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Winterthur, 1.7.2007

## **Introduction – Copyright of: Scientific Study Dr. K.Korotkov GDV-GIE Report 2007.06**

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**REPORT**  
**TESTING GIE WATER**  
**JANUARY - JUNE 2007**

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## **PART I. TESTING OF GIE WATER SAMPLES COMPARED WITH TAP WATER SAMPLES**

A set of experiments were conducted on testing samples of GIE water compared with control samples during several days.

Control samples were taken in different places both in S. Petersburg and in Moscow both from the tap sources with different filters and one sample from natural sources.

All tap sources were situated in different locations compared with location of GIE Water Activator.

### **METHODS OF STUDY:**

1. Standard test on mineralization and bacterial content – S. Petersburg Federal Testing Laboratory.
2. GDV bioelectrography – S. Petersburg University ITMO.
3. Biological test – sprouting of weed seeds in different waters – S. Petersburg University ITMO.
4. Cleansing water from contaminations - waters – S. Petersburg University ITMO.

## **EXPERIMENTAL RESULTS:**

### **Standard test on mineralization and bacterial content FEDERAL STATE HEALTH CARE INSTITUTION “CENTER OF HYGIENICS AND EPIDEMIOLOGY OF ST. PETERSBURG”**

Waters were kept in different jars – two types of plastic and glass.

In transparent plastic and glass jar waters had the same content of minerals and bacteria – all in the limits of hygienic regulations.

Results of the tests are presented below.

Table 1. Main parameters of GIE water and filtered water

As we see from the Table, all parameters were in the normal range.

No difference between GIE water and filtered water was found.

For GIE water kept for four days in a red plastic jar slight trace of Phenol was found. These traces were in the acceptable range, but they created unpleasant feeling in drinking.

FEDERAL STATE HEALTH CARE INSTITUTION  
 “CENTER OF HYGIENICS AND EPIDEMIOLOGY OF ST. PETERSBURG”

*Accredited laboratory testing center*  
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**LABORATORY TEST REPORT No. 2210/170  
 of 10.04.2007 (reg. No. 687-689)**

**Client: K.K. Korotkov, private individual.**

*Name of sample:* tap water

Sample No. 1 – water after purification by means of the GIE Device;

Sample No. 2 – water from the tank (plastic).

*Samples taken and delivered to the laboratory by the client* – 05.04.2007.

*Start date of the testing:* 06.04.2007.

*End date of testing:* 09.04.2007.

*Goal of the testing:* compliance with the Sanitary Regulations and Norms 2.1.4.1074-01 and the Russian Standard GOST 51232-98.

*Additional information:* contract

No.	Name of characteristic	Unit	Results of testing		Maximum allowable amount according to the СанПиН	Normative document for the test method
			Sample No. 1	Sample No. 2		
1.	pH	pH unit	6.36	6.95	6.0-9.0	ISO 10523
2.	Permanganate oxidation	mg/dm <sup>3</sup>	3.2	3.2	5.0	ISO 8467
3.	Phenol index	mg/dm <sup>3</sup>	<0.0005	0.001	0.25	GOST 4.1.069-96
4.	Formaldehyde	mg/dm <sup>3</sup>	0.016	<0.01	0.05	GOST 14.1:2:4.120-97
5.	Ammonia	mg/dm <sup>3</sup>	0.085	0.1	1.5	GOST 4192-82

Note: inaccuracy of the analysis results does not exceed the range allowable by the normative documents for the test methods

Head of the IFSO (ИФСО) department [Signature] M.A. Andreeva

Responsible officer [Signature] G.I. Dubinina

**Report No. 2210/170 of 10.04.2007, 1 page**

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**LABORATORY TEST REPORT No. 2018**

of 06.04.2007

**MICROBIOLOGICAL STUDY OF WATER**

**Name of subject, address: K.K. Korotkov.**

**Name of sample:** Water after purification by means of the GIE Device.

**Samples taken:** on 05.04.2007 by K.K. Korotkov into a sterile container.

**Start date of the testing:** 05.04.2007.

**End date of testing:** 06.04.2007.

**Goal of the testing:** compliance with the Sanitary Regulations and Norms 2.1.4.1074-01.

**Results of the testing:**

Determined characteristics	Results of the testing	Allowable amount	Normative document for the test method
No. 6700 Water after purification by means of the GIE Device Total number of microbes Total amount of coliform bacteria in 100,0 Amount of temperature tolerant coliform bacteria in 100,0	0 CFU/cm <sup>3</sup> none found	50 CFU/cm <sup>3</sup> none allowed	GOST 4.2.1018-01
No. 6701 Water after purification by means of the GIE Device (from the tank) Total number of microbes Total amount of coliform bacteria in 100,0 Amount of temperature tolerant coliform bacteria in 100,0	none found 0 CFU/cm <sup>3</sup> none found	none allowed	
	none found		
	none found		

Head of the bacteriological laboratory [Signature] / T.A. Grechaninova/

Responsible performer [Signature] / G.V. Zabalueva/

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## Electrophotonic Capture (EPC) technique (GDV bioelectrography)

During the experiments four test specimens of water were investigated:

- 1) Water from filter “Aquaphor” (Fil. 1);
- 2) Water from standard coal filter (Fil. 2);
- 3) Samples of tap city water from Saint-Petersburg water-supply;
- 4) Gie Water.

Five samples of every kind of water were measured with GDV Camera. All samples were measured in static mode: 50 bmp frames with 5 second intervals.

The main results of the statistical analysis of different experiments are presented in figures 1.1-1.8.

