the treatment of hypertension. Data was collected at the National Academy of Homoeopathy, India (NAHI) located in Nagpur, Maharashtra. Cases diagnosed and treated for hypertension in 2013 under the outpatient department affiliated to Shaad Homoeopathic Hospital Complex & Research Centre were assessed for eligibility, classified and analyzed. A total of 41 subjects were selected and classified into homeopathy group (N = 22) or integrated group (N = 19) according to the treatment they received. Statistical results with repeated measures ANOVA suggest that there is no significant difference between the homeopathy and the integrated group in terms of blood pressure reduction at week six of treatment. It is concluded that homeopathy on its own is as efficacious as homeopathy plus conventional pharmacotherapy in the treatment of hypertension.

Keywords: Hypertension, Homeopathy, Integrated treatment

Different approaches in homeopathic basic research: plant-based bioassays and evaporation-induced crystallization

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Two different approaches can be adopted in fundamental research in homeopathy to evaluate the effectiveness of homeopathic preparations: i) plant-based bioassays and ii) evaporation-induced crystallization. As concerns i), the classic test of wheat germination and growth has been quoted as a basic model for research on homeopathic potencies. Results of our experimentations showed that As_2O_3 45x (As 45x) induced a significant increase of germination rate and stalk growth with respect to control. This simple model was used also to study the following aspects:

- effect of temperature: results show that As 45x heated at 20°, 40° and 70°C induced a significant increase of germination rate vs. control, losing its effectiveness at 100°C
- effect of aging-time: As 45x always induced a stimulating effect on germination, significant only after three months from treatment preparation
- effect of succussion number: a significant increase of germination was obtained starting from 32 succussions between each dilution step for As 45x
- effect of serial dynamizations (from 5x to 60x): data showed an oscillatory trend, with some potencies inducing a significant decrease (35x), while others a significant increase of germination rate (5x, 30x, 40x, 45x, 55x, 60x)
- effect on gene expression profiles: a massive reduction of gene expression levels to values comparable to those of the control group, induced by As 45x, was observed for several functional classes of genes.

The second approach sought to verify whether the droplet evaporation method (DEM) can be applied to assess the effectiveness of homeopathic remedies. We studied the shape characteristics of the polycrystalline structures formed during droplet evaporation of wheat seed leakages. The results showed that As 45x increased the local connected fractal dimension levels and bilateral symmetry exactness values in the polycrystalline structures, as compared to the water treatment.

Keywords: Plant-based bioassays, Droplet evaporation method, Wheat seeds, Arsenic trioxide 45x

Replication of specific effects of a *Stannum metallicum* 30x preparation in a cress seedling/ biocrystallization test system

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One of the aims of basic homeopathic research is to reveal any specific mode of action of potentized preparations. This requires stable and reliable preclinical tests measuring either specific physicochemical properties or biological effects of homeopathic preparations.

Within a precursor project, we developed a bio-assay which yielded highly significant evidence for specific effects of an ultra-molecular *Stannum metallicum* 30x preparation relative to *Water* 30x, based on 15 independent randomized and blinded experiments performed at two independent laboratories. The test system is based on cress seed germination, biocrystallization and subsequent computerised image analysis of the biocrystallization patterns. The biocrystallization method is based on the phenomenon that self-organizing, additive-specific crystallization patterns emerge when a $CuCl_2.2H_2O$ solution with additives is crystallized on a glass plate. The method acts as an indicator for systemic properties of the applied additive.

In the present project we investigated the reproducibility of the effects found in repeated experiments based on improved methodology towards: (i) optimization of the laboratory procedures to avoid any processing order effects, (ii) full implementation of blinded systematic negative control (SNC) experiments, and (iii) *Water* 30x was