

Material and methods: The study was performed during 2010 and 2011 throughout an online questionnaire applied on a sample of 3,344 people over 18 years old coming from all of the Spanish Regions.

Results: Homeopathy has shown to be a more and more demanded therapeutic alternative; thus, one out of three Spanish people (33%) have already used it to relieve or treat several health problems, and 27% use it on an occasional or regular basis. Navarra, Aragón, Cataluña, Murcia and País Vasco stand out as the Autonomies with a higher percentage of occasional and regular users. According to the collected data, the word Homeopathy is recognized by almost all the sample and 75% of it spontaneously identify the homeopathic treatments as a natural medical therapy. Women stand out for a better knowledge on this therapy than men, and the main female users of Homeopathy are between 30 and 50 year old. The lack of adverse events and effectiveness are the main reasons for the Spanish users to start using homeopathic medicines. Flu, cold, cough, sore throat (52%), bronchitis and ear infection (12%) are the most frequently homeopathy treated pathologies.

Conclusions: Eight out of ten (82%) people using homeopathy are satisfied or very satisfied with the outcome of their treatments, and this figure grows up to 99% in regular patients. In addition, if we take into account that 87% of the users would recommend it to relatives and friends, future can't be any brighter.

Keywords: Homeopathy; Healthcare survey; Demography; Patient satisfaction; Spain/epidemiology

Effects of homeopathic treatments on the cellular metabolism of wheat: validation of microarrays data by quantitative real-time PCR (qPCR)

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Plant-based models appear to be an useful approach for basic research in homeopathy in order to fill gaps concerning theoretical models and scientific basis. Such models make it possible to overcome some of the inconveniences of clinical trials for instance placebo effect, ethical issues, duration and high costs; moreover they constitute a vast and cheap source of biological material, essential to perform a large number of experimental repetition.

The main objective of the research was to give novel insights on the not yet clarified mode of action of homeopathic treatments and to provide reliable information on their efficacy.

The plant-based model considered was the "wheat growth model". A total of 560 common wheat (*Triticum aestivum* L.) seeds were used to carry out the study; part of the seeds were stressed with As₂O₃ 0.1% to reduce germination and amplify the effect of homeopathic treatment. The seeds were been equally subdivided into four experimental groups: control (non-stressed seeds grown in distilled water); treated control (non-stressed seeds grown in As₂O₃ 45x); poisoned (stressed seeds grown in distilled water); poisoned-treated (stressed seeds grown in As₂O₃ 45x). After 7 days of incubation seedlings were collected for molecular analysis. Total RNA isolated from seedling samples were used for microarray analysis in order to study changes in gene expression over different treatments. Subsequently, statistical and bioinformatic analyses were performed to classify genes in "induced" or "repressed" and to assign them a supposed function. Comparative analyses highlighted the particular effect of As₂O₃ 45x in stressed seeds. Real time PCR was performed to validate gene expression profiles: data obtained with microarray and real time PCR were found to be well correlated.

This research provided novel insights on the mode of action of homeopathic potencies and constitute an important breakthrough in the study of the molecular responses triggered in wheat by ultra-high diluted treatments.

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Sensitivity and likelihood ratio of symptoms in patients with good therapeutic response to Lycopodium, compared to patients with good response to treatment with other homeopathic medicines. Retrospective study

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Background and aims: Availability of reliable guiding symptoms in order to accurately prescribe homeopathic medicines is a matter of critical importance. Recent published work has highlighted the likelihood ratio (LR) of

symptoms as an objective manner of addressing the question. The aim of the present study is to establish the sensitivity and LR of 35 common symptoms attributed to Lycopodium, comparing good respondents to this medicine to good respondents to other medicines.

Methods: In order to select which symptoms to be evaluated, a survey was conducted with 110 homeopaths -47 from Argentina and 63 from other countries- inquiring on the 10 most important symptoms they use to prescribe Lycopodium in their clinical practice. In a second phase of the study, the presence of selected symptoms was retrospectively assessed in the clinical records of the first visit of patients to the Homeopathic Outpatient Clinic of the Faculty of Medicine of Maimónides University. Patients with one only visit, no homeopathic prescription or more than one prescription, less than 18 or more than 65 years old or acute complaints were excluded. Only patients with good response attributable to the homeopathic treatment were included for analysis. Sensitivity (S) -or prevalence in Lycopodium responding cases- Likelihood Ratio (LR) and their 95% Confidence Intervals were calculated for each symptom.

