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Absorption Spectra of Electronic-Homoeopathic Copies of Homoeopathic Nosodes and Placebo Have Essential Differences

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Key Words
Electronic-homoeopathic copy · Absorption spectrum · Double blind trial · Homoeopathic nosodes

Summary

Background: Electronic-homoeopathic copies (EHC), i.e. preparations made by 'imprinting' the parent substance onto water (or other carriers) with the help of M. Rae devices, have gained certain acceptance in some fields of alternative medicine as homoeopathic nosodes. **Objective:** To verify the electronic-homoeopathic copying effect with the use of absorption spectroscopy. **Materials and Methods:** In a double-blind randomized procedure 7 homoeopathic nosodes and a blank placebo were 'imprinted' onto ampoules with saline solution by means of a 'simulator' apparatus by Metabolics Ltd (Wiltshire, UK). There were 63 ampoules of the EHC (9 of each nosode) and 27 ampoules of the placebo (3 groups). The absorption spectra of the preparations were determined by a UV-2101 PC (Shimadzu, Kyoto, Japan) double-beam spectrometer in the wave band 800–600 nm at an interval of 0.5 nm. The values of optical density – log (1/transmission coefficient) – were written. **Results:** The absorption spectra of 3 EHC of the 7 homoeopathic nosodes investigated showed regions marked by statistically significant differences ($p < 0.05$ for 2 adjacent wavelengths) in the band of 800–700 nm in 2 (as a minimum) out of 3 independent placebo groups. When compared in independent groups of placebo, the spectral regions – for which the significant differences between the EHC and the placebo were evident – are close to each other (in the range of 0.5–7.0 nm). **Conclusion:** The result obtained supports the existence of an electronic-homoeopathic copying effect.

Schlüsselwörter
Elektronisch-homöopathische Kopie · Absorptionsspektrum · Doppelblinde Studie · Homöopathische Nosoden

Zusammenfassung

Hintergrund: Elektronisch-homöopathische Kopien (EHC), d.h. homöopathische Zubereitungen, die hergestellt werden, indem eine Ursubstanz auf Wasser oder andere Träger mit Hilfe von Radioniks-Geräten im Sinne von M. Rae «aufgeprägt» wird, haben eine gewisse Akzeptanz in einigen Gebieten der Alternativmedizin als homöopathische Nosoden gefunden. **Ziel:** Den elektronisch-homöopathischen Kopiereffekt mit Hilfe von Absorptionsspektroskopie zu verifizieren. **Material und Methoden:** 7 homöopathische Nosoden und ein leeres Placebo wurden in einer doppelblinden randomisierten Vorgehensweise auf Ampullen mit Kochsalzlösung mit Hilfe eines «Simulator»-Apparats von Metabolics Ltd (Wiltshire, UK) «aufgeprägt». Insgesamt wurden 63 Ampullen der EHC (9 von jeder Nosode) und 27 Ampullen des Placebos (3 Gruppen) untersucht. Die Absorptionsspektra der Zubereitungen wurden mit dem UV-2101 PC gemessen, einem Doppelstrahlspektrometer, das im Wellenband zwischen 800 und 600 nm mit einem Intervall von 0,5 nm misst. Die Werte der optischen Dichte wurden wiedergegeben als log (1/Transmissionskoeffizient). **Ergebnisse:** Die Absorptionsspektra von 3 der 7 homöopathischen EHC-Nosoden wiesen Absorptionsbänder auf mit statistisch signifikanten Unterschieden ($p < 0,05$ für 2 benachbarte Wellenlängen) gegenüber mindestens 2 der 3 unabhängigen Placebogruppen in der Wellenlänge zwischen 800–700 nm. Im Vergleich zu unabhängigen Placebogruppen waren die spektralen Regionen nahe beieinander (im Bereich von 0,5 und 7,0 nm), für die signifikante Unterschiede zwischen den EHC und Placebo sichtbar waren. **Schlussfolgerung:** Die Ergebnisse sprechen für die Existenz eines elektronisch-homöopathischen Kopiereffekts.

