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ELECTRO-CHEMICAL AND ENERGETIC PROPERTIES OF AQUEOUS GEMSTONE ELIXERS

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Introduction:

The first utilization of gemstones as a biomedical treatment modality dates back to approximately 5000 BC, when Ayurvedic physicians realized their healing properties. Although gemstones and gem elixers (aqueous extracts of gemstones) were continually used to treat a variety of physical, mental and emotional imbalances over the next 7000 years, there is a surprising scarcity of scientific research in this area. Nonetheless it is known that individual mineral elements (eg. Cu, Zn, Fe, Cr) leached from a gemstone have biological effects (Hambidge, 2003). Although these minerals would be predicted to occur at extremely low concentrations, biological effects are nonetheless observed when ground gemstones are topically applied to the skin of animals (Scholey, 1995) and humans (Yoo, 2002).

Other scientific studies, however, have placed a physical barrier between the gemstone and the biological system and have still observed effects both *in vitro* using blood cells (Niwa, 1993) and clinically (Shealy, 1993). These results suggest a non-chemical transfer of information from the gemstone to the biological system. These results may be explained in terms of the known magnetic and optical properties of certain gemstones resulting in the emission of weak electromagnetic (EM) fields. Although these fields are indeed weak, ultra-low intensity (pT) EM fields have previously been shown to produce biological effects (Blackman, 1998). In light of recent experiments demonstrating information associated with EM fields can stored in water for surprisingly long periods of time (Ayrapetyan, 1994), it is interesting to speculate that such ultra-weak EM fields radiating from gemstones might also transfer information into a gemstone elixer. The purpose of this study was to determine whether GDV electrography can measure this information.

Methodology:

Aqueous gemstone elixers were prepared by crushing gemstones into a fine powder and dissolving them in DI water (0.5% w/v). After 10 minutes of stirring at room temperature with a magnetic stirring bar, the elixer suspension was filtered through coarse P8 filter paper (Fisher Scientific, Pittsburgh, PA) to remove gemstones from the elixer. In the citrine control, the citrine gemstone suspension was placed on the magnetic stirrer without a stirring bar. This experiment was designed to test the effect of stirring in the presence of a magnetic field which was measured to be 250 μT. In some cases the gemstones were left undisturbed in the elixer suspension for 1-7 days at room temperature. Immediately before electro-chemical and GDV measures all elixer suspensions were filtered through a 0.2 μm Millipore filter. In some cases the elixers were mechanically agitated or succussed immediately before the second filtration. Succussion was accomplished by manually shaking and banging the elixer on a hard surface three times.

Conductivity and pH measurements were obtained using a Fisher Accumet AR20 Meter (Fisher Scientific, Pittsburgh, PA). Static GDV photographs were taken by placing the aqueous elixer samples in a 1.0 ml plastic syringe (Fisher Scientific, Pittsburgh, PA) placed in a specially designed holder which suspends the drop several millimeters above the surface of the electrode. In order to avoid repeated exposure of each aliquot to the strong electric field generated by the GDV camera, fresh aliquots were used for each photograph. This single exposure method has also been previously used in measuring GDV of dilute salt solutions (Korotkov, 2002).

GDV elecrrography was performed using the camera supplied by Kirlioniks Technologies International (Russia). GDV images were analyzed by the GDV Processor software supplied by the manufacturer which calculates the area and fractality of each image. Fractality is measured as the form coefficient obtained from the deviation of the calculated external luminosity contour lines (Korotkov, 2001). All GDV area and fractality measures are the average of 6-8 separate aliquots. Conductivity measures are expressed as μS/cm. Rose quartz gemstones are labeled as quartz. Standard t-tests were used for statistical analysis to obtain "p" values.

Results:

An initial study was conducted to compare the electro-chemical and energetic properties of three different gemstone elixers using the standard measures of pH and conductivity for comparison with GDV measures. The results presented in Table 1 indicate that when the samples are arranged in increasing pH and conductivity, there is no correlation between standard electro-chemical measures and GDV measures of area or fractality.

The results also demonstrate increases in pH, conductivity and GDV area for all elixers when compared to the solvent control. These results are consistent with the conclusion that minerals are leached from the gemstones and solubilized in the aqueous elixers. Therefore the mineral content of the elixers contributes to the GDV area measures. Since all electro-chemical and energetic measures are similar in stirred and non-stirred citrine elixers, it appears that stirring in the presence of a weak magnetic field does not significantly enhance the solubilization of minerals. The relative order of activity of the various elixers is different when GDV area and fractality measures are used. Since area measures showed larger differences compared with the solvent control, this parameter was utlized in all subsequent studies.