Results: Twenty five homeopaths answered the survey and 35 symptoms were selected for the study. 875 records were assessed -about one fourth or the archive- and 564 excluded for different reasons. Of the remaining 311, 76.6% were females and 28.6% were prescribed Lycopodium. Females were more frequently prescribed Lycopodium than males (32.8% vs. 15.1%, $P = 0.003$). Good response was seen more frequently in Lycopodium cases than in other medicines cases (75% vs. 62%, $P < 0.027$). 205 good responding cases were included for symptoms analysis. LR of symptoms' prevalence were calculated between Lycopodium ($n=67$) and other medicines ($n=138$) good responding cases.

A group of symptoms emerged as being important pointers to Lycopodium prescription, having high sensitivity and higher than 1 statistically significant LR: *anger from (or intolerant of) contradiction* (S 50.7%, LR 2.7), *dictatorial* (S 40.3%, LR 7.9), *lack of self-confidence* (S 32.8%, LR 3.2), *irritability on waking* (S 20.9%, LR 4.1), *irritability before menses* (S 28.2%, LR 3.9), *helplessness* (S 20.9%, LR 2.2), *haughty* (S 10.4%, LR 4.8), *anticipation* (S 31.3%, LR 2.1), *conscientious* (S 32.8%, LR 1.6), *desire of chocolate* (S 22.4%, LR 2.1), *desire of sweets* (S 46.3%, LR 1.6) and *abdominal distention after eating* (S 34.3%, LR 2.2). The symptom *contemptuous* had a sensitivity of 7.5%, and it was only found in Lycopodium cases.

A second group of symptoms had a sensitivity between 3 and 12% and LR higher than 1, but statistically non significant: reproaches, egotism, contrary, critical, fear of failure, suspicious, constipation alternating with diarrhoea, lack of vital heat and sensitive to clothing in abdomen.

A third group of symptoms had very low sensitivity (S 1.5): *flatterer, hurry, nose obstruction during night, aversion to onions, past or present gallstones and sleeps on abdomen*.

Two symptoms had good sensitivity but LR lower than one, though statistically non significant, probably indicating a contraindication of Lycopodium: *reserved* (S

11.9%, LR 0.7) and *desire for open air* (S 7.5%, LR 0.4). Finally five symptoms were not recorded in Lycopodium cases but in one or two of the other medicines cases: contemptuous -hard with subordinates and agreeable to superiors-, past or present renal calculi, fear of narrow places, easy satiety and *worse at 4 pm*.

Conclusions: Retrospective asses of symptoms' sensitivity and LR could have an important place before performing more accurate prospective research about the same matter.

Highland amphibians and extremely diluted thyroxine

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Introduction: After more than two decades of experimental work on a model with amphibians and extremely diluted thyroxine, we now can refer to an independent meta-analysis by B. Harrer from Berlin on the international replication record of that model. A detailed account of the difficulties of this line of research has been published previously. One experiment found to be reproducible both by ourselves (i.e. the initial team) and by independent researchers inquires into the effect of thyroxine (T30x) (an ultra-high dilution obtained by 30 successive steps of tenfold dilution according to instructions of homeopathy) v analogously prepared water (W30x) in amphibians from *highland* biotopes. The purpose of Harrer's study was to replicate this experiment and to perform a metaanalysis reanalyzing the results reported by the initial team and by the independent researchers between 1991 and 2012.

Methods: (A): The experiment was replicated by Harrer himself. *Rana temporaria* were taken from an alpine biotope and were treated with T30x or W30x from the 2-legged stage on by adding 3microL of probe dilutions per animal to the basin water at intervals of 48h. Two end-points were considered: first, entry into the 4-legged stage, and second, tail reduction. The experiment was performed blind.

(B): A reanalysis was performed of the results reported by the initial team (based at that time at Graz University and the Graz Boltzmann Institute) and the independent researchers including Harrer himself (R. van Wijk from Utrecht University, H. Lassnig from the Federal Institute of Veterinary Medical Investigation Graz, C. Zausner-Lukitsch from Vienna University, G. Bach, at the suggestion of KIKOM, Bern University, Harrer from Patienteninformation fuer Naturheilkunde Berlin).

Results: (A) As in previous experiments, a clear trend was found of T30x animals developing more slowly (i.e. up to 6 h within 3 days) than W30x animals. Due to the small number of animals, the differences were not statistically significant ($p > 0.05$). The effect size, however, was large ($d > 0.8$).