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Introduction

Apart from traditional homoeopathic copies prepared by the dilution/potentiation of parent substances, electronic-homoeopathic copies (EHCs), i.e. preparations made by 'imprinting' the parent substance onto water (or other carriers) with the help of M. Rae devices (M. Rae's 'magneto-geometric preparation') [1], have gained acceptance in some fields of complementary medicine, such as electropunctural diagnostics (e.g. [2]) or manual muscle testing in applied kinesiology (e.g. [3]). Regarding their impact on living organisms, there are insights into the similarity of conventional homoeopathic copies and EHCs of identical preparations [1]. However, objective scientific data that supports the phenomenon of electronic-homoeopathic copying itself is still lacking. The authors' main objective is to study phenomena of electronic-homoeopathic copying by use of absorption spectroscopy of EHCs based on saline solution. Although traditional homoeopathic copies were studied by spectroscopic methods [1, 4] with varying effect, EHC preparations have not yet been systematically studied, particularly not in a double-blind trial.

Materials and Methods

According to statistical demands, up to 30 different EHC preparations are required for a reliable study. Due to the laborious procedure of double-blind randomized experiments, however, only 7 different EHC preparations were analyzed in the first instance. These EHCs comprised the following homoeopathic nosodes:

1. DNA-tox (DNA) – an indicator of DNA affection caused by exposure of an organism to toxic agents (Manus, Russia);
2. Bacteria (B) – a superposition of 27 pathogenic bacteria (Metabolics Ltd, Wiltshire, UK);
3. Manus (MAN) – a harmonizing nosode (Manus, Vladivostok, Russia);
4. Fungus (FUN) – a superposition of 17 pathogenic fungi (Metabolics Ltd);
5. Toxic metal (TM) – a superposition of 27 salts of heavy metals and toxic metals (Metabolics Ltd);
6. Virus (VIR) – a superposition of 25 pathogenic viruses (Metabolics Ltd);
7. Vanilmandelic acid (VMA) – a product of the noradrenaline and epinephrine metabolism (Metabolics Ltd).

As EHC carrier we used sterile saline solution (NaCl 0.9%) in 5-mm hermetic ampoules. 9 EHC medicines of each nosode were prepared (a total of 63 ampoules) as well as 27 placebo ampoules and 5 control ampoules. These 95 ampoules (10 packages) were all taken from one factory-made lot and mixed thoroughly. 90 arbitrarily chosen ampoules were numbered from 1 to 90. While preparing each EHC, 9 ampoules were randomly selected to be copied. They were put away, 3 pieces in each of 3 separately packed series. Analogously, 27 ampoules of placebo (arbitrarily selected) were divided into 3 series of 9 ampoules each. Every EHC series was packed up together with one of the placebo series. Thus, 3 series of preparations to be investigated (21 ampoules of the EHC and 9 ampoules of the placebo in each series) were in hand. When copying was performed, the correspondence of the ampoule numbers with the EHC preparations or the placebo was recorded in the protocol which was not given away before spectral analysis and recording of spectral files were completed. 5 ampoules remained annumbered; they were used as controls and labelled with 'K'.

A 'simulator' apparatus (J01, Metabolics Ltd), referring to a variant of the M. Rae device [1], accomplished electronic-homoeopathic copying. This apparatus contains 2 tubular copper containers. The substance to be copied was placed in the right container (labelled 'M'), the carrier of the copy was placed in the left container (labelled 'C'). First, the operation of 'deleting' electronic homoeopathic information was carried out in the left container (while the right container was still empty) including all ampoules by pressing the 'AC' button. No other manipulations were performed with the placebo and the control ampoules in order to obtain a 'blank' carrier. To prepare the EHC samples (1 ampoule), buttons '7' and '=' were pressed when the nosode to be copied was placed in the right tubular container. As EHC process quality for M. Rae devices probably depends on the operator's personality and abilities [1], all investigated remedies were prepared by one and the same person who did not participate in the subsequent runs.