Table 1

	pH	Conductivity	GDV Area	SD	Form Coeff	SD
Water	5.05	3.93	546	103	1.22	0.17
Citrine control	5.27	4.02	1023	191	1.42	0.24
Citrine	5.2	5.03	923	279	1.53	0.48
Rhodochrosite	5.47	6.95	5097	1392	1.43	0.31
Rose quartz	5.55	7.06	2164	178	1.03	0.34

Samples were measured 1 day after making the elixer with gemstones removed

The next series of experiments were designed to measure differences between elixers with the gemstones removed immediately after preparation and those where the gemstones remained. It was predicted that the amount of leached mineral would increase

over the course of several days. The results of this experiment was done with rhodochrosite elixers and is presented in Table 2.

Table 2

Day	Condition	GDV Area	SD	Conductivity	p (wrt Initial)
Initial	Gems removed	3951	1294		
	Gems remain	4640	945		
Day 1	Gems removed	5097	1392	6.95	.042
	Gems remain	4874	998	6.96	NS
Day 4	Gems removed	4518	576	7.02	NS
	Gems remain	4452	764	7.05	NS

In all cases no statistically significant differences were found between elixers with rhodochrosite left in or removed. Similar values between these samples were obtained both for conductivity and GDV area measures. This suggests that the initial leaching of minerals from the gemstones is the primary process of concern and that after four days in the presence of rhodochrosite, no additional minerals are leached.

However, in the absence of the gemstone GDV area values increase significantly after one day, although conductivity measures remain constant. This suggests that although the mineral content is constant there is an increase in the information stored during the first day of storage.

To verify this phenomenon gem elixers from quartz and citrine were prepared and stored for several days after removal of the gemstones. The results are presented in Table 3.

Table 3

	Citrine			Quartz		
Day	GDV Area	SD	p vs Day 1	GDVArea	SD	p vs Day 1
Day 1	923	279		2164	178	
Day 3	1245	133	0.016	2439	224	0.009
Day 7	930	224	NS	1824	245	0.0007

These results confirm the original results obtained with Rhodochrosite and indicate that when gemstones are removed from the elixers, for all three elixer preparations, there is an increase in GDV area measures within the first three days. This increase, however, is not observed for elixers stored for seven days. The lack of such a long term storage effect is consistent with the previous conclusion that the initial leashing of minerals is most critical. The results also suggest that the short term increases observed are a reflection of some form of information stored in elixers after only for 1-3 days.

According to homeopathic research, another experimental approach to further validate this observation of information storage is the use of succussion . Therefore, a final series of experiments were conducted using citrine elixers with the gemstones removed which were measured before and after succusion as a function of storage time. These results are presented in Table 4.

Table 4

Day	Succussed	GDV Area	SD	p
Day 1	No	923	279	
	Yes	1227	188	0.022
Day 3	No	1245	133	
	Yes	1436	96	0.02
Day 7	No	930	224	
	Yes	1108	100	0.025

These results demonstrate that in all cases, GDV area measures show a statistically significant increase after succussion. Although the chemical content is constant in these samples, the process of succussion will introduce more nitrogen and oxygen.

Discussion

The results of this study demonstrate increases in pH, conductivity and GDV area for elixers when compared to the solvent control. This indicates that the minerals leached from the gemstones contribute to GDV measures. The same conclusion was reached in a previous study of dilute salt solutions (Korotkov, 2001) which demonstrated entropy GDV measures could detect ion concentrations as low as 10^{-17}M. Although the concentration of leached minerals in the gem elixers used in this study were not measured, it is likely that they are in this ultra-low region measurable by GDV electropgraphy.

The results in this study also show there is no correlation between standard electro-chemical measures of pH and conductivity with GDV measures of area and fractality. However in order to generalize this conclusion to the entire mineral kingdom, measurements of additional gemstone samples will be required. Nonetheless, these results are consistent with previously reported results showing no correlation between standard optical properties of gemstones (refractive index) and GDV area and fractality measures (Rein, 2001).

