treatment.

Methods: One hundred and thirty-three Mexican women (40-65 years) with depression, enrolled in the HOMDEP-MENOP study, a randomized, placebo-controlled, double-blind, double-dummy, three-arm trial with a 6 week follow-up, underwent a complete medical history and clinical examination. Metabolic parameters were assessed at baseline. Association between baseline metabolic parameters and response to depression treatment was analyzed with bivariate analysis in the three groups. Odds ratios (OR) with their 95% confidence interval (95% CI) were calculated. Metabolic parameters were considered for inclusion in the logistic regression model if they had a statistically significant relationship with response rate on bivariate analysis at $p < 0.05$ or if they were clinically relevant.

Results: Overall combined prevalence (obesity and overweight) was 86.5%; 52.3% had hypertriglyceridemia; 44.7% hypercholesterolemia; 46.7% insulin resistance; and 16% subclinical hypothyroidism. There was no statistically significant association between dyslipidemia, overweight, or insulin resistance and non-response in the homeopathy group [OR (95% CI) 1.57 (0.46-5.32), $p = 0.467$; 0.37 (0.003-1.11), $p = 0.059$; 0.67 (0.16-2.7), $p = 0.579$, respectively].

Conclusion: Metabolic dysregulation was not significantly associated with response to depression treatment in depressed climacteric women treated with individualized homeopathic treatment (IHT), fluoxetine or placebo. Due to the high prevalence of metabolic disorders and its relationship with depression in the climacteric, further investigation should be focused on whether individualized prescriptions based on classical homeopathy for depressed climacteric women have an effect on metabolic parameters, and/or if treating the metabolic disorders at the same time could lead to higher response rates.

2. **Soós SÁ, Jeszenői N, Darvas K, Harsányi L. [Attitudes, knowledge and use of complementary and alternative medicine among perioperative health care professionals]. Orv Hetil. 2017 Apr;158(10):368-375. doi: 10.1556/650.2017.30676.Hungarian. PubMed PMID: 28270001.**

Introduction: Perioperative healthcare professionals' attitudes towards non-conventional treatments have not been explored in Hungary yet.

Aim: Our goal was to survey healthcare professionals' attitude and knowledge towards naturopathy in six clinics of the Semmelweis University that provide perioperative care.

Method: An anonymous, paper-based questionnaire was used. With an 82% response rate, the data was gained from 119 questionnaires and was processed using statistical analysis and chi-squared test.

Results: Only 25.2% of those surveyed considered themselves to be well-informed in this field. 68.1% of the participants had an interest in naturopathy and 60.5% would have liked to learn about naturopathy. 70.6% would be willing to use non-conventional treatments in their daily work, predominantly those who have used these methods in the case of their own illness, $p = 0.0027$. The most popular treatment methods included homeopathy, alternative massage and movement therapy, acupuncture and manual therapy.

Conclusion: As anticipated based on international literature in this field, those Hungarian healthcare professionals who took part in our survey showed openness and interest towards naturopathy.

3. **Teixeira MZ, Podgaec S, Baracat EC. Potentized estrogen in homeopathic treatment of endometriosis-associated pelvic pain: A 24-week, randomized, double-blind, placebo-controlled study. Eur J Obstet Gynecol Reprod Biol. 2017Apr;211:48-55. doi: 10.1016/j.ejogrb.2017.01.052. Epub 2017 Jan 25. PubMed PMID: 28187404.**

Objective: To evaluate the efficacy and safety of potentized estrogen compared to placebo in homeopathic treatment of endometriosis-associated pelvic pain (EAPP).

Study Design: The present was a 24-week, randomized, double-blind, placebo-controlled trial that included 50 women aged 18-45 years old with diagnosis of deeply infiltrating endometriosis based on magnetic resonance imaging or transvaginal ultrasound after bowel preparation, and score ≥ 5 on a visual analogue scale (VAS: range 0 to 10) for endometriosis-associated pelvic pain. Potentized estrogen (12cH, 18cH and 24cH) or placebo was administered twice daily per oral route. The primary outcome measure was change in the severity of EAPP global and partial scores (VAS) from baseline to week 24, determined as the difference in the mean score of five modalities of chronic pelvic pain (dysmenorrhea, deep dyspareunia, non-cyclic pelvic pain, cyclic bowel pain and/or cyclic urinary pain). The secondary outcome measures were mean score difference for quality of life assessed with SF-36 Health Survey Questionnaire, depression symptoms on Beck Depression Inventory (BDI), and anxiety symptoms on Beck Anxiety Inventory (BAI).

Results: The EAPP global score (VAS: range 0 to 50) decreased by 12.82 ($P < 0.001$) in the group treated with potentized estrogen from baseline to week 24. Group that used potentized estrogen also exhibited partial score (VAS: range 0 to 10) reduction in three EAPP modalities: dysmenorrhea (3.28; $P < 0.001$), non-cyclic pelvic pain (2.71; $P = 0.009$), and cyclic bowel pain (3.40; $P < 0.001$). Placebo group did not show any significant changes in EAPP global or partial scores. In addition, the potentized estrogen group showed significant improvement in three of eight SF-36 domains (bodily pain, vitality and mental health) and depression symptoms (BDI). Placebo group showed no significant improvement in this regard. These results demonstrate superiority of potentized estrogen over placebo. Few adverse events were associated with potentized estrogen.

Conclusions: Potentized estrogen (12cH, 18cH and 24cH) at a dose of 3 drops twice daily for 24 weeks was significantly more effective than placebo for reducing endometriosis-associated pelvic pain.

4. **Alizadeh Charandabi SM, Biglu MH, Yousefi Rad K. Effect of Homeopathy on Pain Intensity and Quality Of Life of Students With Primary Dysmenorrhea: A Randomized Controlled Trial. Iran Red Crescent Med J. 2016 Aug 9;18(9):e30902. doi:10.5812/ircmj.30902. eCollection 2016 Sep. PubMed PMID: 28144456; PubMed Central PMCID: PMC5253212.**

Background: Observational studies indicate a positive association between homeopathy and pain relief and quality of life improvement in women with dysmenorrhea. However, there are no interventional studies in this area.

Objectives: To evaluate an association between homeopathy and pain relief and quality of life improvement in a double-blind placebo-controlled randomized trial with 2 parallel arms.

Methods: Fifty-four students with primary dysmenorrhea residing at the dormitories of the Tabriz University of Medical Sciences, Iran, who had moderate or severe menstrual pain, were randomized to receive either homeopathic remedy or placebo. The homeopath and participants were blinded to treatment assignment. Primary outcomes were pain intensity and quality of life assessed using a 10-cm visual analog scale and short-form 36 (SF-36), respectively, and the secondary outcome was number of analgesic pills used.

Results: Each group comprised 27 students; eventually, 26 in the homeopathic and 21 in the placebo group were followed up. There was no significant difference between the groups for either pain intensity (adjusted difference: -0.44; 95% CI: -1.43 to 0.54) or any other outcomes. Compared with the baseline scores, statistically significant improvements were observed in pain intensity ($P = 0.021$) and physical health ($P = 0.020$) scores only in the homeopathic group; and in the mental health score in both groups ($P = 0.014$ in the homeopathy group and $P = 0.010$ in the placebo group). **Conclusions:** This study could not show any significant effect of homeopathy on primary dysmenorrhea in comparison with placebo. Considering the possible effect of the homeopath and the homeopathic remedies prescribed on the results of such interventions, further studies are needed to help us arrive at a conclusion.

5. **Haque S, Das D, Bhattacharya S, Sarkar T, Khuda-Bukhsh AR. Homeopathy – A Safe, Much Less Expensive, Non-Invasive, Viable Alternative for the Treatment of Patients Suffering from Loss of Lumbar Lordosis. J Pharmacopuncture. 2016 Dec;19(4):358-361. doi: 10.3831/KPI.2016.19.038. PubMed PMID: 28097045; PubMed Central PMCID: PMC5234356.**

Objectives: Loss of lumbar lordosis causing pain and curvature of the vertebral skeleton to one side is a relatively uncommon disease. To our knowledge, successful treatment of loss of lumbar lordosis with any potentized homeopathic drug diluted above Avogadro's limit (that is, above a potency of 12C) has not been documented so far. In this communication, we intend to document a relatively rare case of loss of lumbar lordosis with osteophytic lippings, disc desiccation, and protrusion, causing a narrowing of secondary spinal canal and a bilateral neural foramina, leading to vertebral column curvature with acute pain in an adolescent boy.

Methods: The patient had undergone treatment with orthodox Western medicines, but did not get any relief from, or cure of, the ailment; finally, surgery was recommended. The patient's family brought the patient to the Khuda-Bukhsh Homeopathic Benevolent Foundation where a charitable clinic is run every Friday with the active participation of four qualified homeopathic doctors. A holistic method of homeopathic treatment was adopted by taking into consideration all symptoms and selecting the proper remedy by consulting the homeopathic repertory, mainly of Kent.

Results: The symptoms were effectively treated with different potencies of a single homeopathic drug, *Calcarea phos*. X-ray and magnetic resonance imaging (MRI) supported recovery and a change in the skeletal curvature that was accompanied by removal of pain and other acute symptoms of the ailment.

Conclusion: Homeopathy can be a safe, much less expensive, non-invasive, and viable alternative for the treatment of such cases.

6. **Karp JC, Sanchez C, Guilbert P, Mina W, Demonceaux A, Curé H. Treatment with *Ruta graveolens* 5CH and *Rhus toxicodendron* 9CH may reduce joint pain and stiffness linked to aromatase inhibitors in women with early breast cancer: results of a pilot observational study. Homeopathy. 2016 Nov;105(4):299-308. doi:10.1016/j.homp.2016.05.004. Epub 2016 Aug 9. PubMed PMID: 27914569.**

Objective: To determine the possible effect of two homeopathic medicines, *Ruta graveolens* 5CH and *Rhus toxicodendron* 9CH, in the prevention of aromatase inhibitor (AI) associated joint pain and/or stiffness in women with early, hormone-receptor positive, breast cancer.

Methods: This prospective, unrandomized observational study was carried out between April and October 2014. Women were recruited in two groups, according to which of the two study centres they attended: one receiving homeopathy in addition to standard treatment (group H) and a control group, receiving standard treatment (group C). All women were treated with an AI. In addition, women in group H also took *Ruta graveolens* 5CH and *Rhus toxicodendron* 9CH (5 granules, twice a day) up to 7 days before starting AI treatment. The homeopathic medicines were continued for 3 months. Demographic and clinical data were recorded using a self-assessment questionnaire at inclusion (T0) and 3 months (T3). Primary evaluation criteria were the evolution of scores for joint pain and stiffness, the impact of pain on sleep and analgesic consumption in the two groups after 3 months of treatment.

Results: Forty patients (mean age 64.9 ± 8.1 years) were recruited, 20 in each group. Two-thirds of the patients had joint pain before starting AI treatment. There was a significant difference in the

evolution of mean composite pain score between T0 and T3 in the two groups (-1.3 in group H vs. +3.4 in group C; $p=0.0001$). The individual components of the pain score (frequency, intensity and number of sites of pain) also decreased significantly in group H. Nine patients in group C (45%) vs. 1 (5%) in group H increased their analgesic consumption between T0 and T3 ($p=0.0076$). After 3 months of treatment, joint pain had a worse impact on sleep in patients in group C (35% vs. 0% of patients; $p=0.0083$). The differences observed in the evolution of morning and daytime stiffness between the two groups were smaller ($p=0.053$ and $p=0.33$, respectively), with the exception of time necessary for the disappearance of morning stiffness which was greater in group C (37.7 ± 23.0 vs. 17.9 ± 20.1 min; $p=0.0173$).

Conclusion: These preliminary results suggest that treatment with *Ruta graveolens* 5CH and *Rhus toxicodendron* 9CH may decrease joint pain/stiffness in breast cancer patients treated with AIs. A larger-scale randomized study is required to confirm these results.

7. **Danno K, Colas A, Freyer G, Guastalla JP, Duru G, Musial E, Libourel V, Fendler JP, Masson JL, Bordet MF. Motivations of patients seeking supportive care for cancer from physicians prescribing homeopathic or conventional medicines: results of an observational cross-sectional study. Homeopathy. 2016Nov;105(4):289-298. doi: 10.1016/j.homp.2016.09.001. Epub 2016 Oct 24. PubMed PMID: 27914568.**

Background & Aims: The motivations of patients who consult a homeopathic (GP-Ho) or conventional (GP-CM) general practitioner for supportive care during cancer treatment have not been widely studied. We investigated the reasons why cancer patients consult a GP-Ho versus a GP-CM for supportive care and the GPs' motivations for their prescriptions.

Methods: This observational survey was carried out in France between October 2008 and October 2011. GPs across France were randomly selected and asked to recruit four cancer patients each. At inclusion, the sociodemographic and clinical (including psychological) characteristics and medical history of the patients

were recorded by the GPs and the patients noted their quality of life (QoL) and anxiety/depression using the Quality of Life Questionnaire-C30 (QLQ-C30) and Hospital Anxiety and Depression Scale (HADS) self-questionnaires. The main motivations of the patients regarding the type of GP consultation and the main reasons for the GPs' prescriptions were recorded.

Results: Six hundred and forty four patients were included in the analysis: 399 consulted a GP-CM ($n = 112$) and 245 a GP-Ho ($n = 73$). Patients consulting a GP-Ho were more often female [OR = 1.93; 95%CI: 1.11-3.35; $p = 0.02$], employed in a professional capacity [OR = 6.57; 95%CI: 1.96-21.99; $p = 0.002$], have a shorter time since cancer diagnosis [OR = 2.19; 95%CI: 1.24-3.87; $p = 0.007$], have received targeted anticancer therapy [OR = 3.70; 95%CI: 1.67-8.18; $p = 0.001$] and have a high QLQ-C30 score for constipation [OR = 1.01; 95%CI: 1.00-1.02; $p = 0.001$]. Patients mainly consulted a GP-Ho to receive overall care (73.5% vs. 64.9%; $p = 0.024$) and medicines to prevent anticancer treatment-related side-effects (63.7% vs. 41.4%; $p < 0.0001$). In contrast, patients consulted a GP-CM to receive psychological care (50.1% vs. 40.8%; $p = 0.021$) and more information regarding the oncologists' strategic decisions ($p < 0.0001$). There was a significantly greater prescription of psychotropic drugs by GP-CM (53.7% vs. 22.4%, $p < 0.0001$).

Conclusions: Patients consulting a GP-Ho or GP-CM had different motivations for seeking supportive care. There was a significantly greater prescription of psychotropic drugs by GP-CM.

8. **Jacobs J, Taylor JA. A randomized controlled trial of a homeopathic syrup in the treatment of cold symptoms in young children. Complement Ther Med. 2016Dec;29:229-234. doi: 10.1016/j.ctim.2016.10.013. Epub 2016 Nov 2. PubMed PMID: 27912951.**

Background: There is little evidence that the decongestant, antihistamine, or cough suppressant medications commonly used to treat cold symptoms in preschool children are effective. One option for treating cold symptoms in young children is with homeopathy. This study was conducted to determine if a homeopathic syrup was effective in treating cold symptoms in preschool children.

Methods: Children 2-5 years old diagnosed with an upper respiratory tract infection were randomized to receive a commercial homeopathic cold syrup or placebo. Parents administered the study medication as needed for 3 days. The primary outcome was change in symptoms one hour after

each dose. Parents also assessed the severity of each of the symptoms of runny nose, cough, congestion and sneezing at baseline and twice daily for 3 days, using a 4-point rating scale. A composite cold score was calculated by combining the values for each of the four symptoms.

Results: Among 261 eligible participants, data on 957 doses of study medication in 154 children were analyzed. There was no significant difference in improvement one hour after the dose for any symptom between the two groups. Analysis of twice daily data on the severity of cold symptoms compared to baseline values found that improvements in sneezing, cough and the composite cold score were significantly greater at both the first and second assessments among those receiving the cold syrup compared to placebo recipients.

Conclusion: The homeopathic syrup appeared to be effective in reducing the severity of cold symptoms in the first day after beginning treatment.

9. Vilhena EC, Castilho EA. Homeopathic Treatment of Overweight and Obesity in Pregnant Women With Mental Disorders: A Double-blind, Controlled Clinical Trial. Altern Ther Health Med. 2016 Oct;22(S3):14-22. PubMed PMID: 27866182.

Context: Worldwide, 35 million people suffer from obesity. Mental disorders have been associated with being overweight or obese. Considerable evidence has shown a correlation between stress and the use of homeopathy and stress and obesity. However, few studies have examined the relationship between weight loss and homeopathic treatment of obesity.

Objective: The study intended to evaluate the efficacy of a homeopathic treatment in preventing excessive weight gain during pregnancy in overweight or obese women who were suspected of having a common mental disorder.

Design: The study was a randomized, controlled, double-blinded clinical trial.

Setting: The study took place at the Center for the Social Support of Motherhood (São Paulo, Brazil).

Participants: Participants were pregnant women who were enrolled at the center.

Intervention: For the homeopathic group, 9 drugs were preselected, including

- (1) Pulsatilla nigricans,
- (2) Sepia succus,
- (3) Lycopodium clavatum,
- (4) sulphur,
- (5) Lachesis trigonocephalus,
- (6) Nux vomica,
- (7) Calcarea carbonica,
- (8) phosphorus; and

(9) Conium maculatum. From those 9 drugs, 1 was prioritized for administration for each participant. After the first appointment, a reselection or selection of a new, more appropriate drug occurred, using the list of preselected drugs. The dosage was 6 drops orally 2 ×/d, in the morning and at night, on 4 consecutive days each wk, with an interval of 3 d between doses, up until the next appointment medical appointment. The control group received the equivalent placebo drug. Both groups also received a diet orientation.

Outcome Measures: We evaluated pregnant women who were overweight or had class 1 or 2 obesity and were suspected of having a common mental disorder, with no concomitant diseases, in 2 groups: those receiving a placebo (control group, n = 72); and those receiving homeopathic treatment (homeopathy group, n = 62). Weight change during pregnancy was defined as the difference between the body mass index (BMI) at the initial evaluation and that recorded at the final evaluation, adjusted for 40 wk of gestation. In addition, the APGAR index in the newborn was evaluated as a possible complication.

Results: The mean variation between baseline BMI and BMI at week 40 of gestation was +4.95 kg/m² in the control group and +5.05 kg/m² in the homeopathy group. The difference between the 2 groups was not significant (P = .815; 95% confidence interval [CI], -0.916 to 0.722). APGAR 10 at 5 min (59.6% in homeopathy group and 36.4% among control) was statistically significant (P = .016).

Conclusions: Homeopathy does not appear to prevent excessive body mass gain in pregnant women who are overweight or obese and suspected of having a common mental disorder. Homeopathy did not change the APGAR score to modified clinical attention at delivery room. However, the evidence observed at APGAR 10 at minute 5 suggests that homeopathy had a modulating effect on the vitality of newborns, warranting further studies designed to investigate it.