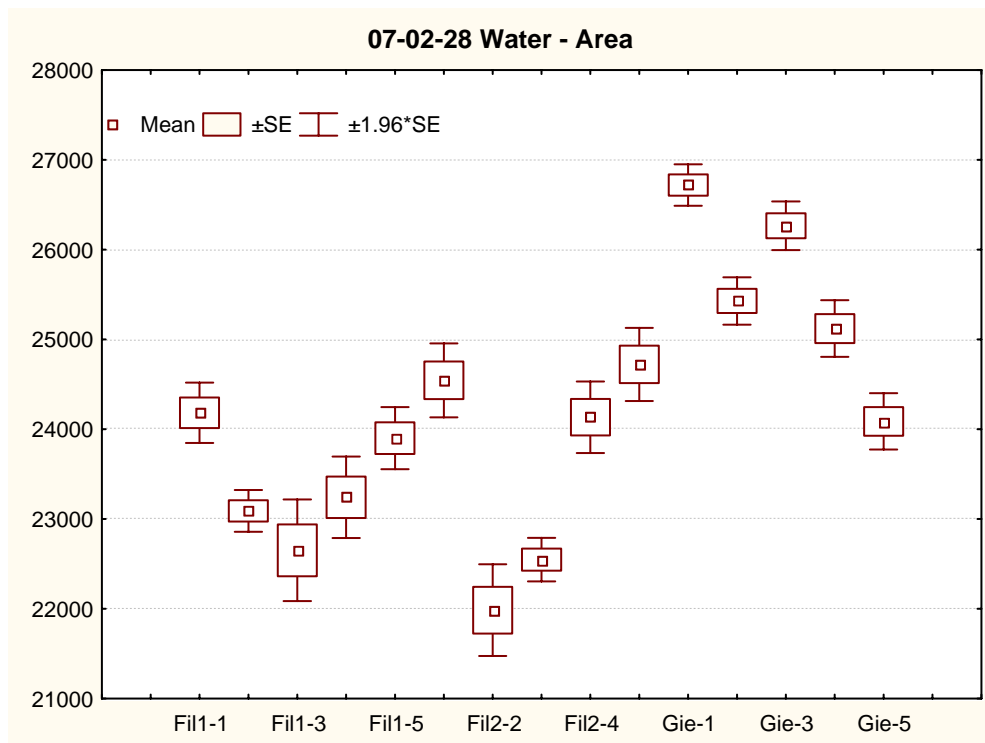


Figure 1.1. Average values of Area of glow of different samples of water in the first experiment (every value is averaged over 50 bmp frames).

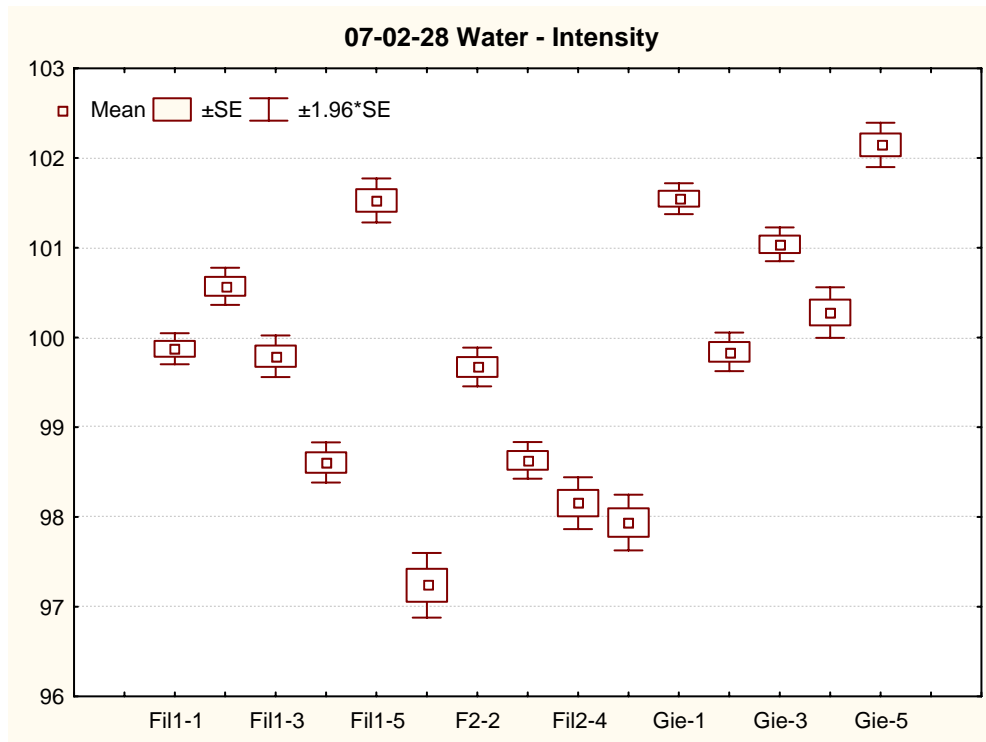


Figure 1.2. Average values of Intensity of glow of different samples of water in the first experiment (every value is averaged over 50 bmp frames).