The absorption spectra of the preparations under study were determined on 2 days (1 series on day 1, 2 series on day 2, respectively) by a UV-2101 PC (Shimadzu, Kyoto, Japan) double-beam spectrometer in the wave band of 800–600 nm at an interval of 0.5 nm. The values of optical density – log (1/transmission coefficient) – were written to the hard disk of the spectrometer computer as a spectral readings file whose number corresponded to that of the respective ampoule. Every sample ampoule was opened just before measurement, and the specimen was poured with an expendable syringe into measuring quartz glass cuvettes. The latter is a rectangular parallelepiped, 4.5 cm in height; at section 1 × 1 cm^2, wall thickness 1 mm, working volume 3 ml. The control cuvette was filled once for every series with a species from one arbitrarily taken ampoule marked 'K' and allowed to be in the spectrometer's luminous flux throughout the whole measurement of the series. The samples of the investigated species were poured in turn into the cuvette that was placed into the apparatus alongside the control cuvette. Each species, upon recording the next difference absorption spectrum, was poured out; the cuvette was flushed out with distilled water, dried a little, and wiped with an optical blanket.

When examining the written spectral files in the standard software of the UV-2101 spectrophotometer, data of five samples were rejected because of marked outliers in the short-wave spectral region. These samples were eliminated from further analyses. Once the envelope had been broken, the files were sorting for the samples left (85 ampoules) on belonging to associated preparations. The EHC files of each nosode from all series were integrated into one group. The placebo files were arbitrarily sorted into three stand-alone groups (with an equal representation from each series of measurements): Placebo 1, Placebo 2, and Placebo 3.

To remove possible bias, all spectra were centred by subtracting the mean optical density in the band of 800–600 nm from each spectral reading. During statistical processing, the spectrum determined for all noted wavelengths in the band of 800–700 nm for 9 samples of each EHC (in 3 cases, 8 samples) were compared with the spectrum of every placebo group (8 or 9 samples) using Mann-Whitney non-parametric U test (Statistica 5.0, StatSoft Inc., Tulsa, OK, USA). All wavelengths with significant differences ($p < 0.05$) were registered. Thereupon, we selected those spectral regions in which the significant differences were observed at least in two adjoining wavelengths.

Although the statistician knew which recorded spectra belonged to which preparations once the envelope was broken, he had no freedom in analysis, because the statistical procedure had been firmly defined before the experiment. There were no recalculations in statistical analysis.

Results

Table 1 presents the experimental data obtained for the highlighted regions of the spectra in which the essential differences

Table 1. Quantity/wavelength (nm) of the wavelengths with significant differences

	Placebo 1	Placebo 2	Placebo 3
Placebo 1 (n = 8)		0	0
Placebo 2 (n = 8)	0		0
Placebo 3 (n = 9)	0	0	
DNA (n = 9)	3 783, 727, 702	2 790, 707.5	0
B (n = 9)	0	1 724.5	0
MAN (n = 8)	2 780, 740	1 740.5	1 779.5
FUN (n = 8)	0	0	0
TM (n = 9)	1 726.5	2 734.5, 732	0
VIR (n = 9)	0	0	0
VMA (n = 9)	1 742.5	0	0

relative to the placebo groups (Placebo 1–3) were found in no less than two adjacent wavelengths. The spectra of each placebo group do not essentially differ from those of the other corresponding placebo groups. The spectrum of EHC MAN differs significantly from all three placebo groups. The spectra of EHCs DNA and TM differ significantly from the Placebo 1 and the Placebo 2 group. The spectra of EHCs B and VMA differ significantly from only one of the placebo groups. The spectra of EHCs FUN and VIR do not essentially differ from any of the placebo groups.

Some wavelengths where EHC spectra essentially differ from spectra of various placebo groups are quite close. They are in the range of 5.5–7.0 nm for EHCs TM (726.5 and 732 nm) and DNA (783 and 790 nm; 702 and 707.5 nm). For EHC MAN they are in the range of 0.5 nm (740 and 740.5 nm; 780 and 779.5 nm).