- 10. Das KD, Ghosh S, Das AK, Ghosh A, Mondal R, Banerjee T, Ali SS, Ali SS, Koley M, Saha S. Treatment of hemorrhoids with individualized homeopathy: An openobservational pilot study. J Intercult Ethnopharmacol. 2016 Jun 25;5(4):335-342. eCollection 2016 Sep-Dec. PubMed PMID: 27757262; PubMed Central PMCID:PMC5061475.**

Aim: Controversies and disagreement exist on conventional treatment strategies of hemorrhoids due to relapse, inefficacy, and complications. We intend to evaluate the role of individualized homeopathic treatment in hemorrhoids.

Materials and Methods: In this prospective, open, observational trial, hemorrhoids patients were treated using five standardized scales measuring complaints severity and anoscopic score. It was conducted at two homeopathic hospitals in India, during from mid-July 2014 to mid-July 2015. Patients were intervened as per individualized homeopathic principles and followed up every month up to 6 months.

Results: Total 73 were screened, 52 enrolled, 38 completed, 14 dropped out. Intention to treat population (n: = 52) was analyzed in the end. Statistically significant reductions of mean bleeding (month 3: -21.8, 95% confidence interval [CI]: -30.3, -13.3, P: < 0.00001, d = 0.787; month 6: -25.5, 95% CI -35.4, -15.6, P: < 0.00001, d = 0.775), pain (month 3: -21.3, 95% CI -28.6, -14.0, P: < 0.00001, d = 0.851; month 6: -27.6, 95% CI -35.6, -19.6, P: < 0.00001, d = 1.003), heaviness visual analog scales (VASs) (month 3: -8.1, 95% CI -13.9, -2.3, P: = 0.008, d = 0.609; month 6: -12.1, 95% CI -19.1, -5.1, P: = 0.001, d = 0.693), and anoscopic score (month 3: -0.4, 95% CI -0.6, -0.2, P: < 0.0001, d = 0.760; month 6: -0.5, 95% CI -0.7, -0.3, P: < 0.0001, d = 0.703) were achieved. Itching VASs reduced significantly only after 6 months (-8.1, 95% CI -14.6, -1.6, P: = 0.017, d = 0.586). No significant lowering of discharge VASs was achieved after 3 and 6 months.

Conclusion: Under classical homeopathic treatment, hemorrhoids patients improved considerably in symptoms severity and anoscopic scores. However, being observational trial, our study cannot provide efficacy data. Controlled studies are required. Trial Reg. CTRI/2015/07/005958.

- 11. Abreu P, Sánchez R, Mut T, Balaguer D, Latorre I, Rodríguez H. Homeopathic mistletoe adverse reaction mimics nodal involvement in (18)F-FDG PET/CT performed for evaluation of response to chemotherapy in lymphoma. Rev Esp Med Nucl Imagen Mol. 2017 Mar - Apr;36(2):110-112. doi: 10.1016/j.rem.2016.07.005. Epub 2016 Sep 13. English, Spanish. PubMed PMID: 27637868.**

Some patients use complementary medicine. We present a patient with Hodgkin's lymphoma, scanned with (18)F-FDG PET/CT for evaluation of response after chemotherapy, who was self-administering mistletoe as a homeopathic medicine product. The careful review of the images of the entire scan and patient collaboration in anamnesis were crucial to avoid a false positive result. A review of the published scientific data on the effects of mistletoe is also presented.

- 12. Gleiss A, Frass M, Gaertner K. Re-analysis of survival data of cancer patients utilizing additive homeopathy. Complement Ther Med. 2016 Aug;27:65-7. doi: 10.1016/j.ctim.2016.06.001. Epub 2016 Jun 7. PubMed PMID: 27515878.**

In this short communication we present a re-analysis of homeopathic patient data in comparison to control patient data from the same Outpatient's Unit "Homeopathy in malignant diseases" of the Medical University of Vienna. In this analysis we took account of a probable immortal time bias. For patients suffering from advanced stages of cancer and surviving the first 6 or 12 months after diagnosis, respectively, the results show that utilizing homeopathy gives a statistically significant (p<0.001) advantage over control patients regarding survival time. In conclusion, bearing in mind all limitations, the results of this retrospective study suggest that patients with advanced stages of cancer might benefit from additional homeopathic treatment until a survival time of up to 12 months after diagnosis.

- 13. Pedrero-Escalas MF, Jimenez-Antolin J, Lassaletta L, Diaz-Saez G, Gavilán J. Hospital clinical trial: Homeopathy (Agraphis nutans 5CH, Thuya occidentalis 5CH, Kalium muriaticum 9CH and Arsenicum iodatum 9CH) as adjuvant, in children with otitis media with effusion. Int J**

Pediatr Otorhinolaryngol. 2016 Sep;88:217-23.doi: 10.1016/j.ijporl.2016.06.039. Epub 2016 Jul 6. PubMed PMID: 27497418.

Background: Otitis media with effusion (OME) is the most common cause of paediatric hearing loss. No single treatment has proved its effectiveness. There is a lack of evidence-based medicine studies in the area of homeopathy.

Method: A prospective randomized, double blinded interventional placebo control study was conducted. Patients, from 2 months to 12 years, with OME diagnosed by pneumatic otoscopy (PNO) and tympanometry, were randomized into two groups. Both groups received aerosol therapy (mucolytics and corticosteroids). In addition, the experimental group (EG) received homeopathy (*Agraphis nutans* 5CH, *Thuya Occidentalis* 5CH, *Kalium muriaticum* 9CH and *Arsenicum iodatum*), and the placebo group (PG) placebo, both of them for 3 months. Patients were evaluated by PNO examination and tympanometry at baseline, at 45 and 90 days.

Results: 97 patients were enrolled. In the EG, 61.9% of individuals were cured (PNO went from negative in the 1st visit to positive in the 3rd visit) compared with 56.8% of patients treated with placebo. 4.8% of patients in the EG suffered a recurrence (positive PNO in the 2nd visit changed to negative in the 3rd visit) while 11.4% did in the PG. No significant difference was found. Adverse events were distributed similarly, except in the case of upper respiratory tract infections, which were less frequent in EG (3 vs. 13, $p: 0.009$).

Conclusion: The homeopathic scheme used as adjuvant treatment cannot be claimed to be an effective treatment in children with OME.

- 14. van Haselen R, Thinesse-Mallwitz M, Maidannyk V, Buskin SL, Weber S, Keller T, Burkart J, Klement P. The Effectiveness and Safety of a Homeopathic Medicinal Product in Pediatric Upper Respiratory Tract Infections With Fever: A Randomized Controlled Trial. Glob Pediatr Health. 2016 Jul 4;3:2333794X16654851. doi:10.1177/2333794X16654851. eCollection 2016. PubMed PMID: 27493984; PubMed Central PMCID: PMC4959794.**

We investigated the clinical effectiveness of a homeopathic add-on therapy in a pediatric subpopulation with upper respiratory tract infections (URTI) in a randomized, controlled, multinational clinical trial. Patients received either on-demand symptomatic standard treatment (ST-group) or the same ST plus a homeopathic medication (Influcid; IFC-group) for 7 days. Outcome assessment was

based on symptom and fever resolution and the Wisconsin Upper Respiratory Symptom Survey-21 (WURSS-21). A total of 261 pediatric (<12 years) patients (130 IFC-group; 131 ST-group) were recruited in Germany and the Ukraine. The IFC-group used less symptomatic medication, symptoms resolved significantly earlier ($P = .0001$), had higher proportions of fever-free children from day 3 onwards, and the WURSS-assessed global disease severity was significantly less ($P < .0001$) during the entire URTI episode. One adverse event (vomiting) was possibly related to IFC. IFC as add-on treatment in pediatric URTI reduced global disease severity, shortened symptom resolution, and was safe in use.

- 15. Thieves K, Gleiss A, Kratky KW, Frass M. First evidence of Beauvais' hypothesis in a plant model. Homeopathy. 2016 Aug;105(3):270-9. doi:10.1016/j.homp.2016.05.002. Epub 2016 Jun 29. PubMed PMID: 27473549.**

Introduction: Beauvais presented the application of a so-called 'quantum-like model of homeopathy' by introducing the idea of a type of randomization/unblinding which he called 'in situ'. He predicted that randomized studies based on this type of randomization/unblinding lead to more pronounced effects in placebo controlled randomized homeopathic trials. We designed an experiment regarding wheat germination and stalk length to investigate Beauvais' idea of 'in situ randomization/unblinding' using a homeopathic dilution of sulphur (LM VI) as compared to placebo as well as to water.

Aim and Method: The primary aim of this double-blind randomized controlled experiment was to investigate whether there are differences of 'in situ randomization/unblinding' vs 'central randomization/unblinding' with respect to the effect of a homeopathic substance compared to

placebo. The secondary aim of our study was to examine possible differences between the sulphur and the placebo group in the 'in situ' arm regarding germination and/or stalk growth of wheat seedlings measured after a seven days exposure. Wheat was treated either with sulphur LM VI, placebo, or water. The wheat grains were placed on glass lids and treatment was performed following the 'in situ randomization/unblinding' as well as 'central randomization/unblinding' method. Germination was measured and classified into three categories.

Results: Under 'in situ' randomization/unblinding the odds of a seed not to germinate is 40% lower if treated with sulphur compared to placebo ($p=0.004$). In contrast, these odds are practically equal in the 'central' meta-group ($OR=1.01$, $p=0.954$). Under 'in situ' randomization/unblinding the odds of a seed togerminate with a length $\geq 1\text{mm}$ is practically equal if treated with sulphur or with placebo ($OR=0.96$, $p=0.717$). In contrast, these odds are 21% higher under sulphur compared to placebo in the 'central' meta-group ($OR=1.21$, $p=0.062$). In summary, we found a sulphur effect that is significantly different between 'in situ' and 'central' randomization/unblinding relating to all three stages of germination.

- 16. Teixeira MZ, Podgaec S, Baracat EC. Protocol of randomized controlled trial of potentized estrogen in homeopathic treatment of chronic pelvic pain associated with endometriosis. Homeopathy. 2016 Aug;105(3):240-9. doi:10.1016/j.homp.2016.03.002. Epub 2016 May 13. PubMed PMID: 27473545.**

Background: Endometriosis is a chronic inflammatory disease that causes difficult-to-treat pelvic pain. Thus being, many patients seek help in complementary and alternative medicine, including homeopathy. The effectiveness of homeopathic treatment for endometriosis is controversial due to the lack of evidences in the literature. The aim of the present randomized controlled trial is to assess the efficacy of potentized estrogen compared to placebo in the treatment of chronic pelvic pain associated with endometriosis.

Methods/Design: The present is a randomized, double-blind, placebo-controlled trial of a homeopathic medicine individualized according to program 'New Homeopathic Medicines: use of modern drugs according to the principle of similitude' (<http://newhomeopathicmedicines.com>). Women with endometriosis, chronic pelvic pain and a set of signs and symptoms similar to the adverse events caused by estrogen were recruited at the Endometriosis Unit of Division of Clinical Gynecology, Clinical Hospital, School of Medicine, University of São Paulo (Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo - HCFMUSP). The participants were selected based on the analysis of their medical records and the application of self-report structured questionnaires. A total of 50 women meeting the eligibility criteria will be randomly allocated to receive potentized estrogen or placebo. The primary clinical outcome measure will be severity of chronic pelvic pain. Statistical analysis will be performed on the intention-to-treat and per-protocol approaches comparing the effect of the homeopathic medicine versus placebo after 24 weeks of intervention.

Discussion: The present study was approved by the research ethics committee of HCFMUSP and the results are expected in 2016.

- 17. Rossi E, Picchi M, Bartoli P, Panozzo M, Cervino C, Nurra L. Homeopathictherapy in pediatric atopic diseases: short- and long-term results. Homeopathy.2016 Aug;105(3):217-24. doi: 10.1016/j.homp.2016.03.001. Epub 2016 Apr 13. PubMedPMID: 27473542.**

Aim: To study the outcomes of atopic diseases in children treated with homeopathy at the Homeopathic Clinic of Lucca (Italy) and related long-term results after approximately an 8-year period.

Materials and Methods: Our data derive from an observational longitudinal study carried out on 857 pediatric patients who consecutive visited from 1998 to 2014. Children with atopic diseases were 325 (37.9%), 126 (39%) suffered from atopic dermatitis, 72 (22%) from allergic rhinitis, and 127 (39%) from asthma. Moreover, a long-term study was conducted on a subset of 107/165 patients, consecutively visited from 1998 to 2006, and with ≥ 5 years follow-up. The study also investigated the evolution of overall symptoms in those patients with a complex atopic symptomatology.

Results: 75.8% of atopic children had moderate or major improvement (67.1% with asthma as the primary disease; 84.2% rhinitis; 84.2% dermatitis). At re-evaluation after 5-10 years, complete

remission of atopic symptoms was obtained in 70.1% of the children: 84.2% in dermatitis; 48.1% in allergic rhinitis; 71.4% in asthma. Children with two or three atopic diseases at the first visit were completely cured in 40% of cases.

Conclusion: The results seem to confirm that homeopathic medicine produces positive therapeutic response in atopic children.

- 18. Ho D, Jagdeo J, Waldorf HA. Is There a Role for Arnica and Bromelain in Prevention of Post-Procedure Ecchymosis or Edema? A Systematic Review of the Literature. Dermatol Surg. 2016 Apr;42(4):445-63. doi:10.1097/DSS.0000000000000701. Review. PubMed PMID: 27035499.**

Background: The management of postprocedure skin care is of significant interest to dermatologists and other physicians. Ecchymosis and edema are common temporary postprocedure unwanted effects. Two botanically-derived products, arnica and bromelain, are used internationally by physicians to limit ecchymosis and edema that occur secondary to cosmetic, laser, and surgical skin procedures.

Objective: The authors review the published literature and provide evidence-based recommendations on arnica and bromelain for prevention and treatment of postprocedure ecchymosis and edema.

Methods and Materials: A search of the computerized bibliographic databases Medline, EMBASE, Scopus, and CINAHL was performed on March 23, 2015. The key terms used were "arnica," and "bromelain."

Results: This review contains clinical trials that evaluated prevention and/or treatment of postprocedure ecchymosis or edema with oral arnica (11), topical arnica (2), and oral bromelain (7). No studies on topical bromelain were found. Clinical trials on arnica and bromelain have demonstrated mixed results. Some randomized controlled trials reported improvement post procedure with arnica (4/13) and bromelain (5/7). **CONCLUSION:** Based upon published studies, there is insufficient data to support use of arnica and bromelain post procedure, and the authors recommend additional research to determine the efficacy and safety of arnica and bromelain to prevent and/or treat ecchymosis and edema in patients.

- 19. Shah R. A Clinical Evaluation of a Hepatitis C Nosode in the Treatment of Hepatitis C. J Altern Complement Med. 2016 Mar;22(3):197-203. doi:10.1089/acm.2014.0146. Epub 2016 Feb 25. PubMed PMID: 26914029.**

Purpose: Upon identifying the need for an alternative treatment option in the management of hepatitis C to decrease viral load and improve health parameters, the investigator has developed the hepatitis C virus (HCV) nosode.

Methods: An open-label observational study in 24 HCV-positive individuals was conducted by using the HCV nosode at 30C and 50C potencies.

Results: In this clinical trial, the HCV nosode was administered to HCV-positive participants. From week 12 to week 24, the mean viral load decreased; the median viral load decreased by half, from 1,557,567.50 IU/mL to 789,265.50 IU/mL. However, at 24 weeks, the average viral load increased significantly ($p = 0.2206$) in the participants completing the trial. The study has shown a double population: a large set of responders with marked improvement (week 12 [$p = 0.0120$] and week 24 [$p = 0.0304$] and from week 12 to week 24 [$p = 0.0028$]) and a small set of non responders with increasing viral load (week 12 [$p = 0.0120$] and week 24 [$p = 0.0304$] and from week 12 to week 24 [$p = 0.0028$]). Most participants in this study showed improvement in appetite and weight gain. The treatment using the nosode was found to be safe in the tested population.

Conclusion: The HCV viral load was affected by using ultra-diluted preparation sourced from HCV, as per the Law of Similars, in responders. Further studies of longer duration in patients with uniform baseline characteristics and those that adjust the potency to the individual participant's requirement are recommended.

- 20. Chalet SR, Marcus BC. Perioperative Arnica montana for Reduction of Ecchymosis in Rhinoplasty Surgery. Ann Plast Surg. 2016 May;76(5):477-82. doi:10.1097/SAP.0000000000000312. PubMed PMID: 25954844.**

Background: Studies of homeopathic therapies to decrease postrhinoplasty ecchymosis have previously used subjective measurements, limiting their clinical significance. Recently, Arnica montana was shown to decrease postoperative ecchymosis after rhytidectomy, using an objective measuring tool. We believe that oral A. montana, given perioperatively, can be objectively shown to reduce extent and intensity of postoperative ecchymosis in rhinoplasty surgery.

Methods: Subjects scheduled for rhinoplasty surgery with nasal bone osteotomies by a single surgeon were prospectively randomized to receive either oral perioperative A. montana (Alpine Pharmaceuticals, San Rafael, Calif) or placebo in a double-blinded fashion. Ecchymosis was measured in digital "three-quarter"-view photographs at 3 postoperative time points. Each bruise was outlined with Adobe Photoshop (Adobe Systems Incorporated, San Jose, Calif), and the extent was scaled to a standardized reference card. Cyan, magenta, yellow, black, and luminosity were analyzed in the bruised and control areas to calculate change in intensity. P value of <0.1 was set as a meaningful difference with statistical significance.

Results: Compared with 13 subjects receiving placebo, 9 taking A. montana had 16.2%, 32.9%, and 20.4% less extent on postoperative days 2/3, 7, and 9/10, a statistically significant difference on day 7 (P = 0.097). Color change initially showed 13.1% increase in intensity with A. montana but 10.9% and 36.3% decreases on days 7 and 9/10, a statistically significant difference on day 9/10 (P = 0.074). One subject experienced mild itching and rash with the study drug that resolved during the study period.

Conclusions: Arnica montana seems to accelerate postoperative healing, with quicker resolution of the extent and the intensity of ecchymosis after osteotomies in rhinoplasty surgery, which may dramatically affect patient satisfaction.

Chapter X

BASIC RESEARCH

1. **Teixeira MZ. Therapeutic use of the rebound effect of modern drugs: "New homeopathic medicines". Rev Assoc Med Bras (1992). 2017 Feb;63(2):100-108. doi:10.1590/1806-282.63.02.100. PubMed PMID: 28355369.**

The homeopathic treatment is based on the principle of therapeutic similitude, employing medicines that cause certain disorders to treat similar manifestations, stimulating a reaction of the organism against its own ailments. The occurrence of this secondary reaction of the organism, opposite in nature to the primary action of the medicines, is evidenced in the study of the rebound (paradoxical) effect of several classes of modern drugs. In this work, in addition to substantiate the principle of similitude before the experimental and clinical pharmacology, we suggest a proposal to employ hundreds of conventional drugs according to homeopathic method, applying the therapeutic similitude between the adverse events of medicines and the clinical manifestations of patients. Describing existing lines of research and a specific method for the therapeutic use of the rebound effect of modern drugs (<http://www.newhomeopathicmedicines.com>), we hope to minimize prejudices related to the homeopathy and contribute to a broadening of the healing art.