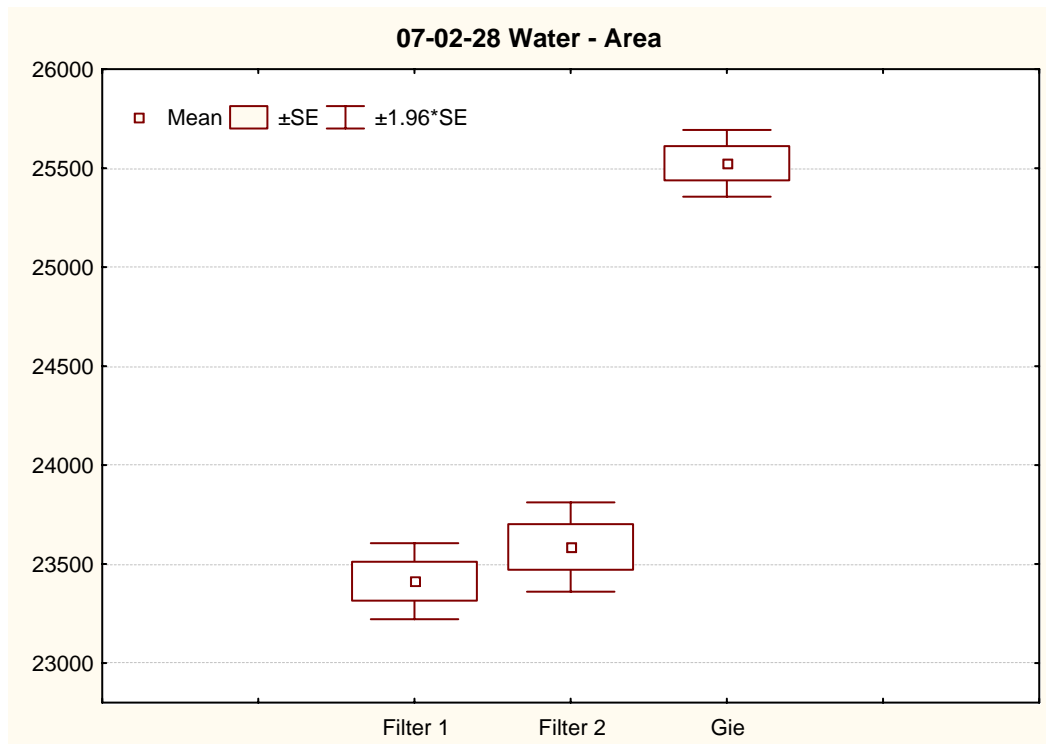


Figure 1.3. Area of GDV glow of different water specimens (Averaged over 5 samples of every water – 250 frames for every specimen).

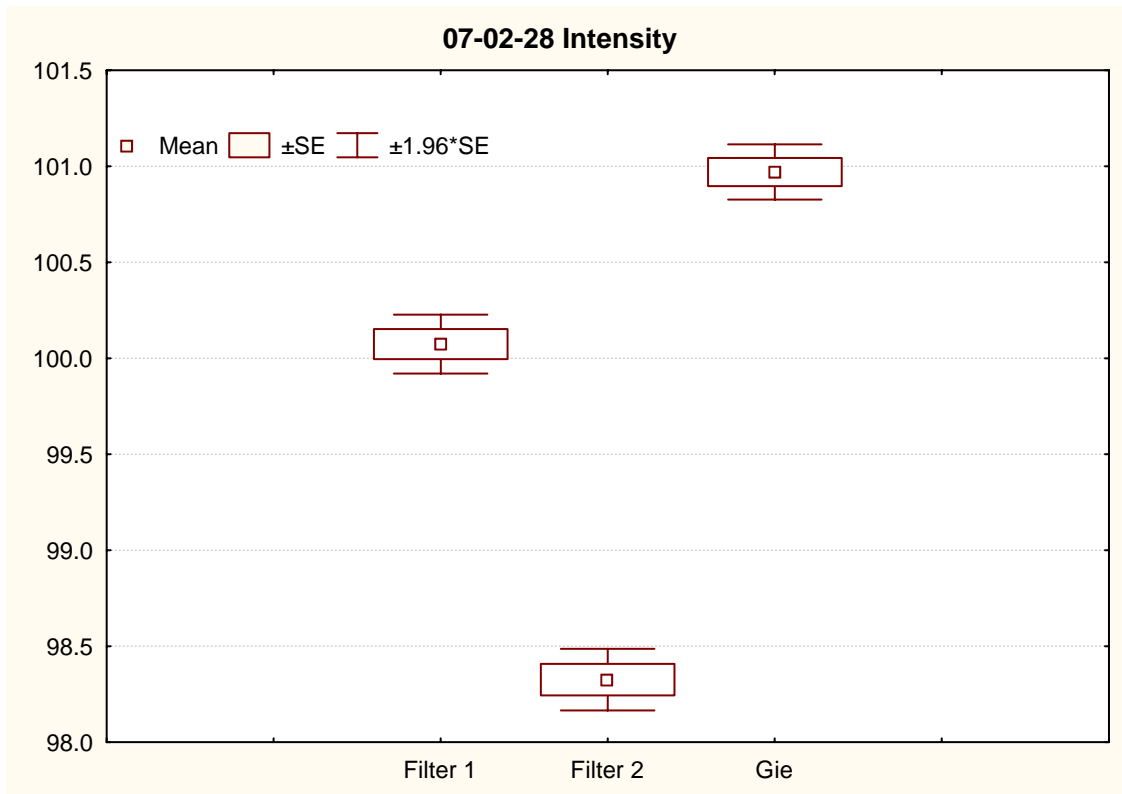


Figure 1.4. Intensity of GDV glow of different water specimens (Averaged over 5 samples of every water – 250 frames for every specimen).