Discussion

Every preparation under study was defined as a 0.9% solution of NaCl in terms of chemical structure. Thus, the significant distinctions of the individual regions of the EHC and placebo spectra, revealed by Mann-Whitney U test, become more remarkable (table 1). The areas of essential difference in spectra are discrete in their effect. Note that there is both – wavelengths being different for all preparations and those being close for a few EHCs (779.5–783 nm – DNA, MAN; 740–742.5 nm – MAN, VMA; 724.5–727 nm – B, TM, DNA).

Without question, the artifacts associated with a spread in the saline solution variables from ampoule to ampoule as well as the errors in flushing/pouring the samples in cuvettes (air, insertions, and residues of the preceding preparations) might have an influence on measuring the spectra. However, the reason why we used groups of samples and a randomized design was to avoid an influence of these artifacts by statistic averaging. Likewise, the question now arises regarding the significance threshold of spectral differences between preparations. In the context of probability theory, the significance of differences in single spectral lines (wavelengths; $p < 0.05$) is open to question. The regions with two or more adjacent spectral lines ($p < 0.05$ for each) appear more reliable in terms of significance. In the EHC spectra there are not many such regions (table 1). It is intriguing, however, that there are no such regions in the placebo spectra relative to the placebo of other groups. Since two other groups are in hand for each of the placebo groups to be compared, the discrimination line between placebo and EHC can be drawn with respect to the level of their indistinguishability from two of three placebo groups. Consequently, EHCs whose spectra are only different from one of the placebo groups (B, VMA) are insignificantly distinguished from the placebo. EHCs whose spectra are different from two of the placebo groups (DNA, TM) are now significantly distinguished from the placebo, whereas EHC MAN whose spectrum is effectively different from all three placebo groups can be considered very significantly distinct from the placebo. The closeness of the wavelengths of EHC spectral regions, differing from various placebo groups – for TM and DNA preparations (in the range of 5.5–7.0 nm) and for EHC MAN (over a 0.5-nm range), also favours the significance of the differences we pointed out.

Interestingly enough, the greater part of the wavelengths characterized by statistically significant distinctions between EHC and placebo (726–790 nm) lies in the domain of overtones and 4-order combination frequencies of the water absorption band ($av_1 + bv_3$; $a + b = 4$, where v_1 – symmetric stretch mode; v_3 – asymmetric stretch mode; a, b are integers ≥ 0 [5]). Demonstrated for this band, among other domains of overtones and combination frequencies, is the effect of fast absorption response due to temperature, associated supposedly [6] with a change in the number of hydrogen (intermolecular) bridges.

Thus, there are statistically significant spectral differences between 3 of 7 EHCs and the placebo. Considering that, in principle, similar distinctions may as well be found in other parts of spectra (i.e., in the domain of overtones and combination frequencies of lower orders [5, 6]), the present result strongly supports the existence of an electronic-homoeopathic copying effect. Note that the result described is also indirect evi

dence (gained under the double-blind randomized experiment) in favour of the unfortunate phenomenon of 'water memory' [7].

Being aware of the necessity to repeat the experiments with larger samples and a wider wavelength band, we would like to point out that using various measurement runs for individual control samples is a primary source of error. Such an approach is dictated by limited spectrophotometer performance and some restrictions regarding the flushing/pouring of the samples. It would be extremely desirable to solve these technical problems.

Conclusion

Absorption spectra of 3 out of 7 investigated EHCs of homoeopathic nosodes show regions marked by statistically significant ($p < 0.05$ for 2 adjacent wavelengths) spectral differences in the band of 800–700 nm in 2 (as a minimum) out of 3 independent placebo groups.

When comparing different placebo groups, some spectral regions – for which significant differences between the EHCs and the placebo groups are different – are close to each other (in the range of 0.5–7.0 nm).

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