2. **Beauvais F. 'Unconventional' experiments in biology and medicine with optimized design based on quantum-like correlations. Homeopathy. 2017 Feb;106(1):55-66. doi: 10.1016/j.homp.2017.01.002. Epub 2017 Feb 8. PubMed PMID: 28325225.**

In previous articles, a description of 'unconventional' experiments (e.g. in vitro or clinical studies based on high dilutions, 'memory of water' or homeopathy) using quantum-like probability was proposed. Because the mathematical formulations of quantum logic are frequently an obstacle for physicians and biologists, a modified modeling that rests on classical probability is described in the present article. This modeling is inspired from a relational interpretation of quantum physics that applies not only to microscopic objects, but also to macroscopic structures, including experimental devices and observers. In this framework, any outcome of an experiment is not an absolute property of the observed system as usually considered but is expressed relatively to an observer. A team of interacting observers is thus described from an external view point based on two principles: the outcomes of experiments are expressed relatively to each observer and the observers agree on outcomes when they interact with each other. If probability fluctuations are also taken into account, correlations between 'expected' and observed outcomes emerge. Moreover, quantum-like correlations are predicted in experiments with local blind design but not with centralized blind design. No assumption on 'memory' or other physical modification of water is necessary in the present description although such hypotheses cannot be formally discarded. In conclusion, a simple modeling of 'unconventional' experiments based on classical probability is now available and its predictions can be tested. The underlying concepts are sufficiently intuitive to be spread into the homeopathy community and beyond. It is hoped that this modeling will encourage new studies with optimized designs for in vitro experiments and clinical trials.

3. **Betti L, Trebbi G, Kokornaczyk MO, Nani D, Peruzzi M, Dinelli G, Bellavite P, Brizzi M. Number of succussion strokes affects effectiveness of ultra-high-diluted arsenic on in vitro wheat germination and polycrystalline structures obtained by droplet evaporation method. Homeopathy. 2017 Feb;106(1):47-54. doi: 10.1016/j.homp.2016.12.001. Epub 2017 Jan 3. PubMed PMID: 28325224.**

Objectives: The aim of this study is to investigate whether the number of succussion strokes applied after each dilution step when preparing the homeopathic treatments influences the effectiveness of ultra-high-diluted (UHD) arsenic trioxide at the 45th decimal dilution/dynamization (As₂O₃ 45x).

Design: Wheat seeds, previously stressed with ponderal As₂O₃, were treated with: As₂O₃ 45x, H₂O 45x (dynamized control), or pure water (negative control). The succussion was done manually, and various succussion durations (numbers of strokes) were tested for each treatment. Treatment effectiveness was tested blind using the in vitro germination test and the droplet evaporation method (DEM).

Data were processed by the Poisson test (germination test) and by two-way analysis of variance (DEM).

Main Outcome Measures: We evaluated both the in vitro germination rate, by counting the non-germinated seeds, and the complexity of polycrystalline structures (PCS) (local connected fractal dimension (LCFD)) obtained by evaporating leakage droplets from stressed seeds that had been watered with the different treatments.

Results: We observed a highly significant increase in germination rate when the number of strokes (NS) was ≥ 32 for both As₂O₃ 45x and H₂O 45x, and a significant increase in the LCFD of PCS for As₂O₃ 45x when the NS was ≥ 32 and for H₂O 45x when it was 70.

Conclusions: Both experimental approaches showed increased effectiveness for treatments prepared with a higher number of succussion strokes. These results indicate that succussion may have an important influence on treatment effectiveness, and so highlight the need for further research.

4. **Cartwright SJ. Interaction of homeopathic potencies with the water soluble solvatochromic dye bis-dimethylaminofuchson. Part 1: pH studies. Homeopathy. 2017 Feb;106(1):37-46. doi: 10.1016/j.homp.2017.01.001. Epub 2017 Feb 13. PubMed PMID: 28325223.**

Introduction: Previous studies have demonstrated the potential of solvatochromic dyes for investigating the physical chemistry of homeopathic potencies.

Results: Following examination of this class of dyes in organic solvents, results obtained using the positively solvatochromic dye Bis-dimethylaminofuchson (BDF) in aqueous solution are now reported. Spectral changes observed with this dye in the presence of potencies are both substantial and reproducible. Studies across a wide range of pH values reveal an unusual pH dependence for the dye's interaction with homeopathic potencies. Results indicate potency enhances dye protonation at pH values below c. 7.0, whilst protecting the dye from attack by hydroxyl ions above c. pH 7.5.

Conclusion: A possible explanation for these observations is offered in terms of a potency - induced electron density shift in BDF. The interaction of homeopathic potencies with solvatochromic dyes, particularly BDF, points towards a possible physico-chemical model for the nature of potencies, how they may be interacting with this class of dyes, and moreover how their biological effects may be mediated.

5. **Olsen S. Effects of ultra-high dilutions of sodium butyrate on viability and gene expression in HEK 293 cells. Homeopathy. 2017 Feb;106(1):32-36. doi:10.1016/j.homp.2017.01.003. Epub 2017 Feb 22. PubMed PMID: 28325222.**

Background: Several recent studies reported the capability of high diluted homeopathic medicines to modulate gene expression in cell cultures. In line with these studies, we examined whether ultra-high dilutions (30C and 200C) of sodium butyrate (SB) can affect the expression levels of genes involved in acquisition of a senescence-associated secretory phenotype (SASP) in human embryonic kidney (HEK) 293 cells.

Methods: Cell viability was evaluated using a 3-[4,5-dimethylthiazol-2-yl]-2,5-diphenyltetrazolium bromide (MTT) assay. The expression levels of TNF- α , interleukin (IL)-2, IL-4, IL-6 and IL-10 genes were determined by real-time PCR assay.

Results: Exposure to both 30C and 200C during 48 h led to a significant decrease of the level of expression of TNF- α gene, while expression of IL-2 gene was increased when exposed to 30C, and expression of IL-10 gene was decreased when exposed to 200C. No changes in expression levels of all genes studied were observed in cells treated with both 30C and 200C remedies of SB during the 24 h.

Conclusion: Observed changes in gene expression levels after exposure to 30C and 200C remedies of SB during 48 h suggest that extremely low concentrations of this agent can modulate the transcriptome of HEK 293 cells. These results are in line with findings from other studies confirming the ability of homeopathic remedies to modulate gene expression in cell cultures.

6. **Passeti TA, Bissoli LR, Macedo AP, Libame RB, Diniz S, Waisse S. Action of antibiotic oxacillin on in vitro growth of methicillin-resistant Staphylococcus aureus (MRSA) previously treated with homeopathic medicines. Homeopathy. 2017 Feb;106(1):27-31. doi: 10.1016/j.homp.2016.10.002. Epub 2016 Dec 3. PubMed PMID: 28325220.**

Background: Resistance to antibiotics is a major public health concern worldwide. New treatment options are needed and homeopathy is one such option. We sought to assess the effect of the homeopathic medicine Belladonna (Bell) and a nosode (biotherapy) prepared from a multi-drug resistant bacterial species, methicillin-resistant *Staphylococcus aureus* (MRSA), on the same bacterium.

Methods: Bell and MRSA nosode were prepared in 6cH and 30cH potencies in 30% alcohol and sterile water, according to the Brazilian Homeopathic Pharmacopeia and tested on MRSA National Collection of Type Cultures (NCTC) 10442. We assessed in vitro bacterial growth, deoxyribonuclease (DNAase) and hemolysin activity, and in vitro bacterial growth in combination with oxacillin (minimum inhibitory concentration - MIC). All values were compared to control: 30% alcohol and water.

Results: In vitro growth of MRSA was statistically significantly inhibited in the presence of Bell and nosode 6cH and 30cH compared to controls ($p < 0.0001$); and with combination of Bell or nosode 6cH and 30cH and oxacillin ($p < 0.001$). Bell 30cH and nosode 6cH and 30cH significantly decreased bacterial DNAse production ($p < 0.001$) and reduced red blood cell lysis.

Conclusions: Cultures of MRSA treated with Belladonna or MRSA nosode exhibited reduced growth in vitro, reduced enzymatic activity and became more vulnerable to the action of the antibiotic oxacillin. Further studies are needed on the biomolecular basis of these effects.

7. **Mazón-Suástegui JM, García-Bernal M, Saucedo PE, Campa-Córdova Á, Abasolo-Pacheco F. Homeopathy outperforms antibiotics treatment in juveniles scallop *Argopecten ventricosus*: effects on growth, survival, and immune response. Homeopathy. 2017 Feb;106(1):18-26. doi: 10.1016/j.homp.2016.12.002. Epub 2017 Jan 10. PubMed PMID: 28325219.**

Background: Mortality from vibriosis in mollusk production is attributed to pathogenic bacteria, particularly *Vibrio alginolyticus*. Use of increasingly potent antibiotics has led to bacterial resistance and increased pathogenicity. Alternatives in sanitation, safety, and environmental sustainability are currently under analysis. To-date, homeopathy has been investigated in aquaculture of freshwater fish, but not in marine mollusks. The effect of the homeopathic complexes in the growth, survival, and immune response of the Catarina scallop *Argopecten ventricosus* were assessed.

Methods: A bioassay to assess the potential of homeopathy in improving cultivation of juvenile *A. ventricosus* was conducted for 21 days, with a final challenge of 120 h with *V. alginolyticus*. The experimental design included two homeopathic formulas. The homeopathic complex Passival, consisting of *Passiflora incarnata* 30 CH, *Valeriana officinalis* 30 CH, *Ignatia amara* 30 CH and *Zincum valerianicum* 30 CH plus Phosphoricum acid 30 CH (treatment TH1) or *Silicea terra* 30 CH (TH2), two antibiotics (ampicillin = AMP, oxytetracycline = OXY), and two reference treatments (without homeopathic or antibiotic treatment = CTRL, ethanol 30° GL = ETH). Additionally, a negative control CTRL- (untreated/uninfected) is included in the challenge test. Juvenile scallops (4.14 ± 0.06 mm, 13.33 mg wet weight) were cultivated in 4 L tanks provided with aerated, filtered (1 μ m), and UV-sterilized seawater that was changed every third day. They were fed a blend of the microalgae *Isochrysis galbana* and *Chaetoceros calcitrans* (150,000 cells mL⁻¹ twice a day). All treatments were directly added to the tank water and then 500 mL challenge units were inoculated with 1×10^7 CFU/mL (LD50) of *V. alginolyticus*.

Results: Juveniles grew significantly larger and faster in height and weight with TH2 compared to the ETH and CTRL ($P < 0.05$, ANOVA). Higher concentrations of proteins occurred in scallops exposed to TH2 (160.57 ± 7.79 mg g⁻¹), compared to other treatments and reference treatments. Higher survival rate during the challenge bioassay occurred with TH1 (85%), compared to AMP (53%), OXY (30%), and CTRL (0%), and superoxide dismutase ($P < 0.05$) was significantly higher in scallops treated with TH1, compared to other treatments and reference treatments.

Conclusions: Homeopathic treatments improved growth and survival and enhanced survival against *V. alginolyticus* in juvenile *A. ventricosus*. This suggests that homeopathy is a viable treatment for this mollusk to reduce use of antibiotics in scallops and its progressive increase in pathogenicity in mollusk hatcheries.

8. **de Paula Coelho C, Motta PD, Petrillo M, de Oliveira Iovine R, Dalboni LC, Santana FR, Correia MS, Casarin RC, Carvalho VM, Bonamin LV. Homeopathic medicine Cantharis modulates uropathogenic E. coli (UPEC)-induced cystitis in susceptible mice. Cytokine. 2017 Apr;92:103-109. doi: 10.1016/j.cyto.2017.01.014. Epub 2017 Jan 29. PubMed PMID: 28142108.**

Objective: This is a random blinded placebo controlled murine experimental model to study the effects of Cantharis 6 CH, a homeopathic medicine, on E coli-induced cystitis.

Methods: 24 adult susceptible female BALB/c mice were inoculated with E coli -UPEC O4:K:H5 by a transurethral catheter. Cantharis 6CH or vehicle (placebo) was offered to mice by free access into the drinking water (1:100), during 24 h after infection. Spleen, bladder and kidneys were processed for quantitative histopathology after immunohistochemistry, using anti-CD3, CD79, MIF, NK and VEGF antibodies; the cytokines present in the bladder washing fluid were measured using a LUMINEX-Magpix KIT. Mann-Whitney and Fisher exact test were used as statistical analysis.

Results: Cantharis 6 CH increased IL12p40, IFN- γ and decreased IL10 concentrations in the bladder fluid ($p \leq 0.05$); in the bladder mucosa, it increased the ratio between B and T lymphocytes (31%) and between B lymphocytes and MIF+ macrophages (57%, $p \leq 0.05$). In the pelvis, instead, it decreased the B/T cells ratio (41%, $p \leq 0.05$) and increased the M1/M2 macrophage ratio (42%, $p \leq 0.05$). No differences were seen in the kidney and spleen analysis.

Conclusion: The inverted balance of inflammatory cells and cytokines in bladder and pelvis mucosa shows specific local immune modulation induced by Cantharis 6CH.

9. **Gupta HR, Patil Y, Singh D, Thakur M. Embryonic Zebrafish Model – A Well-Established Method for Rapidly Assessing the Toxicity of Homeopathic Drugs: - Toxicity Evaluation of Homeopathic Drugs Using Zebrafish Embryo Model. JPharmacopuncture. 2016 Dec;19(4):319-328. doi:10.3831/KPI.2016.19.033. PubMed PMID: 28127503; PubMed Central PMCID: PMC5241443.**

Objectives: Advancements in nanotechnology have led to nanoparticle (NP) use in various fields of medicine. Although the potential of NPs is promising, the lack of documented evidence on the toxicological effects of NPs is concerning. A few studies have documented that homeopathy uses NPs. Unfortunately, very few sound scientific studies have explored the toxic effects of homeopathic drugs. Citing this lack of high-quality scientific evidence, regulatory agencies have been reluctant to endorse homeopathic treatment as an alternative or adjunct treatment. This study aimed to enhance our insight into the impact of commercially-available homeopathic drugs, to study the presence of NPs in those drugs and any deleterious effects they might have, and to determine the distribution pattern of NPs in zebrafish embryos (*Danio rerio*).

Methods: Homeopathic dilutions were studied using high-resolution transmission electron microscopy with selected area electron diffraction (SAED). For the toxicity assessment on Zebrafish, embryos were exposed to a test solution from 4 - 6 hours post-fertilization, and embryos/larvae were assessed up to 5 days post-fertilization (dpf) for viability and morphology. Toxicity was recorded in terms of mortality, hatching delay, phenotypic defects and metal accumulation. Around 5 dpf was found to be the optimum developmental stage for evaluation.

Results: The present study aimed to conclusively prove the presence of NPs in all high dilutions of homeopathic drugs. Embryonic zebrafish were exposed to three homeopathic drugs with two potencies (30CH, 200CH) during early embryogenesis. The resulting morphological and cellular responses were observed. Exposure to these potencies produced no visibly significant malformations, pericardial edema, and mortality and no necrotic and apoptotic cellular death.

Conclusion: Our findings clearly demonstrate that no toxic effects were observed for these three homeopathic drugs at the potencies and exposure times used in this study. The embryonic zebrafish model is recommended as a well-established method for rapidly assessing the toxicity of homeopathic drugs.

10. **Dueva EV, Panchin AY. Homeopathy in disguise. Comment on Don et al.: Dose-dependent antiviral activity of released-active form of antibodies to interferon-gamma against influenza A/California/07/09(H1N1) in murine model. J Med Virol. 2017 Jul;89(7):1125-1126. doi: 10.1002/jmv.24761. Epub 2017 Feb 27. PubMed PMID: 28036105.**

11. Lima LF, Rocha RM, Duarte AB, Brito IR, Silva GM, Rodrigues GQ, Nunes-Pinheiro DC, Sales AD, Moura AA, Wheeler MB, Rodrigues AP, Campello CC, Figueiredo JR. Unexpected effect of the vehicle (grain ethanol) of homeopathic FSH on the in vitro survival and development of isolated ovine preantral follicles. *Microsc Res Tech.* 2017 Apr;80(4):406-418. doi: 10.1002/jemt.22810. Epub 2016 Dec 5. PubMed PMID: 27921341.

The aims of this study were to investigate the effects of medium replacement system (experiment I) and of FSH presentations (homeopathic - FSH 6cH and allopathic FSH - rFSH; experiment II) on the in vitro development, hormone production and gene expression of isolated ovine preantral follicles cultured for 6 days. In experiment I, secondary follicles were cultured in the α -MEM(+) supplemented with FSH 6cH (0.05 fg/ml) or recombinant bovine FSH (100 ng/ml) without/with daily medium addition. The homeopathic FSH treatments with/without medium addition improved ($p < .05$) follicular development compared to rFSH100 treatment without addition. FSH 6cH with addition showed the highest ($p < .05$) estradiol production. To verify whether the effects of homeopathic FSH were not due to its vehicle, experiment II was performed. The α -MEM(+) was supplemented or not with alcohol (0.2% grain ethanol, v/v), FSH 6cH or rFSH100 with daily medium addition. Surprisingly, we found that all treatments improved follicular development compared to the α -MEM(+) ($p < .05$). Moreover, homeopathic FSH was similar to the other treatments including its vehicle. In conclusion, its vehicle (ethanol) causes the effect of homeopathic FSH on in vitro development of isolated ovine preantral follicles.

12. Ferraz FN, da Veiga FK, Aleixo DL, Spack Júnior M, de Araújo SM. Different treatment schemes and dynamizations of *Trypanosoma cruzi* biotherapies: what information do they transfer to the organism in infected mice? *Homeopathy.* 2016 Nov;105(4):327-337. doi: 10.1016/j.homp.2016.02.002. Epub 2016 Apr 6. PubMed PMID: 27914572.

Background: The use of biotherapies in *Trypanosoma cruzi* infection can provide an understanding about effects of these highly diluted medications.

Objectives: To evaluate different treatment schemes and dynamizations of biotherapies prepared from blood trypomastigotes (buffy coat) in mice infected with *T. cruzi*.

Methods: Swiss mice infected with Y strain of *T. cruzi* were divided into two experiments. Experiment 1, all treated groups received biotherapy 7dH (10 μ L/mL ad libitum) in different treatment schemes: TB7dH - treated 3 days before infection; TBA7dH - treated 3 days before and after infection; TBAe.d.7dH - treated 3 days before infection and every day after infection and IC - infection control. Experiment 2, all treated groups received medication in different dynamizations 3 days before and after infection (10 μ L/mL ad libitum): TBA15dH - treated with biotherapy 15dH; TBA16dH - treated with biotherapy 16dH; TBA17dH - treated with biotherapy 17dH; TBAp.chords - treated with biotherapy 'potency chords' and IC - infection control. We evaluated parasitological and clinical parameters.

Results: Experiment 1 showed that different treatment schemes with biotherapy 7dH produced different effects on infection evolution. TBA7dH group had the best outcome, with lower parasitemia, higher survival, and better clinical evolution compared to IC. Experiment 2 showed that biotherapy 'potency chords' had effects different from the individual dynamizations that it contained (15dH, 16dH, and 17dH). Animals that had patent parasitemia had delayed emergence of parasites in blood and subsequent increase in parasitemia, but had better clinical evolution compared to IC.