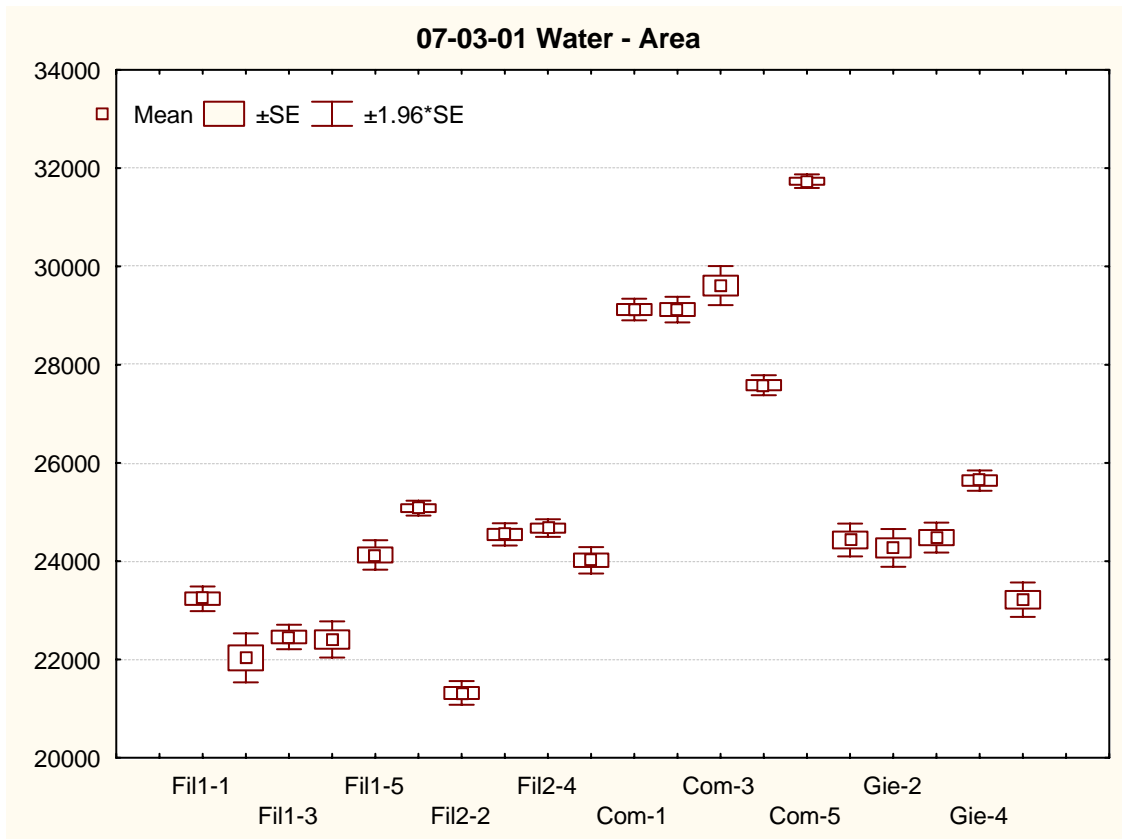


Figure 1.5. Average values of Area of glow of different samples of water in the second experiment (every value is averaged over 50 bmp frames).

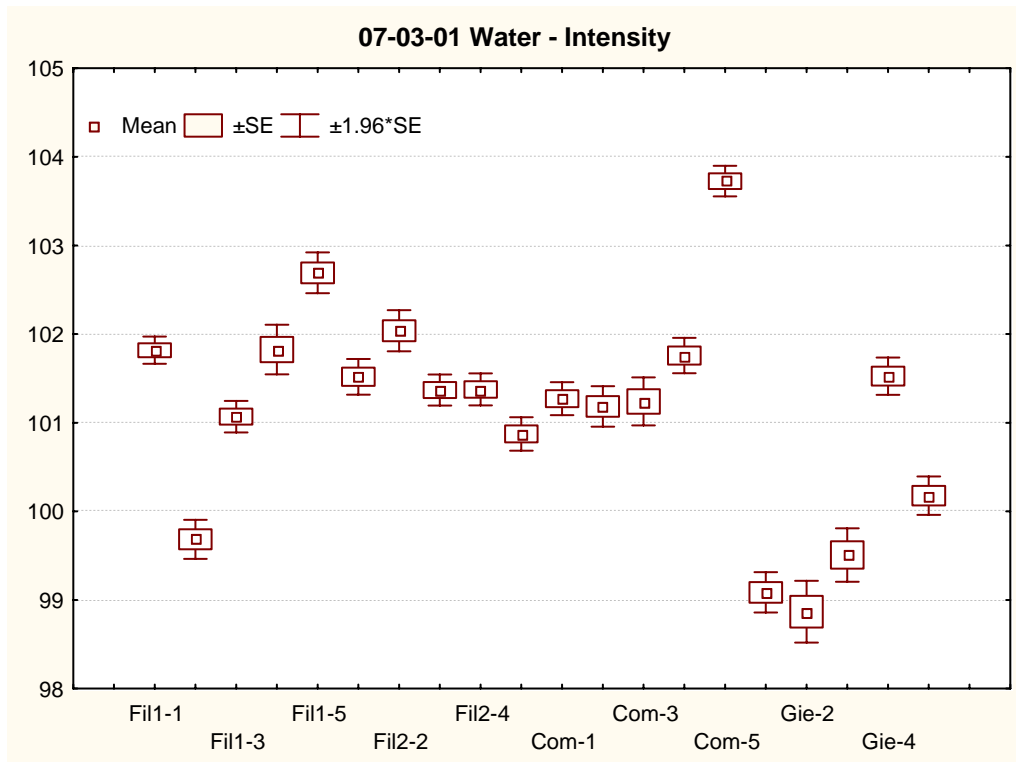


Figure 1.6. Average values of Intensity of glow of different samples of water in the second experiment (every value is averaged over 50 bmp frames).