According to the GDV area results, the rhodochrosite elixer has the largest values, whereas the citrine elixer is the strongest according to the fractality measure. This lack of correlation between these two GDV parameters is consistent with previously reported results using dilute salt solutions. In such salt solutions the dependence between GDV area and electrical conductivity is best approximated by a third order polynomial, whereas the dependence between fractality and conductivity is best described by a fifth order polynomial. Although the dependence between GDV measures and conductivity is clearly non-linear in both cases, the region on non-linearity varies according to which GDV parameter is used (Korotkov, 2002).

The results of this study also show some interesting anomalous findings which are consistent with the hypothesis that GDV electrography can measure information stored in water. The first line of evidence comes from the observation that all succussed elixers show statistically significant increases in GDV area when compared to non-succussed elixers. Succussion is classically used in preparing homeopathic remedies to enhance their energetic properties. NMR measurements of the succussed alcohol solvent gives greater relaxation times than for the non-succussed solvent (Sukul, 2000). However, succussion is also expected to increase the gaseous exchange between the air and the elixer resulting in an increased concentration of oxygen and nitrogen in the water. Furthermore it is known that electrographic images are highly dependent on the

composition of the gases in the air-gap between a sample and the electrode. Thus relatively small changes in the nitrogen content dramatically alter kirlian photographs of inert materials (Boxler, 1977). Therefore the increased GDV measures observed here after succussion may be due to solubilized gases in the elixers and this effect may mask the presence of stored information.

However, a second line of evidence obtained in this study does support the information storage hypothesis. Thus, in all elixers, where the gemstones were removed, an increase in GDV area was observed as a function of storage time up to three days. However, after 4-7 days of storage at room temperature, no consistent changes in GDV area were observed. Since this effect was obseved in non-succussed elixers of citrine and rhodochrosite, as well as succussed elixers, there should be no changes in the mineral or gaseous content of the samples over time. Therefore, if the chemistry is constant the observed changes in GDV area are likely to reflect a change in the information content of the elixer. This phenomenon of increased information as a function of time has also been previously observed in the atmosphere after treatment with an external energy source and is referred to as conditioning (Dibble, 1999). The phenomenon of time decay of information storage effects observed here has also been observed for homeopathic remedies, since NMR changes associated with a given remedy are no longer present in aged samples (Milgrom, 2001).

Indeed a large number of articles have appeared in the scientific literature which support the concept of information storage in homeopathic remedies diluted beyond Avogadros number. An extensive review recently summarized the electrical, optical and magnetic measurements of homeopathic remedies compared to appropriate controls (Becker-Witt, 2003). Furthermore a recent publication utilized similar homeopathic remedies to show similar changes in GDV area and fractality associated with information storage (Bell, 2003). It is interesting to point out that information storage measured in the Bell study in the absence of minerals was associated with a decrease in GDV area, whereas information storage observed in the present study in the presence of minerals was associated with an increase in GDV area. It has been proposed that these measures quantify structural changes in the solvent associated with information storage (Anick, 1999) in different preparations where chemicals are either absent (homeopathy) or constant (reported here). The observations that these changes are only observable under certain experimental conditions (temperature and time) adds further support to the validity of the phenomenon.

In the case of gemstones, the information is likely to be associated with the EM fields generated by the gemstones, in accordance with their known optical and magnetic properties. Thus certain gemstones are known to emit optical radiation and static DC magnetic fields. A relatively obscure line of research within the Bioelectromagnetic community has demonstrated that relatively weak static magnetic fields (2-30mT) decrease the conductivity of dilute salt solutions (Ayrapetyan, 1994) and produce biological effects (altered estrous cycles in female mice) (Pandey, 1996), which last for hours after the magnetic field source has been turned off.

These studies support the hypothesis for information storage in aqueous solutions and further suggest that the stored information can be "read" (via some unknown form of resonance) by biological systems. Additional scientific support for biological effects of stored information is available from the large body of scientific and clinical studies showing that homeopathic remedies diluted beyond Avogadros number can have biological effects. Furthermore, a recent unpublished PhD dissertation reported that quartz elixers store information which remains for several days after the gemstone is removed and still produce alterations in mood when consumed by subjects (Garnet, 2002).

These results support the hypothesis that weak EM fields generated from gemstones could be transferred and stored in aqueous gem elixers which have now been demonstrated to have altered physical and energetic properties as measured by standard electro-chemical meters and GDV electrography.

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