Conclusions: The effects of *T. cruzi* biotherapies depend on frequency at which they are administered, dynamization, and host-parasite relationship/individual susceptibility of treated organism. Biotherapy appeared to transfer to infected organism 'antigenic information' related to parasite and 'disease information' related to molecules produced by host's immune response and contained in the buffy coat used to prepare the medication.

13. Wani K, Shah N, Prabhune A, Jadhav A, Ranjekar P, Kaul-Ghanekar R. Evaluating the anticancer activity and nanoparticulate nature of homeopathic preparations of *Terminalia*

chebula. Homeopathy. 2016 Nov;105(4):318-326. doi:10.1016/j.homp.2016.02.004. Epub 2016 Apr 12. PubMed PMID: 27914571.

Background: Breast cancer is the most common cancer diagnosed among women and is the second leading cause of cancer death. Homeopathic medicines are part of the alternative medicines that are given as a supportive therapy in breast cancer. The objective of this study was to investigate the anticancer activity of commercially available homeopathic preparations of *Terminalia chebula* (TC) and evaluate their nanoparticulate nature.

Methods: Mother tincture (MT) and other homeopathic preparations (3X, 6C and 30C) of TC were tested for their effect on the viability of breast cancer (MDAMB231 and MCF7) and non-cancerous (HEK 293) cell lines by 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. Cell growth assay was performed to analyze the effect of the different potencies on the growth kinetics of breast cancer cells. MT and 6C were evaluated for the presence of nanoparticles by using scanning electron microscopy (SEM) and transmission electron microscopy (TEM).

Results: MT decreased the viability of breast cancer (MDAMB231 and MCF7) and non-cancerous (HEK 293) cells. However, the other potencies (3X, 6C and 30C) decreased the viability of only breast cancer cells without affecting the viability of the non-cancerous cells. All the potencies, MT, 3X, 6C and 30C, reduced growth kinetics of breast cancer cells, more specifically at 1:10 dilution at 24, 48 and 72 h. Under SEM, MT appeared as a mesh-like structure whereas under TEM, it showed presence of nanoclusters. On the other hand, 6C potency contained 20 nm sized nanoparticles.

Conclusion: The current study reports the anticancer activity of homeopathic preparations of TC against breast cancer and reveals their nanoparticulate nature. These preliminary results warrant further mechanistic studies at both in vitro and in vivo levels to evaluate the potential of TC as nanomedicine in breast cancer.

- 14. Acosta P, Pérez N, Pérez E, Correa B, Pérez C, Gómez C, Sánchez V, Pérez DG. Anti-inflammatory effect of dialysable leucocyte extract in a rat model of osteoarthritis: histopathological and molecular characterization. Scand J Rheumatol. 2016 Nov;45(6):528-535. Epub 2016 Apr 21. PubMed PMID: 27098310.**

Objectives: To evaluate the effect of dialysable leucocyte extract (DLE) on pro- and anti-inflammatory profiles in a rat model of osteoarthritis (OA).

Method: Forty-eight male Wistar rats were divided into three groups: normal rats without treatment, OA rats treated with placebo, and OA rats treated with DLE. After treatment, the animals were killed to obtain cartilage for histological analysis and to determine the expression of pro- and anti-inflammatory cytokines by reverse transcription multiplex polymerase chain reaction (RT-MPCR) and immuno-histofluorescence analyses.

Results: Histological analysis revealed that OA cartilage from rats treated with DLE displayed similar characteristics to non-OA cartilage from the control group. The OA cartilage treated with placebo showed alterations in the cellular architecture and in chondrocyte cluster formation. Analysis of cytokine

expression by RT-MPCR showed that OA cartilage from DLE-treated rats expressed platelet-derived growth factor (PDGF), interferon (IFN)- γ , and fibroblast growth factor (FGF)-2, similar to non-OA cartilage from the control group. However, OA cartilage from rats treated with placebo expressed interleukin (IL)-1, PDGF, and I kappa B (I κ B). Confocal immunodetection of FGF-2, PDGF, and non-phosphorylated I κ B showed that they were distributed in the cytoplasm of most chondrocytes in OA cartilage from DLE-treated rats whereas no nuclear factor kappa B (NF- κ B) expression was observed in the nuclei. Instead, in OA cartilage from the placebo group, only weak FGF-2 staining was observed, PDGF and I κ B were not detected, and NF- κ B was strongly observed in both cytoplasm and nuclei.

Conclusions: Our findings suggest that DLE treatment modifies the OA process, promoting the expression of anti-inflammatory cytokines and diminishing the inflammatory effects, avoiding the nuclear translocation of NF- κ B in chondrocytes.

15. Chirumbolo S, Bjørklund G. Commentary: Arnica Montana Effects on Gene Expression in a Human Macrophage Cell Line: Evaluation by Quantitative Real-Time PCR. Front Immunol. 2016 Sep 8;7:280. doi: 10.3389/fimmu.2016.00280. eCollection 2016. PubMed PMID: 27660630; PubMed Central PMCID: PMC5015595.

16. Mayer J, Williams RJ, Oppenheimer VA, He B, Tuckfield C, Koslowski E, Gogal RM Jr. The immunomodulatory effects of a commercial antiviral homeopathic compound in C57BL/6 mice, pre and post vaccine challenge. Int Immunopharmacol. 2016 Oct;39:389-96. doi: 10.1016/j.intimp.2016.08.003. Epub 2016 Aug 20. PubMed PMID: 27551985.

The focus of the present study was to evaluate the innate and adaptive immunomodulatory effects of oral Engystol® (1 or 10 tablets/L water consumed), prior to and post antigenic challenge in a mouse model with a well-characterized and clinically measureable immune system. We first evaluated the murine immune response when oral Engystol® was given alone for 28 days. Mice were then challenged with an antigen-specific H5N1 HA vaccine while on Engystol® for an additional 33 days. Serum and supernatants from cultured splenic lymphocytes were collected and screened with a 32-cytokine panel. Serum vaccine epitope-specific IgG titers plus T cell and B cell phenotypes from splenic tissue were also evaluated. Preliminary results showed that Engystol® alone did not alter immunity; however, upon vaccine challenge, Engystol® decreased CD4(+)/CD8(+) ratios, altered select cytokines/chemokines, and anti-H5N1 HA IgG titers were increased in the 10 tablet/L group. Collectively, these data suggest that Engystol® can modulate immunity upon antigenic challenge.

17. Siqueira CM, Motta PD, Cardoso TN, de Paula Coelho C, Popi AF, Couceiro JN, Bonamin LV, Holandino C. Homeopathic treatments modify inflammation but not behavioral response to influenza antigen challenge in BALB/c mice. Homeopathy. 2016 Aug;105(3):257-64. doi: 10.1016/j.homp.2016.04.002. Epub 2016 May 4. PubMed PMID: 27473547.

Background: Influenza affects thousands of people worldwide every year, motivating the development of new therapies. In this work, the effects of two homeopathic preparations (influenza biotherapies and thymulin) were chosen following two different rationales: isotherapy and endo-isotherapy models. The homeopathic effects were evaluated individually considering the inflammatory and behavioral responses against influenza virus antigen were studied in BALB/c mice.

Methods: Male adult mice were treated orally and blindly for 21 days with highly diluted influenza virus or with thymulin, and were divided in two sets of experiments. The first series of experiments aimed to describe their behavior, using an open field (OF) device. In the second series, mice were challenged subcutaneously with influenza hemagglutinin antigen (7 µg/200 µl) at day 21. At day 42, behavior and inflammation response were evaluated.

Results: No behavioral changes were seen in OF tests at any time point after treatments. Flow cytometry and morphometry revealed significant changes in T and B cell balance after influenza antigen challenge, varying according to treatment.

Conclusion: The results show that both homeopathic treatments induced subtle changes in acquired immune anti-viral response regulation. A deeper understanding of the mechanism could elucidate their possible use in influenza epidemiological situations.

18. Guedes JR, Carrasco S, Ferreira CM, Bonamin LV, Goldenstein-Schainberg C, Martins V, Capelozzi VL. A morphometric and molecular study of the apoptosis observed on tadpoles' tail explants under the exposition of triiodothyronine indifferent homeopathic dilutions. Homeopathy. 2016 Aug;105(3):250-6. doi:10.1016/j.homp.2016.04.001. Epub 2016 May 17. PubMed PMID: 27473546.

Background: As a therapeutic system, homeopathy is supported by: i) similitude and experimentation in healthy individuals, ii) potentization. A challenge for researchers consists in looking for signals in water (or vehicle) to explain the storage of information in extremely high dilutions and the transfer of such information to the living systems. Anuran amphibian metamorphosis is controlled by thyroid hormones (TH), including the resorption of the tadpole tail.

Apoptosis is a genetically regulated form of cell death that can be triggered by various extracellular and intracellular stimuli resulting in coordinated activation of a family of cysteine proteases called caspases.

Methods: This study was blind and randomized. It performed in three stages: I) the identification of the most effective T3 homeopathic dilution to induce apoptotic reactions in *Rana (Lithobates) catesbeianus* tadpole tail explants stimulated by T3 in substantial, II) study of different controls and III) detection in explants under the action of the most effective dilution of T3, as established in Stage I.

Results: There was no statistically significant difference between tail macroscopic dimensions between the groups. T3 10cH decreased the expression of caspase 3/7 mRNA, in explants treated with T3 20 nM.

Conclusion: The present experiment is in agreement with the hypothesis that T3, at a 10cH homeopathic dilution, changes the metamorphosis molecular network.

19. Joshi S, Mukerjee S, Vaidya S, Talele G, Chowdhary A, Shah R. Preparation, standardization and in vitro safety testing of Mycobacterium nosodes (Emtact-polyvalent nosode). Homeopathy. 2016 Aug;105(3):225-32. doi:10.1016/j.homp.2016.02.006. Epub 2016 Apr 12. PubMed PMID: 27473543.

Background: Most of the nosodes in the homeopathic pharmacopeia have been sourced from obscure pathological material over a century ago; of which no scientific documentation is available.

Method: A method for preparation and standardization of univalent and polyvalent *Mycobacterium* nosodes (labeled as Emtact), using different strains of *Mycobacterium tuberculosis* was developed. The committee comprising microbiologists, scientist, pharmacist, homeopaths and clinicians had reviewed and approved the method of preparation of nosode. Preparation of the nosode was based on the reference in the Homeopathy Pharmacopoeia of India (HPI), group N-IV. Strains of *M. tuberculosis* viz. Standard strain H37Rv, multi-drug resistant (MDR) *M. tuberculosis*, *Mycobacterium bovis* (BCG vaccine) and *Mycobacterium avium* were identified, procured and documented. Twenty billion viable cells for each strain were taken for Original Stock Nosode (OSN). The original stock was prepared by suspending the microbial cells into water for injection (WFI) (1 ml). As per the Indian Pharmacopoeia (IP) monograph, sterility testing was done for different potencies. Polymerase Chain Reaction (PCR) was performed for 30c potency for detection of any DNA material of the source organisms. **Result:** A polyvalent (multi-strain) and univalent *M. tuberculosis* nosodes were prepared for research and clinical use. No growth of *Mycobacterium* was observed in any of the samples above 5c potency. The in-vitro testing for nosode (30c) was found to be free from any organism and DNA material.

Conclusion: *Mycobacterium* nosodes sourced from individual strain and polyvalent Emtact nosode in vitro testing results found to be satisfactory for its handling and utilization. The nosode seems to be safe and may be tested further in vivo to explore its therapeutic application.

20. Fisher P. Is quantum entanglement in homeopathy a reality? Homeopathy. 2016 Aug;105(3):209-10. doi: 10.1016/j.homp.2016.06.001. PubMed PMID: 27473540.

Chapter XI

Veterinary homeopathy

1. **Ebert F, Staufenbiel R, Simons J, Pieper L. Randomized, blinded, controlled clinical trial shows no benefit of homeopathic mastitis treatment in dairy cows. J Dairy Sci. 2017 Jun;100(6):4857-4867. doi: 10.3168/jds.2016-11805. Epub 2017Mar 23. PubMed PMID: 28342609.**

Mastitis is one of the most common diseases in dairy production, and homeopathic remedies have been used increasingly in recent years to treat it. Clinical trials evaluating homeopathy have often been criticized for their inadequate scientific approach. The objective of this triple-blind, randomized controlled trial was to assess the efficacy of homeopathic treatment in bovine clinical mastitis. The study was conducted on a conventionally managed dairy farm between June 2013 and May 2014. Dairy cows with acute mastitis were randomly allocated to homeopathy (n = 70) or placebo (n = 92), for a total of 162 animals. The homeopathic treatment was selected based on clinical symptoms but most commonly consisted of a combination of nosodes with *Streptococcinum*, *Staphylococcinum*, *Pyrogenium*, and *Escherichia coli* at a potency of 200c. Treatment was administered to cows in the homeopathy group at least once per day for an average of 5 d. The cows in the placebo group were treated similarly, using a placebo preparation instead (lactose globules without active ingredients). If necessary, we also used allopathic drugs (e.g., antibiotics, udder creams, and anti-inflammatory drugs) in both groups. We recorded data relating to the clinical signs of mastitis, treatment, time to recovery, milk yield, somatic cell count at first milk recording after mastitis, and culling. We observed cows for up to 200 d after clinical recovery. Base-level data did not differ between the homeopathy and placebo groups. Mastitis lasted for an average of 6 d in both groups. We observed no significant differences in time to recovery, somatic cell count, risk of clinical cure within 14 d after disease occurrence, mastitis recurrence risk, or culling risk. The results indicated no additional effect of homeopathic treatment compared with placebo. The advantages or disadvantages of homeopathy should be carefully assessed for individual farms.

2. **Bodey AL, Almond CJ, Holmes MA. Double-blinded randomised placebo-controlled clinical trial of individualised homeopathic treatment of hyperthyroid cats. Vet Rec. 2017 Apr 15;180(15):377. doi: 10.1136/vr.104007. Epub 2017 Jan 11. PubMed PMID: 28077754.**

Feline hyperthyroidism is a common endocrine disorder in older cats for which homeopathic treatment has been advocated. A double-blinded, placebo-controlled randomised trial was performed to look for evidence of efficacy for the use of individualised homeopathy in the treatment of this disease. Using a case definition of a concentration of the thyroid hormone T4 >66 nmol/l, cats were randomised into two treatment arms. Either a placebo or a homeopathic treatment was given to each cat blindly. After 21 days, the T4 levels, weight (Wt) and heart rate (HR) were compared with pretreatment values. There were no statistically significant differences in the changes seen between the two treatment arms following placebo or homeopathic treatment (T4 P=0.96, Wt P=0.16, HR P=0.36) or between the means of each parameter for either treatment arm before and after placebo or homeopathic treatment (all P values >0.13). In a second phase of the study, patients in both treatment arms were given methimazole treatment for 21 days and T4, Wt and HR determined again. Again there were no statistically significant differences between the groups, but there were statistically significant reductions in T4 (P<0.0001) and HR (P=0.02), and a statistically significant increase in Wt (P=0.004) in both groups compared with their pre-methimazole treatment levels. The results of this study failed to provide any evidence of the efficacy of homeopathic treatment of feline hyperthyroidism.

3. **Valente PP, Moreira GH, Serafini MF, Facury-Filho EJ, Carvalho AU, Faraco AA, Castilho RO, Ribeiro MF. In vivo efficacy of a biotherapeutic and eugenol formulation against *Rhipicephalus microplus*. Parasitol Res. 2017Mar;116(3):929-938. doi: 10.1007/s00436-016-5366-x. Epub 2017 Jan 5. PubMed PMID:28058537.**

The control of *Rhipicephalus microplus* is essential to prevent cattle discomfort and economic losses. However, increased resistance and acaricides inefficiency lead producers to adopt strategies that could result in the accumulation of chemical residues in meat and milk with possibilities of poisoning in animals and people. This scenario demonstrates the necessity of research into the identification of novel, effective and environmentally safe therapeutic options for cattle tick control. The objectives of this study were to develop and assess the efficacy of *R. microplus* biotherapeutic and of 5% eugenol for the control of *R. microplus* in artificially infested calves. Eighteen male 6-month-old Holstein calves were divided into three groups of six animals. In Group 1, the animals did not receive medication (control group); in Group 2, the animals received 1 mL of *R. microplus* biotherapeutic at dilution 6CH (centesimal Hahnemannian), orally administered twice daily. And in Group 3, they received a single application of eugenol 5% in the pour-on formulation. The median efficacy for biotherapy and eugenol 5% was respectively 10.13 and 13.97%; however, upon analyzing reproductive efficiency, it is noteworthy that the biotherapeutic had 45.86% efficiency and was superior to the action of eugenol (12.03%) after 37 days of treatment. The ultrastructural study provided information about the effects of *R. microplus* biotherapeutic on the ovaries of engorged females and showed disorganization in the deposition of the oocyte exochorion. The results suggest hatchability inhibition of larvae, interference in *R. microplus* reproduction and future possibilities for eco-friendly control of *R. microplus* with biotherapeutic 6CH.

4. **Podell M, Volk HA, Berendt M, Löscher W, Muñana K, Patterson EE, Platt SR. 2015 ACVIM Small Animal Consensus Statement on Seizure Management in Dogs. J Vet Intern Med. 2016 Mar-Apr;30(2):477-90. doi: 10.1111/jvim.13841. Epub 2016 Feb 22. PubMed PMID: 26899355; PubMed Central PMCID: PMC4913615.**

This report represents a scientific and working clinical consensus statement on seizure management in dogs based on current literature and clinical expertise. The goal was to establish guidelines for a predetermined, concise, and logical sequential approach to chronic seizure management starting with seizure identification and diagnosis (not included in this report), reviewing decision-making, treatment strategies, focusing on issues related to chronic antiepileptic drug treatment response and monitoring, and guidelines to enhance patient response and quality of life. Alternative nonpharmacologic treatments are available vagal nerve stimulation (VNS), dietary alteration treatment, acupuncture, homeopathy. Ultimately, we hope to provide a foundation for ongoing and future clinical epilepsy research in veterinary medicine.

Chapter XIII

Homeopathy and epidemic diseases

1. **Marinone C, Bastard M, Bonnet PA, Gentile G, Casanova L. [Effectiveness of preventive treatment by Influenzinum in the winter period against the onset of influenza-like illnesses]. Therapie. 2017 Feb 17. pii: S0040-5957(17)30035-5.doi: 10.1016/j.therap.2016.12.011. [Epub ahead of print] French. PubMed PMID:28341159.**

Influenzinum preventive therapy does not significantly alter the likelihood of influenza-like illness (adjusted odds ratio=0,91 [0,62 to 1,35], p=0,64).

Conclusion: Influenzinum preventive therapy did not appear effective in preventing influenza-like illness.

2. **Milgrom LR. Genus Epidemicus: Are Notions of Entanglement Relevant to the Homeopathic Understanding of Epidemic Disease? Forsch Komplementmed.2016;23(5):290-300. Epub 2016 Sep 28. PubMed PMID: 27811467.**

Background: Patient-practitioner-remedy (PPR) entanglement postulates non-local triadic interaction between patient (Px), practitioner (Pr) and potentised medicine (Rx), resulting in the patient's journey to cure; the in-depth homeopathic interview is considered a major contributing factor in this process. Also, by modelling entelechy, a quantised gyroscopic analogue of the Vital Force (Vf) has been developed.