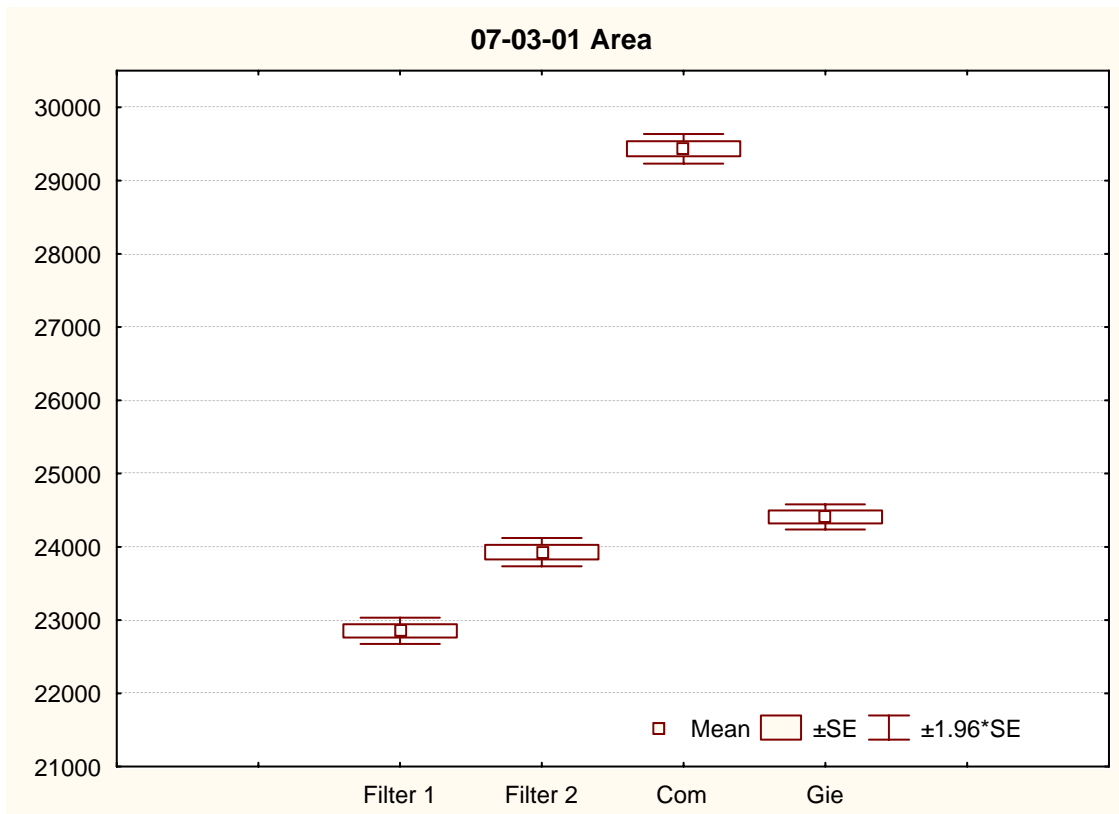


Figure 1.7. Area of GDV glow of different water specimens (Averaged over 5 samples of every water – 250 frames for every specimen).

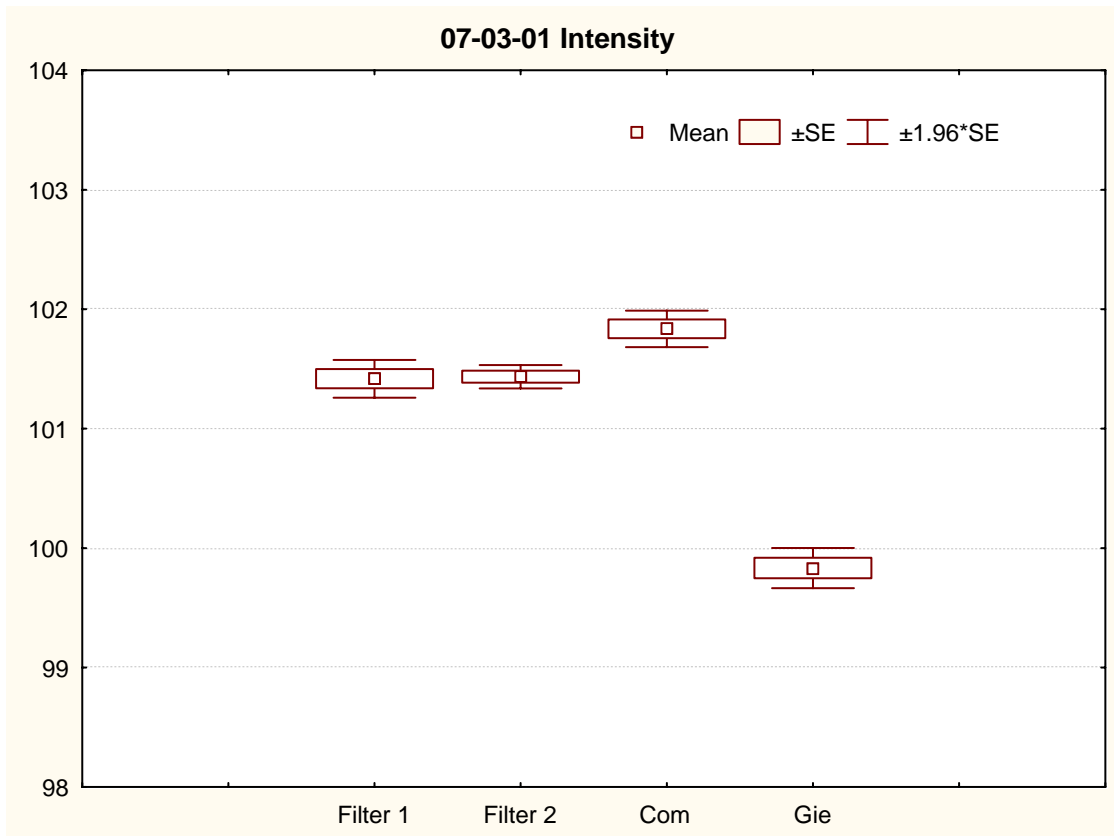


Figure 1.8. Intensity of GDV glow of different water specimens (Averaged over 5 samples of every water – 250 frames for every specimen).

