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Oral presentation – abstract submission for publication

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Title of presentation	Replication of Specific Effects of a <i>Stannum Metallicum</i> 30x Preparation in a Cress Seedling/ Biocrystallization Test System
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Abstract:

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 $\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$ 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 replaced by *Lactose* 30x to control for the trituration of *Stannum metallicum*. In total 10+10 independent randomized, coded experiments were performed in two independent laboratories. In addition, 10+10 SNCs were performed to control experimental stability.

Meta-analysis of the data revealed the same data structure in both projects, i.e. a reproduction of the significant differences between the two homeopathic preparations. The SNCs showed no significant intra-day, inter-day or inter-lab differences, indicative of a robust and reproducible test system. We were thus able to establish a test system yielding reproducible biological effects of an ultra-molecular homeopathic preparation. These ground-breaking results point to a promising potential of the method to contribute to basic homeopathic research.

Keywords	Bio-assay, Systemic properties, <i>Stannum metallicum</i> 30x, Systematic negative control experiments, Reproducible effects.
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