Objective: To discover whether entanglement notions explain the mode of action of homeopathy during the treatment of epidemic diseases, when the individualizing in-depth homeopathic interview is neither possible nor necessary.

Method: The current Vf wave equation applies specifically to the in-depth patient/practitioner consultation in chronic disease. A generalised form of the Vf wave equation, an earlier hypothesis based on quantum field theory (QFT) and PPR entanglement were all re-investigated.

Results: The generalised Vf wave equation was found applicable in 3 main conditions: acute self-limiting, chronic and epidemic disease. In the latter, a single, coherent Vf epidemic 'wave function' covering all susceptible beings could be identified, which, after practitioner intervention, disappears. Analogies were drawn between groups of atoms in a p-doped semiconductor and a collection of susceptible beings in an epidemic. Here, genus epidemicus is likened to an 'n-type dopant', which forms a 'p-n junction' with the disease. Using the QFT hypothesis/metaphor, genus epidemicus acts as a 'gauge field' restoring 'global invariance' to the symmetry-broken, symptom-expressing Vf, i.e., restoring health.

Conclusion: Entanglement hypotheses/metaphors may have application in the homeopathic therapeutic process beyond the one-to-one in-depth interview, and so are relevant to describing the mode of action of homeopathy during treatment of epidemic disease.

Chapter XIV

Miscellaneous

1. Corrao S, Natoli G. The case of homeopathy, "how to search PubMed" may be a first step. *Eur J Intern Med.* 2017 Apr 19. pii: S0953-6205(17)30135-8. doi:10.1016/j.ejim.2017.04.006. [Epub ahead of print] PubMed PMID: 28433480.
2. Garattini S. [Homeopathic drug products and outpatient clinics: are they deceiving the public?]. *Recenti Prog Med.* 2017 Mar;108(3):117-119. doi:10.1701/2656.27233. Italian. PubMed PMID: 28398404.

After more than two centuries since the inception of homeopathy, it can now be stated that active ingredients of homeopathic drug products are approaching zero. Homeopathy has never been shown to be effective, and several Cochrane reviews failed to provide evidence for the effectiveness of homeopathy. In addition, according to the World Health Organization, when homeopathic medicine is used as an alternative to other effective treatments, it may cause harm resulting in increased mortality. On the basis of these considerations, it is of utmost importance that millions of Italian people taking homeopathic remedies be informed on the negative judgment by the scientific community, so that allocation of limited healthcare resources can be better redirected to increase patient access to treatments not otherwise available due to restrictions on healthcare budgets (e.g. hepatitis C medications).

3. Ramezany F, Khanavi M, Ardakani MR, Sellegren B, Eftekhari M, Rastegar H, Shekarchi M. **Molecularly imprinted polymer of colocynthin, an effective tool for quality control of *Citrullus colocynthis* extracts.** *Curr Drug Discov Technol.* 2017 Jan 4. [Epub ahead of print] PubMed PMID: 28056731.

Background: Different parts of Colocynthin, *Citrullus colocynthis* (L.) Schrad., are used in traditional phytotherapy and homeopathy.

Objective: In our new approach, a molecularly imprinted polymer was synthesized to absorb colocynthin, the major plant marker, and its capability was evaluated using HPLC-UV.

Method: A new method was considered to achieve optimal conditions. FT-infrared, N₂ adsorption porosimetry, fluorescent and scanning electron microscopy and thermo gravimetric profile of the polymers were studied. The imprinted polymer was applied as molecularly imprinted solid phase extraction sorbent to enrich colocynthin from colocynthin oil extract, a traditional medicine dosage form.

Results: The imprinted polymer showed high capacity and affinity toward colocynthin. Physical assessments demonstrated no major differences between imprinted and non-imprinted polymers. The imprinted polymer was able to absorb colocynthin more efficiently than non-imprinted and control simple solvent extraction from the real sample.

Conclusion: In conclusion, this polymer is capable of being applied as a promising adsorbent for analysis of colocynthin traditional medicine products.

4. Santa Rita PH, Cleveland HP, Pereira PL, Corrêa W, Van Onselen VJ, Corrêa Filho RA, Teixeira MA. **Effect of a biostimulatory homeopathic complex on venom production in captive rattlesnakes (*Crotalus durissus*).** *Homeopathy.* 2016 Nov;105(4):338-343. doi: 10.1016/j.homp.2016.05.003. Epub 2016 Aug 8. PubMed PMID: 27914573.

The purpose of this study was to evaluate the effect of two administration methods of a biostimulatory homeopathic complex (Convert H®) on the production of fresh and lyophilized venom of rattlesnakes (*Crotalus durissus*) under intensive captivity conditions. Sixty snakes were subjected to treatment following a randomized block design. The effects of sex and size were controlled for. Thirteen consecutive extractions were performed over 21 months. The first factor considered in the experiment was the origin of mice used as prey: a conventional colony (A1) or the Convert H colony (A2; mice receiving the homeopathic complex in water at 1%). The type of water given to snakes was the second factor: pure (B1) or amended with 5% of Convert H® (B2). The experiment was

structured in a factorial 2×2 design combining mouse and water types (A1B1, A1B2, A2B1, and A2B2). No consistent treatment effects on fresh venom production (mL) were observed when the experimental groups were compared with controls (A1B1). However, production of lyophilized venom (mg) was significantly higher ($p < 0.05$) in A2B2 animals than in controls in eight of 13 extractions performed, and also in aggregate. The results revealed that production of lyophilized venom, measured over multiple extractions, can be increased by administering the homeopathic complex simultaneously to rattlesnakes and prey.

5. **Thompson E, Viksveen P, Barron S. A patient reported outcome measure in homeopathic clinical practice for long-term conditions. Homeopathy. 2016 Nov;105(4):309-317. doi: 10.1016/j.homp.2016.05.001. Epub 2016 Aug 27. PubMed PMID: 27914570.**

Background: This study was initiated as part of a quality improvement audit process to create standards around goal setting with our patients to understand and improve outcomes of homeopathic treatment.

Method: We used the Measure Yourself Medical Outcome Profile (MYMOP2) as a tool to assist clinicians in setting the treatment goals across a wide range of diagnoses and other complaints in routine clinical practice at the Bristol Homeopathic Hospital. The data collected from the MYMOP2 is of significance in its own right and the results are now reported in this paper.

Results: A total of 198 patients with a wide range of complaints attended one to five consultations with 20 homeopathic doctors. Diagnostic categories were most commonly neoplasms (16.7%), psychological (13.9%) and genitourinary complaints (12.3%), with 66.7% suffering from these problems for at least one year. The three symptoms that bothered patients the most were pain, mental symptoms and tiredness/fatigue. A paired-samples t-test using an intention-to-treat analysis showed that the MYMOP2 profile score improved from 4.25 (IQR 3.50-5.00), with a mean change of 1.24 (95% CI 1.04, 1.44) from the first to the last consultation ($p < 0.001$). Results were statistically significant both for completers ($n=91$) ($p < 0.001$) and non-completers ($n=107$) ($p < 0.001$) using last-observation-carried-forward, although completers did better than non-completers ($p < 0.001$). The overall clinical significance of improvements was at least moderate. A repeated measures ANOVA test also showed statistically significant improvements ($p < 0.001$).

Conclusion: The MYMOP2 results add to a growing body of observational data which demonstrates that when patients with long term conditions come under homeopathic care their presenting symptoms and wellbeing often improve. Offering a low cost high impact intervention to extend the range of choice to patients and to support self-care could be an important part of the NHS.

6. **Selinger CP, Carbery I, Warren V, Rehman AF, Williams CJ, Mumtaz S, Bholah H, Sood R, Gracie DJ, Hamlin PJ, Ford AC. The relationship between different information sources and disease-related patient knowledge and anxiety in patients with inflammatory bowel disease. Aliment Pharmacol Ther. 2017 Jan;45(1):63-74. doi: 10.1111/apt.13831. Epub 2016 Oct 25. PubMed PMID: 27778366.**

To determine the relationship between different information sources and patient knowledge and anxiety in patients with IBD. Female sex ($P = 0.004$), clinically active disease ($P < 0.001$), frequent use of general practitioners ($P = 0.014$), alternative health websites (homoeopathy, nutritionists, etc.) ($P = 0.004$) and random links ($P = 0.016$) were independently associated with higher anxiety.

7. **Gravatt L. Homeopathy-when self-regulation fails. N Z Med J. 2016 Sep 23;129(1442):93. PubMed PMID: 27657165.**
8. **Nadkevich AL, Babinets LS. [THE APPLICATION OF ANTIHOMOTOXIC DRUG PREPARATIONS IN THE COMPLEX TREATMENT IN PATIENTS WITH NEUROLOGICAL MANIFESTATIONS OF LUMBAR OSTEOCHONDROSIS]. Lik Sprava. 2015 Oct-Dec;(7-8):52-7. Ukrainian. PubMed PMID: 27491151.**

The expediency of application homeosyniatry by preparations of Traumel S and Placenta Compositum after the offered chart in relation to a complex with classic acupuncture and in relation to the group of the generally accepted treatment has been proved in complex treatment patients

with reflex syndromes of lumbar osteochondrosis. A similar conclusion was done after the statistically reliable ($P < 0.05$) dynamics of parameters of endogenous intoxication, liperoxydation and antioxydant systems of the protection (by the level of katalase, superoxyddismutase, SH-groups, ceruloplasmine).

9. **do Nascimento HF, Cardoso PC, Ribeiro HF, Mota TC, Gomes LM, Khayat AS,Guimarães AC, Amorim MI, Burbano RR, Bahia Mde O. In vitro assessment of anticytotoxic and antigenotoxic effects of CANOVA(®). Homeopathy. 2016Aug;105(3):265-9. doi: 10.1016/j.homp.2016.04.003. Epub 2016 May 4. PubMed PMID: 27473548.**

Background: CANOVA(®) (CA) is a homeopathic immunomodulator. It contains several homeopathic medicines prepares according to the Brazilian Pharmacopoeia. CA is indicated in clinical conditions in which the immune system is impaired and against tumors. N-methyl-N-nitrosourea (NMU) is an N-nitroso compound, with genotoxic/mutagenic properties. Although several studies have shown promising the use of CA, there are no studies reporting possible antigenotoxic effects.

Method: This study evaluated the in vitro antigenotoxic and anticytotoxic effects of CA in human lymphocytes exposed to NMU. Samples of human lymphocytes that were subjected to different concentrations of a mixture containing CA and NMU were used. The genotoxicity/antigenotoxicity of CA was evaluated by the comet assay, anticytotoxicity was assessed by quantification of apoptosis and necrosis using acridine orange/ethidium bromide.

Results: CA significantly reduced DNA damage induced by NMU and reduced significantly the frequency of NMU-induced apoptosis after 24 h of treatment.

CONCLUSION: CA has an important cytoprotective effect significantly reducing the DNA damage and apoptosis induced by the carcinogen NMU.

10. **Tarcitano CM Filho, Waisse S. [New documental evidence on the history of homeopathy in Latin America: a case study of links between Rio de Janeiro and Buenos Aires]. Hist Cienc Saude Manguinhos. 2016 Jul-Sep;23(3):779-98. doi:10.1590/S0104-59702016005000017. Epub 2016 Jul 18. Portuguese. PubMed PMID:27438734.**

Homeopathy began to spread soon after it was formulated by Samuel Hahnemann in the early 1800s, reaching the Southern Cone in the 1830s. In processes of this kind, one figure is often cited as being responsible for introducing it, often attaining quasi-mythical status. Little is known, however, about how homeopathy reached Argentina at that time. Through archival research, we discovered that medical and lay homeopaths circulated between Rio de Janeiro and Buenos Aires. Given the well-known proselytizing of the circles gravitating around lay homeopaths B. Mure and J.V. Martins in Rio de Janeiro, the documents indicate that this movement actually went as far as Argentina, which had not been confirmed until now.

11. **Kreher S, Schlott M, Schlott T. [Protestant clergymen among Hahnemann's clientele. Patient histories in letters]. Med Ges Gesch. 2016;34:111-207. German. PubMed PMID: 27263219.**

As part of the research project, developments in the history of science and in the regional and ecclesiastic history of the late feudal petty state of Köthen-Anhalt have been assessed and numerous documents of the Nagel and Mühlenbein family histories examined that place the transcribed patient letters of the two Protestant clergymen within the context of the Hahnemann Archives. These findings complement and extend previous insights into Hahnemann's Köthen clientele, especially when it comes to the structure and milieu of the local clerical elite. Inspired by the interpretive methods of sequential textual analysis, form and content of the letters of the two clergymen and their relatives were also investigated as methodically structured lines of communication. The body of sources published here presents--embedded in the body-image (of sickness and health) prevalent at the time--the medical cultures of educated patients as well as the increasingly professionalized medical practices of Samuel Hahnemann in a flourishing urban doctor's surgery. The correspondence between the pastors Albert Wilhelm Gotthilf Nagel (1796-1835) and August Carl Ludwig Georg Mühlenbein (1797-1866), presented here in a standard edition, has been investigated at Fulda University as part of the project 'Homöopathisches Medicinieren zwischen alltäglicher Lebensführung und professioneller Praxis' ('Homeopathic medicine between everyday use and

professional practice'). Of the altogether 78 transcribed documents, 53 are letters written by either of the two pastors, 16 are patient journals by Samuel Hahnemann, 9 letters by the pastors' wives and Mühlenbein's mother. The two series of letters, originally composed between 1831 and 1833 in old German cursive script, can now be used as sources for research into the history of homeopathy.

12. **Glickman-Simon R, Schneider C. Homeopathy for Depression, Music for Postoperative Recovery, Red Yeast Rice for High Cholesterol, Acupuncture for Seasonal Allergic Rhinitis, and Ginger for Osteoarthritis. Explore (NY). 2016 Jul-Aug;12(4):287-91. doi: 10.1016/j.explore.2016.04.015. Epub 2016 Apr 20. PubMed PMID: 27234467.**
13. **Jong MC, Buskin SL, Ilyenko L, Kholodova I, Burkart J, Weber S, Keller T, Klement P. effectiveness, safety and tolerability of a complex homeopathic medicinal product in the prevention of recurrent acute upper respiratory tract infections in children: a multicenter, open, comparative, randomized, controlled clinical trial. Multidiscip Respir Med. 2016 May 16;11:19. doi:10.1186/s40248-016-0056-1. eCollection 2016. PubMed PMID: 27186371; PubMed Central PMCID: PMC4868034.**

Background: The present study was initiated to investigate the effectiveness, safety and tolerability of complex homeopathic CalSuli-4-02 tablets on prevention of recurrent acute upper respiratory tract infections (URTIs) in children, in comparison to another complex homeopathic product.

Methods: The study was designed as a prospective, multicenter, randomized, open, clinical trial with two parallel treatment groups at four outpatient pediatric clinics in Russia. Children aged ≤ 6 years with susceptibility to acute URTIs (\geq three occasions during the last 6 months) were randomized to receive either CalSuli-4-02 or a comparator homeopathic product (control group) for 3 weeks. Primary outcome was the frequency of acute URTIs after 3 and 6 months post-treatment follow-up. Secondary endpoints were changes in complaints and symptoms (total and individual scores), treatment satisfaction, antibiotic use, safety and tolerability.

Results: The intention-to-treat analysis involved 200 children (CalSuli-4-02: N = 99, CONTROL: N = 101). In both treatment groups, the median number of acute URTIs was one for 3 months and two, respectively, for the full 6 months post-treatment (Relative Risk: 0.86 (95 %-CI: 0.72-1.03), $p = 0.1099$). Seasons had no influence on the outcome. At the end of study, CalSuli-4-02 had overall higher odds of getting lower complaints severity total score (Odds ratio: 1.99 (95 %-CI: 1.31-3.02), $p = 0.0012$) and showing symptom improvement (Odds ratio: 1.93 (95 %-CI: 1.25-3.00), $p = 0.0033$). Specifically, the complaint "appetite disorder" and the symptom "child's activities" significantly improved more in the CalSuli-4-02 group ($p = 0.0135$ and $p = 0.0063$, respectively). Antibiotic use was

decreased in both treatment groups at the study end. Overall assessment for satisfaction with and tolerability of treatment was higher with CalSuli-4-02. A low number of non-serious adverse drug reactions was reported (CalSuli-4-02: N = 4, CONTROL: N = 1).

Conclusions: Both complex homeopathic products led to a comparable reduction of URTIs. In the CalSuli-4-02 group, significantly less URTI-related complaints and symptoms and higher treatment satisfaction and tolerability were detected. The observation that the use of antibiotics was reduced upon treatment with the complex homeopathic medications, without the occurrence of complications, is interesting and warrants further investigations on the potential of CalSuli-4-02 as an antibiotic sparing option.

14. **Baschin M. A Special Kind of Practice? The Homeopath Friedrich von Böninghausen (1828-1910). Clio Med. 2016;96:287-302. PubMed PMID: 27132376.**
15. **Kilari EK, Putta S. Biological and Phytopharmacological Descriptions of Litchi Chinensis. Pharmacogn Rev. 2016 Jan-Jun;10(19):60-5. doi:10.4103/0973-7847.176548. PubMed PMID: 27041875; PubMed Central PMCID: PMC4791990.**
16. **Aust N. Prolonged lifetime by adjunct homeopathy in cancer patients-A case of immortal time bias. Complement Ther Med. 2016 Feb;24:80. doi:10.1016/j.ctim.2015.12.011. Epub 2015 Dec 30. PubMed PMID: 26860806.**

- 17. Sivanandhan G, Selvaraj N, Ganapathi A, Manickavasagam M. Elicitation Approaches for Withanolide Production in Hairy Root Culture of Withania somnifera(L.) Dunal. Methods Mol Biol. 2016;1405:1-18. doi: 10.1007/978-1-4939-3393-8_1. PubMed PMID: 26843160.**

Withania somnifera (L.) Dunal is a versatile medicinal plant extensively utilized for production of phytochemical drug preparations. The roots and whole plants are traditionally used in Ayurveda, Unani, and Siddha medicines, as well as in homeopathy. Several studies provide evidence for an array of pharmaceutical properties due to the presence of steroidal lactones named "withanolides." A number of research groups have focused their attention on the effects of biotic and abiotic elicitors on withanolide production using cultures of adventitious roots, cell suspensions, shoot suspensions, and hairy roots in large-scale bioreactor for producing withanolides. This chapter explains the detailed procedures for induction and establishment of hairy roots from leaf explants of *W. somnifera*, proliferation and multiplication of hairy root cultures, estimation of withanolide productivity upon elicitation with salicylic acid and methyl jasmonate, and quantification of major withanolides by HPLC. The protocol herein described could be implemented for large-scale cultivation of hairy root biomass to improve withanolide production.

- 18. Podolsky SH, Kesselheim AS. Regulating Homeopathic Products - A Century of Dilute Interest. N Engl J Med. 2016 Jan 21;374(3):201-3. doi:10.1056/NEJMp1513393. PubMed PMID: 26789866.**

In 2015, U.S. government agencies began considering greater regulation of both homeopathic drugs and the advertising of such products. These actions came after more than a century of missed opportunities to regulate homeopathic medicines.