### Conclusion

As we see from the graphs, in all experiments statistically significant difference between GIE water and all other samples was found.

This difference had not changed after samples of GIE water were kept for a month in closed glass bottle.

## Biological test – sprouting of seeds in different waters

The seeds of red radish were divided into 8 groups, 100 seeds in each. Four samples of water were used in the experiment:

- 1) Water from filter “Aquaphor”;
- 2) Water “Aquaminerale” from the bottle;
- 3) Tap water;
- 4) GIE.

Every two groups of the seeds (200 seeds) were placed in different water samples.

Table 1.1. Amount of radish germs in different water samples.

Time, h	Aquaphor		Aquaminerale		Tap water		GIE	
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
24	7	9	5	7	3	7	8	11
40	20	14	12	14	13	16	15	16
72	27	18	16	22	17	23	19	22

Seeds had a good rate of sprouting.

No difference between GIE water and filtered water from S. Petersburg was found.

## Cleansing water from contaminations

GIE water was processed from a tap source without using a filter and left intact for 48 hours then water was tested in S. Petersburg Federal Testing Laboratory.

Results of the tests are presented in Table 2.

Table 1.2. Main parameters of GIE unfiltered water

Parameter	GIE water	Norm	Units
Total hardness	9	< 7	mg-ecv/L
Smell	2.2	< 2	
Color	3	< 20	
Dry residue	6000	< 1000	mg/L
Sulphate	300	< 500	mg/L
Chlorides	800	< 350	mg/L
Fluorine	0.5	< 0,7-1,5	mg/L
Metals	Pb < 0.1 Cu < 0.05 Zn < 1	Pb<0.05 Cu<1 Zn<5	mg/L
Ferrum	1.3	< 1	mg/L
Bacteria common	680	100	In mL
Coli - index	2	< 3	
Nitrates	23	< 45	mg/L
Nitrites	2	< 3	mg/L
Silicon	6	< 10	mg/L

As we see from the Table, a set of parameters in water was out of the limits. This water was not recommended for drinking.

## **CONCLUSIONS PART I**

In different experiments it was demonstrated that GIE water has very high level of energy activity compared with control waters which may be correlated with high level of clasterisation.

No particular biological activity for GIE water compared with standard filtered water was found. At the same time we can not make any conclusions on the influence of GIE water to people's condition. To answer this question a special set of experiments should be conducted.

No effects of contamination cleansing or suppression of pathogenic bacteria were found. It is recommended to use GIE Activator together with standard water filter.

## **PART II. TESTING OF HUMAN RESPONSES TO CONSUMING GIE AND STANDARD WATER**

25 apparently healthy people as experimental group;

25 apparently healthy people as control group.

The study is based on the scientifically recognized principles of a Double Blind Study.

Both groups are provided every week with ten liters of water – GIE or drinking water commercially available and consume this water during the day.

People are measured initially and every month during three months while using GIE or control water.

### **Methodic:**

1. Standard physiological measures: blood pressure, pulse rate, temperature of the body.
2. Electrophotonic Capture (EPC) measurements.
3. Statistical evaluation of the changes of parameters.

**Time frame:** three months

## **Results:**

For conducting the experiment, we have followed the design of a randomized, double-blinded non-clinical trial<sup>1</sup>, following the ethical guidelines of the expanded Helsinki Declaration<sup>2</sup>. All test persons had been informed about the EPC system and related safety issues.

Fifty voluntary test persons were measured before the experiment and three times during three months. Altogether, more than 1800 individual fingertip EPC corona images were captured, interpreted by means of *computer-aided image analysis* and analyzed in detail using bio-statistics.

## **Safety and Reproducibility Issues**

To gain reliable data, we paid careful attention to a number of issues influencing stability, reproducibility and safety: throughout the whole study, the very same EPC system was used. Before use, the EPC camera (kept inside the laboratory at constant room temperature) was switched on at least 30 minutes prior to measurement, and careful calibrations were performed. Each test person was asked to thoroughly wash their hands using a pH neutral laboratory soap (without re-fattening properties). It was not allowed to use hand cream or lotion. The glass plate surface of the EPC camera was cleaned using alcohol frequently, and it was taken care that none of the test persons had wet hands. The test persons were advised to keep their fingers still and relaxed during measurements and not to apply undue pressure when putting their fingers onto the glass plate at an angle of approximately 30-degrees to the instrument axis.

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<sup>1</sup> Altman DG, Schulz KF, Moher D, Egger M, Davidoff F, Elbourne D, Gotzsche PC, Lang T: The revised CONSORT statement for reporting randomized trials: explanation and elaboration. *Ann Intern Med* 134: 663–694 (2001).

Moher D, Schulz KF, Altman D: The CONSORT statement: revised recommendations for improving the quality of reports of parallel-group randomized trials. *Jama* 285: 1987–1991 (2001).

<sup>2</sup> World Medical Association declaration of Helsinki. Recommendations guiding physicians in biomedical research involving human subjects. *Jama* 277: 925–926 (1997).

### **Biomedical Statistics**

Raw data from the GDV image glow area were additionally analyzed by the software programs Excel 2003 (Microsoft; Redmond, WA, USA). In addition to the calculation of descriptive data (mean, median, standard deviation etc.), we carried out Gaussian normality tests and subsequently used the paired two-sample t-test for dependent variables to determine whether there are significant differences between the experimental sub-period results. Two-sided p-values were classified statistically significant if they were  $< 0,05$ . A number of further statistical analyses were performed, also including distribution-independent tests.

### **Panelists**

Two groups of apparently healthy volunteers have been selected for the study, 25 people randomly distributed in every group.

Age 20 +/- 2.5; 34 women, 26 men.

Initial parameters for both groups were statistically identical.