- 19. Friedmann DP. Homeopathic Arnica: Smoke and Mirrors. Dermatol Surg. 2016 Jan;42(1):128. doi: 10.1097/DSS.0000000000000532. PubMed PMID: 26716711.**

- 20. Todorova R, Atanasov AT. Haberlea rhodopensis: pharmaceutical and medical potential as a food additive. Nat Prod Res. 2016;30(5):507-29. doi: 10.1080/14786419.2015.1028058. Epub 2015 Apr 7. Review. PubMed PMID: 25849378.**

This review discusses the potential of *Haberlea rhodopensis* as a food additive. The following are described: plant distribution, reproduction, cultivation, propagation and resurrection properties; extraction, isolation and screening of biologically active compounds; metabolite changes during dehydration; phytotherapy-related properties such as antioxidant potential and free radical-scavenging activities, antioxidant skin effect, antibacterial activity, cytotoxic activity and cancer-modulating effect, radioprotective effect, chemoprotective effect, immunologic effect; present use in homeopathy and cosmetics, pharmacological and economical importance; perspectives based on the ethnobotanical data for medicinal, cosmetic or ritual attributes. *H. rhodopensis* showed unique medical and pharmaceutical potential, related to antioxidant, antimicrobial, antimutagenic, anticancer, radioprotective, chemoprotective and immunological properties. *H. rhodopensis* extracts lack any cytotoxic activity and could be used in phytotherapy. The metabolic profiling of *H. rhodopensis* extracts revealed the presence of biologically active compounds, possessing antiradical and other physiological activities, useful for design of in vitro synthesized analogues and drugs.

- 21. Lang CJ(1). The four medical theses of Samuel Hahnemann (1755-1843). J Med Biogr. 2016 May;24(2):243-52. doi: 10.1177/0967772014526347.**

Samuel Hahnemann, the founder of homeopathy, over a period of 33 years wrote four medical theses at three different universities. The first, in 1779 at the University of Erlangen, Franconia, dealt with agents that allegedly induce spasms, granting him a MD degree. The second two theses in 1784 dealt with obstetrical matters and were imposed upon him by the University of Wittenberg, Saxony, for becoming a medical officer, a position he apparently aspired to mostly for financial reasons. The fourth thesis in 1812 at the University of Leipzig, Saxony, his most elaborate dissertation on a toxic plant, white hellebore, served as a habilitation, allowing him to hold university lectures in order to disseminate his new ideas.

Publications in reputed Non-Indexed Journal

1. **Sarkar, Tandra et al. Vibrational and Raman spectroscopy provide further evidence in support of free OH groups and hydrogen bond strength underlying difference in two more drugs at ultra high dilutions. International Journal of High Dilution Research, [S.I.], v. 15, n. 3, p. 2-10, sep. 2016.**

Objective: To confirm that free water molecules and hydrogen bond strength of OH groups underlie difference between two homeopathic drugs at ultrahigh dilution (UHD).

Method: FTIR and Laser Raman spectra of UHDs of X-ray and Magnetis Poli Ambo were obtained in the wave number regions of 2400-4000 cm⁻¹ and 2400-4200 cm⁻¹, respectively. Mother tincture (MT) were prepared by exposing ethanol water to X-radiation for X-ray and magnetic field for Magnetis. Spectra of the reference water and the three UHDs of Ethanol were also taken. All the samples were in water-ethanol solution in which the ethanol content was 25%. For FTIR the difference spectrum (absorbance of a UHD minus absorbance of reference water) was obtained after normalization of the spectrum at 3410 cm⁻¹. For Raman spectra the intensity ratio at vibration frequencies between 3200 and 3420 cm⁻¹ (R1), and that between 3620 and 3420 cm⁻¹ (R2), were calculated for each UHD. The intensity at 3600 cm⁻¹ in the difference spectra (FTIR) represents the number of free water molecules in UHDs. R2 values in Raman scattering suggest the same thing.

Results: The data in both cases follow almost a similar pattern of difference among the UHDs studied here. For example, X-ray: FTIR 14

2. **CHATTOPADHYAY, Rajat; MAHATA, Chitta Ranjan. A Fundamental Study to Observe Correlation at Molecular Level between Bio-Samples of Patients and Indicated Homoeopathic Medicines. International Journal of High Dilution Research, [S.I.], v. 15, n. 3, p. 11-17, sep. 2016.**

Background: 'Like cures like' is the principle that is followed in homoeopathy. Substances which cause disorder in healthy individuals are used as medicines to treat similar patterns of disorder in sick persons. This article aims to find out whether any similarity picture exists at molecular level also that can make a selection of medicines based on scientifically measurable parameters.

Method: It consisted of getting frequency domain signatures for the dielectric functions of (i) bio-fluids (blood serums) of six arthritis patients and (ii) medicines selected for them on the basis of macroscopic similarity. Then, they were compared to find existence/absence of similarity between them.

Results: Medicines administered to the six patients were Rhus tox 200cH, Thuja 30cH, Medorrhinum 200cH. The dielectric loss at resonance for the bio-fluids of the patients and the medicines are given in the body of the article.

Conclusion: It was observed that the patients who had beneficial results with their medicines have a similarity (resonance frequency matching) in spectral signatures of the two groups of substances i.e. bio-fluids (blood serum) of patients and the indicated remedies. This similarity was not evident in the cases where medicines failed to benefit the patients. These results are explorative and enthusiastic, but as the research is limited only to patients with arthritis, generalization could not be drawn. Further work with more rigor is required to establish the facts and apply generalizations to other disease condition. In future, this might be a new tool to integrate the fundamental research with clinical applications in homeopathy.

3. **BANDYOPADHYAY, Poonam et al. Effects of homeopathic medicine on physical properties of matter - a classical and QED perspective. International Journal of High Dilution Research, [S.I.], v. 15, n. 3, p. 18-22, oct. 2016.**

Homeopathic medicines affect physical properties of matter which depend on the characteristic and the potency of the medicine¹. These effects can be explained from two aspects: (a) classical and (b) quantum electrodynamical. Using three different sets of experiments where homeopathic medicines have affected the physical properties of matter, we have shown how the results can be interpreted from both these points of view.

4. **ANDYOPADHYAY, Poonam et al. Enhancement of Quantum Efficiency of A Dye-Sensitized Electrochemical Cell by using Triturated Zinc Oxide Mixed with Two Organic Dyes, Azure C and Rose bengal. International Journal of High Dilution Research, [S.I.], v. 16, n. 1, p. 1:6, sep. 2017.**

For efficiently utilizing solar energy, when suitable nanoparticles are being engineered, triturated zinc oxide an eco-friendly, easily available, low cost material has been used as an agent for solar energy conversion. Two organic dyes Azure C and Rose bengal having absorption bands in two different spectral regions at 545 nm and 610 nm respectively, were chosen in order to overcome the band absorption limits of each dye and utilize the broad spectrum of solar radiation. The material was mixed with these two dyes in a specially devised electrochemical cell and photovoltage with significant efficiency was generated. The energy conversion efficiency of the cell using three different potencies 6C, 30C and 200C of triturated zinc oxide with same concentration of two dyes (0.5×10^{-5} M) in all cases are 0.39%, 0.43% and 0.35% respectively. The efficiency is only 0.15% for the mixed dye under similar conditions.

5. **Cavalaro, victor. In vitro study activity proliferative fibroblast human submitted to treatment zincum metallicum and calendula officinalis in ultra dilutions homeopathic. International Journal of High Dilution Research, [S.I.], v. 16, n. 1, p. 7:19, Sep. 2017.**

Cicatrization can be divided into three phases: inflammation, fibroblastic, maturation and remodeling [1]. The extracellular matrix may be replaced by a stronger and more elastic connective tissue. In a scar collagen is the major component of the mature connective tissue [2]. In homeopathic area, the greater is the investigated segment ultra dilutions [6]. However, little research has been done to explore the effect of dynamized drugs in in vitro cell culture [4]. Using the Zincum metallicum 6CH and Calendula officinalis 6CH applied independently in different concentrations in fibroblast cultures sought to determine the increase in proliferative activity using techniques such as IC₅₀, MTT, flow cytometry and quantification of collagen. As expected from the literature, ie both homeopathic according to the literature are used for treatments that Require skin healing, both showed increased proliferative activity, having Calendula most cellular response, presenting as cell cycle stimulating checked via flow cytometry.

6. **Kay PH, Khuda-Bukhsh AR. The contribution of homeogenomic and homeogenetic studies in the support of the practice of Homoeopathy. Indian J Res Homoeopathy 2016;10:101-7**

Almost two decades ago, it was postulated that homoeopathic remedies could deliver their benefits by interacting with the genetic blueprint. Over the years, the results of many homeogenomic gene expression studies have confirmed this postulate. The results of homeogenomic studies have begun to recognize which of the estimated 25,000 human genes are targeted by different homoeopathic remedies and how the expression profiles of these targeted genes are rearranged. From a mechanistic standpoint, seminal homeogenomic studies have shown that homoeopathic remedies can also facilitate epigenetic modifications such as DNA methylation. This is an important discovery because DNA methylation plays an important role in the control of the expression of many genes. Understanding of the genes targeted by different homoeopathic remedies, taken together with information about the function of the protein/s encoded by the targeted gene/s provides a further complementary approach to homoeopathic remedy selection. In this review, as an example, we show how the results of homeogenomic studies support the applicability of frequently used homoeopathic

remedies in patients suffering from cancer, particularly with respect to upregulation of the gene TP53. This review also outlines how the results of homeogenomic studies may also provide further help with potency selection and optimum dosage regimen.

7. Oberai P, Gopinadhan S, Sharma A, Nayak C, Gautam K. Homoeopathic management of Schizophrenia: A prospective, non-comparative, open-label observational study. Indian J Res Homoeopathy 2016; 10:108-18

Objectives: To evaluate the usefulness of homoeopathic intervention in Schizophrenia, in untreated cases and antipsychotic treatment resistant cases, to verify indications of medicines, and to assess relapse, if any.

Materials and Methods: A prospective, non-comparative, open-label observational study was carried out from October 2005-September 2010 by CCRH at Central Research Institute (H), Kottayam, Kerala, India. Patients between 20 and 60 years of age, presenting with symptoms of Schizophrenia were screened for inclusion and exclusion criteria. The patients who were on antipsychotic drugs were allowed to continue the same along with homoeopathic medicine, the dose of antipsychotics was monitored by the Psychiatrist. The symptoms of each patient were repertorized, and medicine was initially prescribed in 30C potency after consulting Materia Medica. Patients were followed up for 12 months. Outcome of treatment was assessed with Brief Psychiatric Rating Scales (BPRS). Analysis was done using Statistical Package for the Social Sciences SPSS Version 20.0.

Results: Out of 188 enrolled patients, 17 cases did not complete the baseline information. Total 171 patients were analysed as per modified Intention to Treat Principle. Significant difference ($P = 0.0001$, $P < 0.05$) in the mean scores of BPRS, using paired t test was observed at end of the study. Sulphur, Lycopodium, Natrum muriaticum, Pulsatilla and Phosphorus were found to be the most useful medicines in treating schizophrenic patients.

Conclusion: The study reflects the positive role of homoeopathic medicines in the management of patients suffering from schizophrenia as measured by BPRS.

8. Palani S, Pogaku PR, Penthala S, Narayana P S. Pharmacognostic and physicochemical standardization of homoeopathic drug: Rumex crispus L. Indian J Res Homoeopathy 2016;10:119-25

Background: Rumex crispus L., commonly called as "yellow dock" in English, "patience frisee" in French, and "Ampfer" in German, and 'aceda de culebra' in Spanish is a well-known herb belonging to Polygonaceae. Roots of the herb are used as medicine in homoeopathy.

Objective: The pharmacognostic and physicochemical studies on roots have been carried out to enable the use of correct species and standardize the raw material.

Materials and Methods: Pharmacognostic studies on roots of authentic raw drug have been carried out; physicochemical parameters, namely, extractive value, ash values, formulation besides weight per mL, total solids, alcohol content along with high-performance thin layer chromatography (HPTLC) and ultraviolet studies for mother tincture have been worked out.

Results: Roots are blackish-brown, wiry, rounded with irregular striations, tortuous; internally, it is softwood, light-yellow, and fracture fibrous. Phellem is 8-10 layered, discontinuous, and tanniferous. Phellogen is two-layered and contains inulin crystals in few. Outer phelloderm is 12-16 layered often containing spherocrystals and associated with stone cells. Secondary phloem is up to 25 layered. Xylem is in the form of strips. The physicochemical properties and HPTLC values of the drug are standardized and presented.

Conclusion: The powder microscopic features and organoleptic characters along with anatomical and physicochemical studies are diagnostic to establish standards for the drug.

9. Shah R. Standardization of the potentizing machine and quantification of impact of potentization. Indian J Res Homoeopathy 2016; 10:126-32

Introduction: Lack of accuracy and uniformity of impact have been the limitations of the ancient and current methods of potentization. Non-standardized electromechanical potentiizers are in use across industry. It is very important that within each manufacturing process, the number of succussions should remain constant as well as the impact given (force exerted) is quantified. The author proposes to give importance to the force parameters in potentization and quantify the impact of potentization. **Materials and Methods:** The author develops electromechanical potentiizer with certain specifications such as arm length, weight, and angle at which the arm drops at the base. The machine was operated with specific instructions given in the machine operation manual. The force parameters were calculated and standardized.

Results: Torque is measured to quantify the impact of the force applied in potentization. The magnitude of torque is to be calculated by the force applied, length of the lever arm connecting the axis to the point of force application, and angle between the force vector and the lever arm. In this case, torque was calculated to be = 40.43 Nm. Since ten strokes are given, torque applied at every potency is calculated as 40.43.

Conclusion: Necessity for the documentation of force parameters used in the process of potentization has been identified, and a tool is developed to demonstrate it.

10. Chattopadhyay K, Singh AP. Anxiety and its impact on quality of life among urban elderly population in India: An exploratory study. Indian J Res Homoeopathy 2016;10:133-41

Background: Persistent suffering in anxiety can cause various health problems in old age and impairment of quality of life (QOL).

Objectives: The objectives of this study are to assess the pattern of covert and overt anxiety among elderly population, to study the nature of relationship between the pattern of anxiety and domains of World Health Organization-QOL (WHO-QOL) among elderly population, to study the gender difference on the pattern of anxiety and WHO-QOL among elderly population.

Materials and Methods: An exploratory cross-sectional survey under a health camp approach was conducted by using two types of questionnaire, i.e., Institute for Personality and Ability Testing self-analysis questionnaire and WHOQOL-BREF.

Results: The gender wise comparative profile of covert and overt anxiety with total, standard, and sten score shows that covert anxiety is higher in male in different background characteristics, except male group educated between 5 th and 12 th standard showing higher overt anxiety, whereas female group shows higher overt anxiety in different background characteristics. Spearman's rank correlation shows that overt anxiety has an inverse relation with domain-1 in both sexes, a negative relationship is found between domain-2 of WHO-QOL and the covert and overt anxiety among female, a significant negative relationship in domain-3 of WHO-QOL with covert and overt anxiety among male, and also a significant negative association between the domain-4 of WHO-QOL and overt anxiety in female.

Conclusion: The functional ability of both male and female elderly on various domains is related and influenced by the pattern of anxiety.

11. Sumithran P. A case of multiple urinary calculi. Indian J Res Homoeopathy 2016;10:142-9

A patient with urinary calculi of sizes 16 mm in the right renal pelvis and 9 mm in the right mid-ureter, presenting with complaints of pain in right iliac region extending to genitals and legs with dribbling urine and painful micturition reported in the OPD of the Central Research Institute for Homoeopathy, Kottayam, Kerala. Patient had not undergone treatment before. Based on the

presenting symptoms Nux vomica 30C was prescribed, which proved to be effective in the dissolution and expulsion of both the stones.

12. Rashmi R, Mishra D. Pharmacognostical and phytochemical evaluation of Cactus grandiflorus (L.) Britton and Rose. Indian J Res Homoeopathy 2016;10:167-71

Background: Cactus grandiflorus (L.) Britton and Rose, Family: Cactaceae is an evergreen shrub with creeping aerial roots, used in Homoeopathy for atheromatous arteries, angina pectoris, and constriction of heart muscles, endocarditis, and heart weakness due to arteriosclerosis. Flowering stems are used in the preparation of medicine. Objective: The pharmacognostic and phytochemical studies are carried out to facilitate identification of correct species and standardized raw materials. Materials and Methods: Pharmacognostic studies of stem of authentic samples of Cactus grandiflorus (L.) Britton and Rose have been carried out according to Trease and Evans, 1983, and Youngken 1959. To determine physicochemical constants, Indian Pharmacopoeia, 1970, was consulted and preliminary phytochemical properties were studied as per methods described by Trease and Evans, 1983. Results: Stem available in segments of variable length and thickness, roundish structure with 5 or 6 ridges and furrows with aerial roots, isodiametric cavities in cortex containing mucilage; aggregates of acicular and rhomboidal calcium oxalate crystals scattered in parenchymatous region are the key identification characteristic. Thin layer chromatography of chloroform extract of mother tincture reveals five spots with blue and violet colors. Conclusion: The macroscopic, microscopic, physicochemical, and phytochemical analysis of the authentic raw material were indicative to establish the standards for ensuring quality and purity of the drug.

13. Manchanda RK, Janardanan Nair K R, Varanasi R, Oberai P, Bhuvanewari R, Bhalerao R, Gnnanaprakasham M, Padmanabhan M, Siddiqui V A. A randomized comparative trial in the management of Alcohol Dependence: Individualized Homoeopathy versus standard Allopathic Treatment. Indian J Res Homoeopathy 2016;10:172-81

Objectives: This study was undertaken to compare the effects of IH with standard allopathic (SA) treatment. Methods: A randomized controlled, open-label, comparative trial, was conducted, in which alcohol dependents were screened verbally using the CAGE scale. The participants 80 patients fulfilling the inclusion criteria were randomized either IH (n=40) or SA (n=40) and treated cum followed up for 12 months. The primary outcome was more than 50% reduction in the Severity of Alcohol Dependence Questionnaire [SADQ] rating scale at 12 th month. Data analysis was done for both intention-to-treat (ITT) and per-protocol (PP) populations. Results: ITT analysis reflected 80% (n = 32) of the patients in IH and 37.5% (n = 15) of the patients in the SA responding to CI before 2.4 treatment with absolute difference was 42.5% (42.5 [95% confidence interval [CI]: 23.0, 61.6]) and estimated effect: 6.6 (95% C.I: 2.4, 18.2), P = 0.0002. A significant difference favoring IH was also observed in three out of four domains of WHO QOL-BREF. Statistically significant difference was found in the number of drinking days (median difference: -24.00; CI: -39.0--8.0; P = 0.001) and number of drinks per drinking day (median difference: -6.3 [95% CI: -11.3--1.9]; P = 0.004), favoring IH. The results showed a similar trend in PP analysis. Medicines found useful were Sulphur, Lycopodium clavatum, Arsenicum album, Nux vomica, Phosphorus, and Lachesis. Conclusion: The results conclude that IH is not inferior to SA in the management of AD patients. More rigorous studies with large sample size are however desirable.

14. Motiwala F F, Kundu T, Bagmar K, Kakatkar V, Dhole Y. Effect of Homoeopathic treatment on Activity of Daily Living (ADL) in Knee Osteoarthritis: A prospective observational study. Indian J Res Homoeopathy 2016;10:182-7

Objectives: To investigate the effect of individualized homoeopathic medicines in improving ADL by reducing pain, stiffness and limiting the disease progress. Materials and Methods: 131 consecutive

patients with OA of knee were recruited and followed up for minimum period of twelve months. Two orthopaedic surgeons diagnosed the disease based on clinical examination of the patients. Three trained homoeopathic physicians prescribed individualized homoeopathic simillimum and the patients were evaluated for pain on WOMAC Osteoarthritis Index LK3.1 (IK) survey form measuring pain, stiffness and ADL. The pain was also measured on Numerical pain rating scale for confirmation. Result: Individualized homoeopathic medicines prescribed as per law of similia improved the mean ADL from 35.85 to 19.08 (p- 0.0001). Mean pain on WOMAC Osteoarthritis Index survey form improved from 10.50 to 5.48 (p-0.0001). The mean pain score on NRS improved from 6.34 to 3.77 (p-0.0001) and the mean morning stiffness also improved from 4.55 to 2.18 (p-0.0001). Conclusion: Homoeopathic medicines have potential to improve the ADL of OA patients by reducing pain and stiffness and limiting progress of the disease without any adverse systemic effects and can safely be employed as a comprehensive health care therapeutics.

15. Mittal R, Khurana A, Ghosh M S, Bawaskar R, Taneja D, Kashyap S, Manchanda RK. An open-label pilot study to explore usefulness of Homoeopathic treatment in nonerosive gastroesophageal reflux disease. Indian J Res Homoeopathy 2016;10:188-98

Background and Aim: Nonerosive gastroesophageal reflux disease or nonerosive reflux disease (NERD) is characterized by troublesome reflux-related symptoms in the absence of esophageal erosions/breaks at conventional endoscopy. There are a number of medicines cited in homoeopathic literature which can be used for treatment of symptoms such as heartburn and regurgitation. A pilot study was undertaken to explore usefulness of homoeopathic medicines in treatment of NERD. Methodology: In this study, 78 patients were screened and 34 were enrolled, having symptoms of heartburn and/or regurgitation at least twice a week, having a gastroesophageal reflux disease (GERD) symptom score of more than 4. Homoeopathic medicine was prescribed on the basis of presenting symptoms. Response to treatment was assessed on GERD symptom score, visual analog scale (VAS) for heartburn, and World Health Organization quality of life-BREF (WHO-QOL) questionnaire evaluated at baseline and at end of 8 weeks of treatment. Results: Significant difference was found in pre- and post-treatment GERD symptom score (8.79 ± 2.7 vs. 0.76 ± 1.8 ; $P = 0.001$) and VAS for heartburn (47.47 ± 19.6 vs. 5.06 ± 11.8 ; $P = 0.001$). Statistically significant improvement was seen in three domains of WHO-QOL score, i.e. psychological health, social relationship, and environmental domain. Conclusion: The findings are encouraging to open avenues for further studies on reflux disease.

16. Sathye SS. Evidence-based Homoeopathy: A case of corneal abscess. Indian J Res Homoeopathy 2016; 10:206-10

Corneal abscess is a circumscribed collection of pus within the layers of cornea. It is usually endogenous in origin and commonly found near the limbal blood vessels close to corneal margin. Treatment in modern medicine is use of local and systemic antibiotics. Homoeopathy has mentioned medicines for corneal abscess. A case reported was a female of 68 years of age suffering from symptoms of redness, dull pain, and foreign body sensation in the right eye and was diagnosed as corneal abscess. The homoeopathic medicine Hepar sulphuris 200C was prescribed on the basis of pathology. Abscess was reduced considerably within 5 days and it was absorbed completely in 21 days. No recurrence of abscess was observed thereafter. Ocular photographs during follow-up visits have provided documentary evidence about the effectiveness of homoeopathic Hepar sulphuris 200C in corneal abscess.

17. Manchanda R, Chakraborty P, Singh P, Pradhan P K, Prasad V G, Singh O, Rai M K, Koley M, Saha S, Nayak C. A multicenter, observational, homoeopathic clinical verification study of Cynodon dactylon revealing symptom prevalence in a cohort of 340 patients. Indian J Res Homoeopathy 2016;10:225-37

Context: Clinical verification is an ongoing research program of the Council that verified many rare homoeopathic drugs. Aim: This study was carried out to clinically verify the "symptomatology" of *Cynodon dactylon* and to ascertain the prevalence of symptoms in the "improved" and "not improved" groups. Materials and Methods: The study was a multicenter, open, observational study. A total of 462 patients were enrolled after matching with the available symptom, compendium of the drug, and eligibility criteria in seven units/institutes of the Council. The medicine was prescribed in 6C, 30C, 200C and 1M potencies as per the need of each patient, following homoeopathic principles and the protocol developed by the Council. The collected data were presented in terms of descriptive statistics. Prevalence of the symptoms in the responding and nonresponding population was compared using Chi-square test or Fisher's exact test, as appropriate. Results: A total of 340 complete cases were analyzed; male/female was 204/136; mean age was 29.7 years. There were "clinical successes" in 274 (80.6%) cases and "failures" in 66 (19.4%), judged subjectively by the physicians. A minimum of two prescriptions was considered for pick-listing each symptom as per protocol. The number of symptoms verified was as follows: proving symptoms (n = 43), symptoms from other literature (n = 10), and new clinical observations (n = 57). Conclusions: A total of 53 recorded symptoms were verified and 57 new clinical symptoms were identified. Further replication and estimation of likelihood ratio in general practice settings are crucial for confirmatory inclusion of the symptoms in homoeopathic literature.

18. Manchanda R, Chakraborty P, Das K C, Rai M K, Singh O, Pradhan P K, Singh DK, Koley M, Saha S, Nayak C. Symptom prevalence in a cohort of 147 patients improved with the homoeopathic medicine *Ocimum canum*: A multicenter, open, observational, clinical verification study. Indian J Res Homoeopathy 2016;10:238-48

Context: Clinical verification is an ongoing research program of the Council that verified many rare homoeopathic drugs. Aims: To clinically verify the "symptomatology" of *Ocimum canum* by ascertaining the prevalence of symptoms. Materials and Methods: The study was a multicenter, open, observational trial. A total of 214 patients were enrolled after matching with the available symptom compendium and eligibility criteria in seven units/institutes of the Council. The medicine was prescribed in 6C, 30C, 200C and 1M potencies as per the need of each patient, following homoeopathic principles and protocol developed by the Council. The collected data were presented in terms of descriptive statistics. Prevalence of the symptoms in the responding and nonresponding population was compared using Chi-square or Fisher's exact test. Results: A total of 173 complete cases were analyzed; male/female: 76/97; mean age: 31.09 years. There were "clinical successes" in 147 cases (85.0%) and failures in 26 (15.0%), judged subjectively by the physicians. A minimum of two prescriptions was considered for pick-listing each symptom as per protocol. The number of symptoms verified was proving symptoms (n = 10), symptoms from other literature (n = 12), and new observations (n = 42). Conclusions: A total of 22 symptoms were verified, and 42 new clinical symptoms were identified. The newly observed general symptoms and polar symptoms may be worth consideration and evaluation. Further replication and estimation of likelihood ratio in general practice settings are crucial for confirmatory inclusion of the symptoms in homoeopathic literature.

19. Manchanda R, Gupta J, Chakraborty P, Singh P, Nayan SS, Singh J P, Pradhan P K, Ramteke S, Das K C, Prasad P, Gupta P, Rakshit G, Nayak C. Formic acid: A multicentric observational homoeopathic clinical verification trial. Indian J Res Homoeopathy 2016;10:249-57

Aims: This study was done to clinically verify the symptomatology of Formic acid by ascertaining the symptoms improved during verification and to incorporate new findings (if any) to the known symptomatology of Formic acid. Methods: A multicentric observational clinical verification study was conducted at nine research centers of Central Council for Research in Homoeopathy to verify the proving symptoms of rarely used medicine, Formic acid. Two hundred and seventy participants having symptomatological similarity with Formic acid were included and prescribed in 6C, 30C,

200C, and 1M potencies, as per need of each case. The data were compiled in a specially designed Excel spreadsheet for further analysis. The collected data were presented in terms of descriptive statistics. Prevalence of the symptoms in the responding and nonresponding population was compared using Chi-square or Fisher's exact test. Results: Out of 266 followed up patients, 215 cases responded (80.8%) with 95% confidence interval of 0.75-0.85. The number of symptoms verified was as follows: proving symptoms (n = 11) and new observations (n = 22). The widely emerged new general symptoms, i.e., clean tongue, disturbed sleep, loose stool, tastelessness, and profuse sweat may be worth consideration during prescription of Formic acid. Conclusions: The proving symptoms of Formic acid could be verified clinically, but the correlation of patient-specific symptom needs cautious interpretation. Further replication on larger sample and estimation of likelihood ratio in real-time clinical practice are needed.

20. Sinha M, Roy E, Das S, Sarkar DB, Nayak D, Khurana A, Manchanda RK. An observation on direct changes in Aedes albopictus midgut cells by Rhus tox 6C in relation to dengue virus infection. Indian J Res Homoeopathy 2016; 10:258-65

Background and Objectives: In mosquito vectors, dengue virus (DENV) invasion occurs through midgut cells, but available mosquito cell lines for in vitro study of DENV are prepared from eggs or larvae, which are not appropriate models, to study its infectivity. Hence, we developed a new primary cell culture, from Aedes albopictus mosquito midgut, and standardized it for in vitro study of DENV, with an aim to find out any possible role of homoeopathic medicines, in preventing or reducing DENV invasiveness in these midgut cells. This midgut primary cell culture demonstrated prominent cytopathic effects on infection with wild DENV isolated from dengue-infected patients in viremic phase. Materials and Methods: In this paper, we observed the direct effect of homoeopathic medicine Rhus toxicodendron 6C (Rhus tox 6C) (ultra dilution of 10^{-12}) on this primary cell culture, to find out significant changes, to be used as baseline data in future experiments to observe possible role of Rhus tox 6C against DENV infection in these cells. Hence, these direct changes may be a prerequisite for the action of this medicine against DENV invasion; as this is one of common repertoire homoeopathic medicines used against dengue fever. Conclusion and Discussion: In our experiments, we found that Rhus tox 6C could increase cell size and help organization of cells on the solid surface as observed under scanning electron microscope although the total number of cells was decreased. Moreover, Rhus tox 6C treated cells were healthier as indicated by less number of deformed, clump, and diploform cells.

21. Gupta G, Singh S. Role of homoeopathic medicines in prostate enlargement: A retrospective observational study. Indian J Res Homoeopathy 2016;10:266-71

Background: Prostatic enlargement (prostatomegaly) is a common condition in aging men which can be progressive and lead to acute urinary retention and ultimately need for surgery. Although clinical evidence of disease occurs less commonly, symptoms of prostatic obstruction are also age related and if untreated affect quality of life. Patients with huge prostatic enlargement mostly undergo surgical intervention. Objective: To assess the usefulness of homoeopathic medicines in patients with huge prostatomegaly, a clinical study was conducted at Gaurang Clinic and Centre for Homoeopathic Research, Lucknow, India. Materials and Methods: A total of 116 patients have been shortlisted with prostate weight above 50 g, out of which 61 were found fit for the study. The medicines have been selected on the basis of principles of Homoeopathy. Prostate weight and postvoid residual urine (PVRU) on ultrasonography were assessed before and after treatment. Results: After comparing pre- and post-treatment results, the difference in mean values of prostate weight and PVRU were 67.47 ± 2.78 - 60.15 ± 3.62 ($P < 0.001$) and 91.61 ± 11.91 - 65.94 ± 9.01 ($P = 0.009$), respectively, which were found statistically significant. Lycopodium (n = 21), Pulsatilla (n = 7), and Nux vomica (n = 3) were found to be most useful medicines. Conclusion: Results obtained from the study are encouraging with findings that almost 64% of patients reduced their prostatic

weight significantly. However, such study with inclusion of more parameters is needed for further validation of the role of homoeopathic medicines.

22. Shaikh MI. Case studies for treatment of warts with Homoeopathy. Indian J Res Homoeopathy 2016;10:272-8

Warts are the growth of skin resulting from human papillomavirus infection. These may be single, multiple, smooth, or cauliflower-like and are generally treated by applying medicine externally or surgical excision procedure. Homoeopathy has a major role in the treatment of warts and most of the homoeopathic doctors use medicine in centesimal potencies. Five cases of warts were treated, two cases with centesimal potencies, and three cases treated with fifty millesimal potencies. Cases treated with fifty millesimal potencies responded more quickly than centesimal potencies without aggravating the complaints and without applying any external medicines. There is a possibility that fifty millesimal potencies have higher beneficial effects, in the treatment of warts, which can be explored further.

23. Naskar KK, Mishra O. Action of diosgenin and homoeopathic pathogenesis of Dioscorea villosa. Indian J Res Homoeopathy 2017;11:5-11

Background: Dioscorea villosa is a popular herbal remedy for pains. Early Americans used this to treat colic which is also established in homoeopathic proving and verified clinically along with other important phenomena. Diosgenin is its primary active ingredient. It has been investigated that all possible revealed actions of this plant are due to this ingredient. Objective: The aim of this study is to understand pathological background and prescribing areas of D. villosa by correlating and analyzing Homoeopathic pathogenesis with the knowledge of pathophysiological activities of Diosgenin. Study Method: Information was collected from various researches on animal and human models regarding actions of Diosgenin. Homoeopathic pathogenesis of D. villosa have been studied and analyzed from 'The Guiding Symptoms of our Materia Medica' by C. Hering and also from the experiences of different authors to find pathological background as well as prescribing areas of D. villosa by correlating with the actions of Diosgenin.

Result: Diosgenin has prominent action on cholesterol metabolism, hormones (oestrogen and dehydroepiandrosterone [DHEA]), inflammations, and allergic activities on animal and human models. These pathological actions of Diosgenin have similarity with the pathological background of homoeopathic pathogenesis of D. villosa. Conclusion: Actions of Diosgenin reflect in the homoeopathic pathogenesis of D. villosa such as altered cholesterol metabolism, irregularity of hormonal (DHEA and estrogen) functions, and anti-inflammatory and anti-allergic phenomena with their related manifestations. Moreover, these might be the underlying pathological essence of this drug.

24. Rutten L, Muraleedharan K C, Shinde VH, Manchanda RK. What is a homoeopathic symptom, in daily practice and research?. Indian J Res Homoeopathy 2017;11:12-20

Background: For two centuries, homoeopathic practitioners are using personal characteristics, symptoms, and diagnoses/conditions to compare the "patient picture" with the "medicine picture." All data are considered within the context of the totality, using a so-called heuristic strategy. In prognostic factor research analyzing homoeopathic symptoms, we cannot use this context. Question: What is the essence of a homoeopathic symptom and how do we make assessment of homoeopathic symptoms applicable in daily practice? Methods: A questionnaire with seventy polar symptoms represented in Likert scales was tested in an outpatient clinic in 300 patients. Prevalence of symptoms and correlations between symptoms and between symptoms and conditions were analyzed. Outcome: The prevalence of symptoms varied widely; sometimes, prevalence was too high to give meaningful information. Theoretical considerations about heuristics can explain this variation. There is a considerable correlation between symptoms and between some symptoms and

some conditions. Conclusion: The main characteristic of a homoeopathic symptom is its peculiarity, resulting in low prevalence. We can achieve this in research by using more cutoff values in our questionnaire and by guiding the filling in of the questionnaires by well-trained doctors. Correlations between symptoms and between symptoms and conditions should be monitored. Standardization of prognostic factor research is necessary to be able to generalize results.

25. Ahmad S, Rehman T, Abbasi WM, Zaman MM. Analysis of antioxidant activity and total phenolic content of some homoeopathic mother tinctures. Indian J Res Homoeopathy 2017;11:21-5

Background: Antioxidant compounds are widely used in health protection. Homoeopathic mother tinctures are commonly prescribed for prevention and cure of many illnesses. Objective: The present study focused to determine the antioxidant potential of six commonly prescribed mother tinctures, i.e. *Syzygium jambolanum*, *Damiana*, *Cinchona officinalis*, *Chelidonium majus*, *Convallaria majalis*, *Coca*. Materials and Methods: Antioxidant activity was estimated by 2,2-diphenyl-1-picrylhydrazyl (DPPH) inhibition assay. A volume of 0.1 mM solution of DPPH was used while mother tinctures (5, 2.5, and 1.25 µl volumes) were used for estimating antioxidant activity. Quercetin was taken as a standard control in antioxidant activity. Total phenolic content was measured by Folin–Ciocalteu reagent assay. Total phenolic content of mother tinctures was measured in comparison to gallic acid. Results: Results of the study showed the significant antioxidant activity and high total phenolic content of all tested mother tinctures in the following order: *Syzygium jambolanum*, *Damiana*, *Cinchona officinalis*, *Chelidonium majus*, *Convallaria majalis*, *Coca*. Conclusion: Antioxidant potential of mother tinctures is related to total phenolic content present in them, and their role in prevention and cure of diseases may link through their antioxidant activity. Among six selected mother tinctures, *S. jambolanum* has highest antioxidant potential.

26. Pogaku PR, Palani S, Penthala S, Narayana P S, Mukkamula N. Pharmacognostic and physicochemical evaluation of homoeopathic drug: *Erigeron canadensis* L. Indian J Res Homoeopathy 2017;11:26-33

Background: *Erigeron canadensis* L. is an erect annual herb belonging to the family Asteraceae. Aerial parts are used in Homoeopathy for bruises, cough, dysuria, gonorrhea, haemorrhages, haemorrhoids, spermatorrhea, and wounds. Objective: The pharmacognostic and physicochemical studies have been carried out to facilitate the use of correct species and lay down standards of raw drug materials. Materials and Methods: Pharmacognostic studies of the leaf and stem of authentic samples of *E. canadensis* L. have been carried out. Physicochemical parameters of the raw drug include extractive values, ash value, and formulation; besides weight per mL, total solids, and alcohol content, high-performance thin layer chromatography (HPTLC) and ultraviolet (UV) studies are given. Results: Epidermal cells often possess crystals of calcium oxalate. Stomata are anomocytic, anisocytic, and tetracytic types. Trichomes are uniseriate and conical in structure. The mid vein in transection is flat on adaxial and is ribbed toward abaxial, with a secretory cavity beneath the central vascular bundle. Stem in transection is round. The vascular tissue is made of several vascular bundles in a ring. Crystals of calcium oxalate occur in the epidermis, cortex, and pith of stem. In mature stem, secondary xylem is well developed with a reduced phloem. The determined physicochemical data, namely, extractive values, ash values, and preparation of for raw drug and weight per mL, total solids, and alcohol content besides UV and HPTLC profile for finished product are provided. Conclusions: The presented morphoanatomical features along with powder microscopic and organoleptic characters and physicochemical data are diagnostic to establish the standards for ensuring quality and purity of the drug.