After three months 20 people were left for the analysis in every group.

## Results of human tests analysis

10 fingers of the right and left hand (1R, 2R...4L,5L) were measured with EPC instrument 4 times for experimental and control groups. Statistical analysis was made for every case on every finger comparing experimental and control groups. For the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> measurements results for every finger was related to the initial data for the particular finger (i.e. 1R(4)/1R(initial)).

Results are presented in Tables 2.1-2.4 and fig.2.1-2.4.

As we see from the Tables, statistically significant difference between two groups was only in the 4<sup>th</sup> measurement for 1R, 5R, 1L, 5L fingers. In accordance with ideas of Traditional Chinese and Korean medicine<sup>3</sup>, these fingers related mostly to the head and heart areas.

As we see from the graphs 2.1-2.4, with every subsequent measurement the difference between experimental and control groups have been increasing. This may be seen from the graph 2.5, where the difference between data for experimental and control groups presented for every finger. As we see from these graphs, the last measurement generated the highest difference compared with the 2<sup>nd</sup> and the 3<sup>rd</sup> measurements.

No difference was found data for experimental and control groups for the measured physiological parameters.

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<sup>3</sup> Mandel P. *Energy Emission Analysis; New Application of Kirlian Photography for Holistic Medicine*. Synthesis Publishing Co., Germany. 1986.  
Korotkov K. *Human Energy Field: study with GDV bioelectrography*. Backbone publishing, NY. 2002

## **CONCLUSIONS PART II**

From the analysis of experimental data we can make the following conclusions:

1. After 3 months of using GIE water energy parameters for the experimental group became higher compared with the control group. For 1R, 5R and 1L, 5L fingers the difference was statistically significant.
2. Statistically significant difference was presented for the same fingers of the right and left hands, that allowed to presume that it was related to the changes in the particular systems of the body. In accordance with ideas of Traditional Chinese and Korean medicine, these fingers related mostly to the head and heart areas.
3. In initial conditions groups were statistically similar.
4. The difference between experimental and control groups was becoming higher every month which demonstrated the longitudinal effect of drinking GIE water and dismiss any claims about possible psychological effects of the experimental conditions to the panelists.
5. No difference was found data for experimental and control groups for the measured physiological parameters which may be interpreted that GIE water had mostly energy influence to people.

Experimental data in double blind experiment during 3 months demonstrated statistically significant effect of using GIE water to the energy state of group of people compared with control group.

## Graphs and Tables

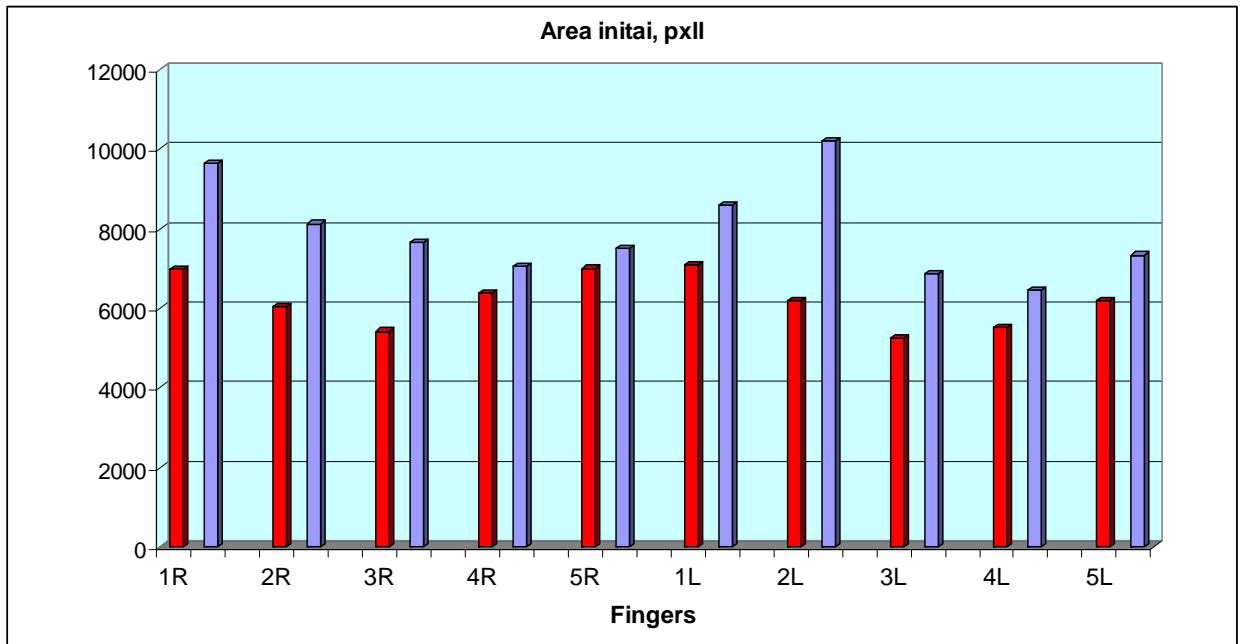


Fig.2.1. Average Area for the experimental and control groups in the initial measurement.