27. Shah R, Sathaye S. Preclinical evaluation of antiarthritic activity of ultra-diluted preparations of capsaicin alkaloids (CP-10), tumor necrosis factor-alpha, and Magnesium phosphoricum in wistar rats. Indian J Res Homoeopathy 2017;11:34-40

Background: The use of animal models in the development of new medicine and research is common in the conventional medicine. Animal model for new drug discovery and efficacy testing for preclinical research is explored in Homoeopathy only by a few. This study explores the possibility to test in a controlled way the effects of homoeopathic remedies on experimental model of acute inflammation in rats. Methods: Wistar rats were divided into seven groups (seventy rats of 6–8 weeks' age); medicines were evaluated by oral administration in the Complete Freund's adjuvant (CFA)-induced arthritis. Two new homoeopathic preparations, a combination of Capsaicin and Dihydrocapsaicin (CP-10), tumor necrosis factor-alpha (TNF- α), and one existing homoeopathic medicine, Magnesium phosphoricum (0.6 ml oral), were evaluated against vehicle control using Diclofenac as a standard. Edema was measured using a water-based plethysmometer, before and at different times after arthritis induction. Results: Magnesium phosphoricum showed good results, almost similar to Diclofenac at days 7 and 21, whereas CP-10 and TNF- α showed nonsignificant results. The body processes reversed the inflammatory condition on day 7 onward indicated by similar paw volume of all the treatments. Arthritic index was higher with negative control, which was decreased by CP-10 although nonsignificantly on days 7 and 21. Diclofenac and Magnesium phosphoricum showed significant reduction in arthritic index on days 7 and 21. Conclusion: Ultra-diluted homoeopathic preparations of Magnesium phosphoricum exhibited definite antiarthritic activity. The same could have been confirmed studying the levels of inflammatory biomarkers in a study with longer treatment period.

28. Kar S, Chakraborty M, Nandy P, Basu R, Dasa S, Bhar DS, Manchanda RK, Khurana A, Nayak D. Characterization and haemocompatibility of Aurum metallicum for its potential therapeutic application. Indian J Res Homoeopathy 2017;11:41-7

Background: The objective of the study was to characterize homoeopathic nanomedicine Aurum metallicum and evaluate its biocompatibility, to explore its possible application as injectables. Metal-based homoeopathic medicine, Aurum metallicum, was chosen as a model drug and the haemocompatibility of the drug at three different potencies 6C, 30C, and 200C were studied to find the justification of the drug as an injectable candidate for clinical application.

Methods: The model drug Aurum metallicum at the three potencies was characterized by dynamic light scattering (DLS), zeta potential, field emission scanning electron microscopy (FESEM), and energy dispersive X-ray analysis. Hemocompatibility of the homoeopathic medicine was performed by haemolysis assay. Red blood cell obtained from fresh human blood by centrifugation was incubated with Aurum metallicum. Haemoglobin release was measured using UV-vis spectrophotometer at 540 nm. Results: The DLS and FESEM studies show a decrease of particle size with increasing potency. The zeta potential values show a fairly constant value measured at an interval of 10 days. The haemolysis percentage for 6C, 30C, and 200C was 9.73%, 8.16%, and 0.73%, respectively. Conclusion: The nanomedicine Aurum metallicum was nontoxic at all doses of 6C, 30C, and 200C. The haemolytic percentage also shows that 200C is nonhemolytic, showing haemolysis <2% as per the American Society for Testing and Materials guidelines. The undertaking of larger controlled and in-depth qualitative studies is warranted.

29. Singh S, Kalra P, Karwasra R, Khurana A, Manchanda RK, Gupta YK. Safety studies of homoeopathic drugs in acute, sub-acute and chronic toxicity in rats. Indian J Res Homoeopathy 2017;11:48-57

Background: Homoeopathic drugs are frequently recommended in day to day life as therapeutic agents by homoeopathic practitioners. However, safety of homoeopathic drugs remains a challenge because of the high variability of chemical components involved. Aim: The objective of the present study was to investigate the acute, subacute, and chronic oral toxicity of different homoeopathic drugs (Ferrum phosphoricum 3X, Ferrum phosphoricum 6X, Calcarea phosphoricum 6X, and Magnesium phosphoricum 6X) in experimental models. Materials and Methods: In acute oral toxicity

study, homoeopathic drugs were administered orally at 2000mg/kg body weight, and animals were observed for toxic symptoms till 10 days as per the OECD guidelines. For subacute and chronic toxicity study, homoeopathic drugs were administered for 28 and 180 days, respectively, as per the OECD guidelines. At the end of 28 and 180 days, the animals were sacrificed and toxicity parameters were assessed. Histopathological evaluation of different organs was also performed to assess any toxicity. Results: In acute toxicity study, no mortality was found at a dose of 2000 mg/kg which indicates that oral LD50 of homoeopathic drugs were more than 2000 mg/kg. The administration of drugs at a dose of 70 mg/kg body weight for 28 and 180 days did not produce any significant change in haematological and biochemical parameters of male and female rats as compared to normal control group. No pathological changes were observed in histology of various organs of treated rats as compared to normal control animals. Conclusion: These homoeopathic drugs are safe & produce no toxicity when administered for longer duration.

30. Hanif K, Kumar M, Singh N, Shukla R. Homoeopathic medicine Mercurius solubilis treatment improves cerebral blood flow and memory in experimentally induced Dementia in rats. Indian J Res Homoeopathy 2017;11:58-63

Background: Mercurius solubilis (Merc. sol) is a known, accepted homoeopathic medicine for the treatment of various mouth, throat, eye, and ear infections. Previous studies suggested that Merc. sol has anti-inflammatory properties which could be beneficial in memory impairment. Objective: The present study was designed to investigate the effect of Merc. sol on learning and memory and cerebral blood flow (CBF) in the rat model of impaired learning and memory function induced by intracerebroventricularly (ICV) administered streptozotocin (STZ). Materials and Methods: The different potencies of Merc. sol (6, 30, 200, and 1M) were given for 17 days in memory-impaired rats, induced by ICV administration of STZ (3 mg/kg). The Morris water maze test was used to evaluate the learning and memory function on the 14th, 15th, and 16th day. The laser doppler flow meter was used to measure CBF on the 17th day. Results: There was a significant reduction in CBF along with learning and memory functions in STZ (ICV)-treated rats, which were significantly attenuated by the treatment of Merc. sol at all potencies (6, 30, 200, and 1M). Conclusion: Our results demonstrated the effectiveness of Merc. sol in improving memory function and CBF. Thus, it could be used as a therapeutic agent in dementia.

31. Parveen S. A retrospective study of homoeopathic treatment in patients with heel pain with or without Calcaneal Spur. Indian J Res Homoeopathy 2017;11:64-73

Background: Heel pain is a common clinical condition which significantly affects the quality of life. It is frequently associated with calcaneal spur (CS). Despite its high prevalence, the optimal treatment remains unclear. The aim and objective of this study is to evaluate the extent of CS in heel pain; correlation of CS with some sociodemographic and health-related factors; and outcome of homoeopathic treatment over a period of 6 months. Methodology: It was a retrospective study done at Dr. Anjali Chatterjee Regional Research Institute for Homoeopathy, Kolkata. Samples were selected from the patients referred for ankle X-ray from August 2014 to July 2015 for nontraumatic heel pain. Their files were traced from outpatient department, and treatment records were reviewed over the next 6 months. Results: Totally 92 patients, 70 women and 22 men, had undergone lateral X-ray of ankle for nontraumatic heel pain, of which 76 (82.6%) patients had CS. Extent of CS was found to be higher in case of females, older age, overweight, and profession of housemaid or manual labor. Homoeopathic treatment showed positive response in nearly 75% of the CS patients. The most useful medicines were Calcarea flouricum, Rhus toxicodendron, Ledum palustre, and Aranea diadema. Conclusion: CS was found in nearly 80% of patients presenting with heel pain, which showed association with female sex, overweight, increasing age, and profession requiring heel stress. Homoeopathic treatment was effective in 3/4th of CS patients, and Rhus toxicodendron and Calcarea flouricum are the two most commonly used medicines.

32. Pal PP, Ghosh MS, Chakma A. Homoeopathic treatment of ulcerative Colitis: A case report. Indian J Res Homoeopathy 2017; 11:74-8

Ulcerative colitis (UC) is one of the most common inflammatory bowel diseases. As in most of the cases, the exact cause is unknown Homoeopathy, however, provides a better response in such conditions, one such case report is presented below. Patient attended out patient department (OPD) chiefly for complaints of frequent passage of bloody stool and abdominal pain. He was suffering from idiopathic UC for the past 10 years. After unsatisfactory outcome with modern medicine, patient turned to homoeopathic treatment. After detailed case-taking and repertorization, Hydrastis was given in low potency, and gradually, the potency was raised as per the response of the medicine upon patient. Within 3–4 months of homoeopathic treatment, the patient started improving and continues to be free from his complains at the time of last follow-up visit in OPD.

33. Arora EK, Sharma V, Khurana A, Manchanda A, Sahani DK, Abraham S, Kundu D, Gupta H, Chiru LB, Sharma N, Garg N, Jomy S. Phytochemical analysis and evaluation of antioxidant potential of ethanol extract of *Allium cepa* and ultra-high homoeopathic dilutions available in the market: A comparative study. Indian J Res Homoeopathy 2017; 11:88-96

Introduction: As per statistics available with the WHO, 80% of the earth's population rely on traditional medicine for their primary health-care needs and most of this therapy involves the use of plant extracts and their active components. Objectives: To confirm the presence of alkaloids, fats, steroids, tannins, flavonoids, sugars, amino acids and saponins in *Allium cepa* extract. Method: A qualitative phytochemical analysis has been performed to confirm the presence of these components in *Allium cepa* extract and its homoeopathic formulations (mother tincture [MT], *Allium cepa* 30C and *Allium cepa* 200C). The total phenolic content, flavonoid content and antioxidant potential of the prepared extract and the various homoeopathic formulations have also been studied. Results: Presence of various phytochemicals such as flavonoids, alkaloids, saponins, steroids, carbohydrates and amino acids have been confirmed in the prepared extract as well as the MT. According to calculations using Avogadro's limit, preparations above 12C dilution should have no source material present. It is interesting to note that even though the formulations *Allium cepa* 30C and 200C are considered ultra-high dilutions, they gave a positive result for many phytochemicals. The total phenolic content, flavonoid content and antioxidant potential of the prepared extract and various homoeopathic formulations have also been studied. Conclusion: The positive qualitative and quantitative results also reinforce the growing belief that Homoeopathy is not just a placebo effect but a 'Smart medicine' which may be working on the nanoscale. More research is required to understand various aspects.

34. Mehra P, Khurana A, Mittal R, Arya BS, Rajpal, Manchanda RK, Singh K, Vichitra AK, Rakshit G, Singh JP, Padmanabhan M. Homoeopathic pathogenetic trial of *Withania somnifera*: A multicentric, double-blind, randomised, placebo-controlled trial. Indian J Res Homoeopathy 2017;11:97-108

Background: Homoeopathic drug proving being the first step in finding the pathogenetic powers of a drug is an integral part of Homoeopathic system of medicine. Objective: To elicit the pathogenetic response of *Withania somnifera* in homoeopathic potencies on healthy human provers. Materials and Methods: A multicentre, randomised, double-blind, placebo-controlled trial was conducted at four centres under Central Council for Research in Homoeopathy. Proving was conducted on 63 relatively healthy provers. All the provers were given 12 doses of placebo divided into 4 doses/day for 3 days during the first phase of the trial. After randomisation, 43 provers in the intervention group were given *W. somnifera* in 6C and 30C potencies in two phases. In the placebo group, 20 provers were administered unmedicated globules. The symptoms and signs manifested during the trial were noted down by the provers, elaborated by the proving masters and the data compilation on *W. somnifera* was done at proving-cum-data processing cell. Results: Out of 43 provers who were on actual drug trial, only 15 provers manifested 39 symptoms. The symptoms have been manifested

predominantly in 30C potency. Among the objective findings, the drug has shown its effect on kidney, ovaries and helminthic infestation. Conclusion: The pathogenetic response elicited during this trial expands the scope of the use of *W. somnifera* and needs to be further validated by clinical verification study.

35. Dwivedi BK, Kumar M, Khurana A, Arya BS, Sundaram EN, Manchanda RK. Comparative standardization study for determination of reserpine in *Rauwolfia serpentina* homoeopathic mother tinctures manufactured by different pharmaceutical industries using HPTLC as a check for quality control. Indian J Res Homoeopathy 2017;11:109-17

Background: *Rauwolfia serpentina* (L.) Benth. ex Kurz (Apocynaceae) (Indian snakeroot), popularly known as Sarpagandha (Sanskrit), is used for the treatment of insanity, fever, snake bites, anxiety and in neuropsychiatric conditions. The antihypertensive actions of Reserpine are a result of its ability to deplete catecholamines (amongst other monoamine neurotransmitters) from peripheral sympathetic nerve endings which are normally involved in controlling heart rate, force of cardiac contraction and peripheral vascular resistance. Objective: Comparative study of Reserpine content in *R. serpentina* homoeopathic mother tinctures manufactured by different pharmaceutical industries and in-house mother tinctures applying high-performance thin-layer chromatography investigative techniques to facilitate the use of correct species. Materials and Methods: The authentic samples of roots of *R. serpentina* were supplied by Centre of Medicinal Plants Research in Homoeopathy, Emerald, Tamil Nadu, India. Authentic plant material was used to prepare the mother tincture (as per Homoeopathic Pharmacopoeia of India). Reserpine (C₃₃H₄₀N₂O₉, M.P. 360°C, purity >99% w/w by high-performance liquid chromatography [HPLC]) was purchased from Sigma-Aldrich as a standard reference. The solvents for the study, namely, ethanol, HPLC water, toluene, ethyl acetate, diethylamine and chloroform were of analytical grade purity (MERCK Ltd.), used throughout. Results: Five samples of mother tinctures were used for the study, in-house mother tinctures (labelled: D and E) of *R. serpentina* shows a higher amount of Reserpine content than the marketed samples (labelled: A, B and C). Conclusion: It may be concluded that mother tinctures prepared by authentic plants showed the excess amount of Reserpine rather than that of mother tinctures procured from the market.

36. Cilla Whatcott. Homoeoprophylaxis—Common Sense for Epidemics. Homœopathic Links 2016; 29(03): 200-201

Homoeoprophylaxis is a wise choice for the prevention and treatment of global epidemics for reasons including cost, production time and distribution methods. While methods of homoeoprophylaxis have been employed since Hahnemann, now is the time to expand its application globally.

37. Elia Onne¹, Michal Yaki. *Loranthus acaciae* (*Plicosepalus acacia*): The Proving. Homœopathic Links 2016; 29(03): 202-208

The *Loranthus* proving was shrouded in an atmosphere of animosity and suspicion. The thread of scarlet seemed to be: taking or claiming rights of things, which are not yours or feeling like a victim of such circumstances, feeling that one is overpowered by malicious force and being leeches upon. There is hatred for those you depend on or for those that are dependent (or use) you. This was responded to with resistance to any authority, by belligerence, and by a dictatorial, bitter, aggressive and impatient attitude. It is an uncompromising rivalry that is fuelled by an undercurrent conviction that it's 'either me or you'.

38. Maya Doari¹, Mor Kadishzon. *Triticum dicoccoides*: Mother of Wheat. Homœopathic Links 2016; 29(03): 209-213

The mother of wheat (*Triticum dicoccoides*), similar to her sibling the soft wheat (*Triticum vulgare*), is a remedy that deals with questions within the family, issues of nourishing, parent-child

relationships and parental care. However, the mother of wheat (being primordial, indigenous and self-pollinating) also deals with questions of legacy—what do I transfer to the next generations, spiritually speaking, and with questions of inheritance—what do I transfer on a materialistic level and finally with questions about roots—personal, familial and ethnic? In addition, the mother of wheat reflects a significant duality between the “good life” dimension, a luxurious, carefree and happy existence, a life of simple harmony, decorated with plenty of delicious and sweet pastries on one hand, and on the other hand, a mundane dimension of wheat, the simple dry bread which manifests itself as burden, worries, debts and bureaucratic life.

39. Miriam Heffer. Homoeopathic Proving of Synthetic Rubber. Homœopathic Links 2016; 29(03): 214-221

The choice to conduct a proving on synthetic rubber was made because patients were expressing symptoms similar to carbon themes accompanied by sensations and references to elastic. A proving had already been conducted on natural rubber and a remedy made from it is available, but none had been conducted on synthetic rubber, which is a product of the petrochemical industry. The proving was conducted in Israel over a period of 2 weeks, which for most of the provers was the maximum time they could tolerate, the maximum they could be ‘stretched’ and which was compounded by the fact that they were all laymen. Being a carbon-based substance, well-documented carbon themes did emerge, but surprisingly so did war and army themes. However, taking into account the broader picture, that is, the petrochemical industry and the volatile Middle East, perhaps the emergence of such themes was not so surprising.

40. Alex Leupen. I Feel Like a Robot—a Case of Teucrium marum. Homœopathic Links 2016; 29(03): 224-225

41. V. K. Gupta¹, Mohit Mathur. NHMRC Overview on Homeopathy. Homœopathic Links 2016; 29(03): 226-227

The National Health and Medical Research Council's conclusion on homeopathy was not legitimate because it was based on homeopathic trials that lacked homogeneity in their intervention. In some trials the intervention was isopathic. The overview and many previously conducted systematic reviews were exclusively based on randomized controlled trials that comprised only 27% of all clinical studies so far published in homeopathy. It is not rational to leave out the evidence generated through uncontrolled studies if these studies showed consistent results.

42. Medhurst, Robert. A role for homoeopathy in urinary tract infection. Journal of the Australian Traditional-Medicine Society. Volume 22 Issue 1 (Autumn 2016).

Urinary tract infections or UTIs are one of the more common conditions we see in clinical practice. The lifetime incidence rate for this illness for women is 50%, and 5% for men. Babies and the elderly form two of the high risk groups for UTIs. The more specific groups at higher risk of developing this disorder are sexually active women, diabetics, men with pre-existing prostate disease, those with urinary catheters, and babies born with anatomical disorders of the urinary tract that result in vesico-ureteric reflux.

43. Medhurst, Robert. Another look at research in homoeopathy. Journal of the Australian Traditional-Medicine Society. Volume 22 Issue 4 (Summer 2016).

Unlike many pharmaceutical interventions that have been subjected to large, replicated clinical trials, clinical and other research into homoeopathy has its limitations. In most cases, the numbers of people participating in clinical trials on homoeopathy is often relatively small and few trials have been replicated. The reason for this is that unlike drugs, homoeopathic medicines in most cases cannot be patented, so there is little incentive to invest the vast quantities of money that the drug companies often spend to mount large clinical trials. Interestingly, surveys have found that no more

than about half of all standard medical interventions have been validated by controlled clinical trials (Imrie R. The evidence for evidence based medicine. *Complementary Therapies in Medicine* (2000), 8, 123-126). However, homoeopathy has been used in a significant number of successful clinical trials, and summaries of some recent or recently unearthed examples follow.