Experiment Control

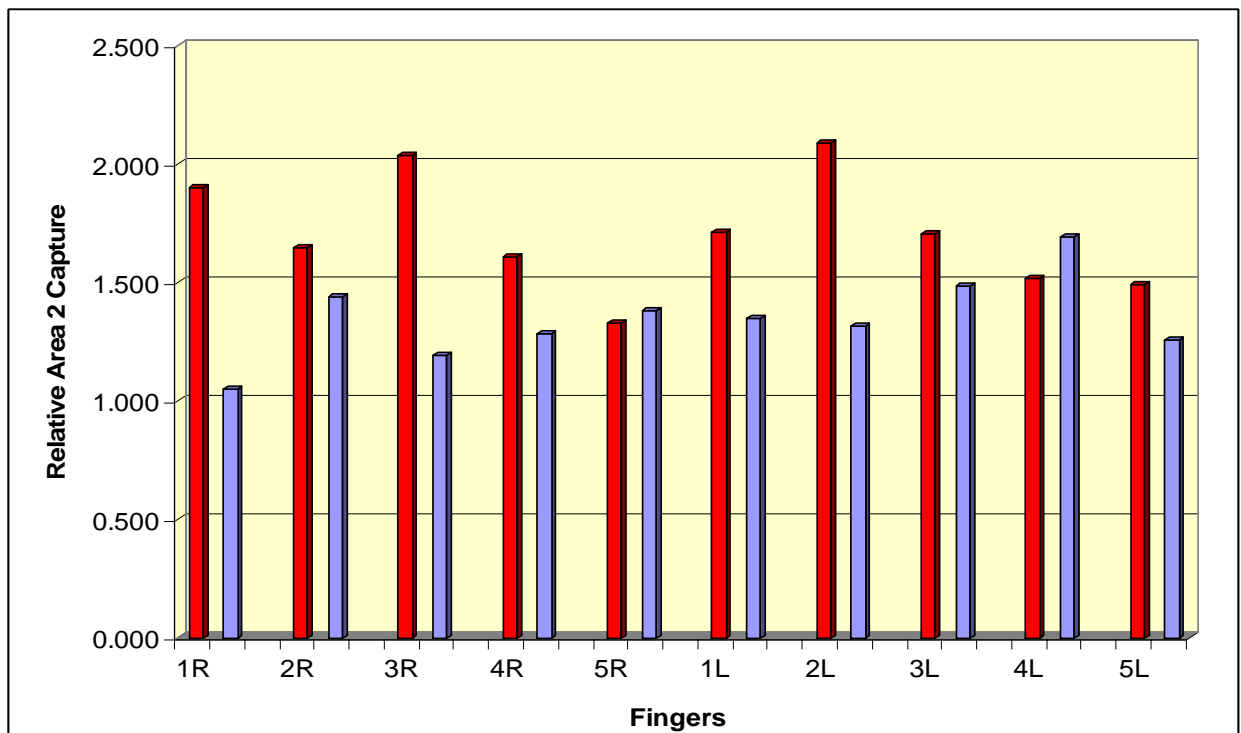


Fig.2.2. Relative Average Area for the experimental and control groups in the 2<sup>nd</sup> measurement.

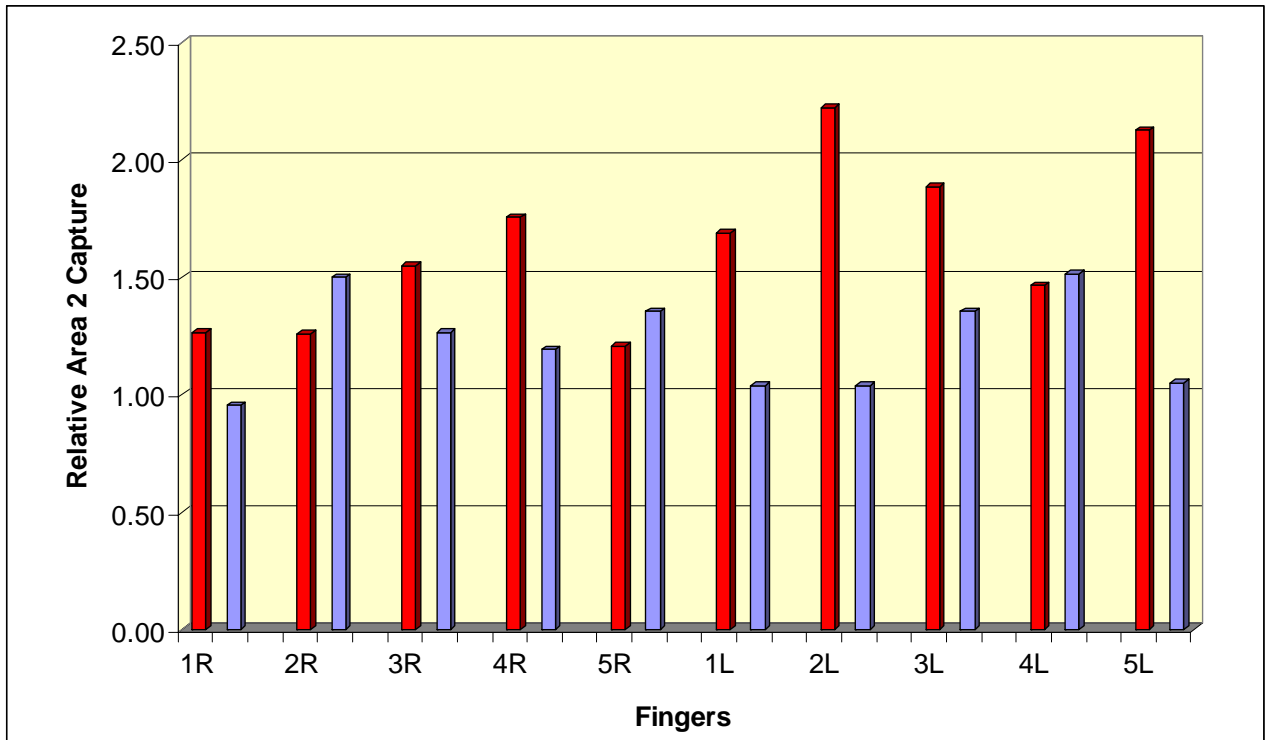


Fig.2.3. Relative Average Area for the experimental and control groups in the 3<sup>rd</sup> measurement.

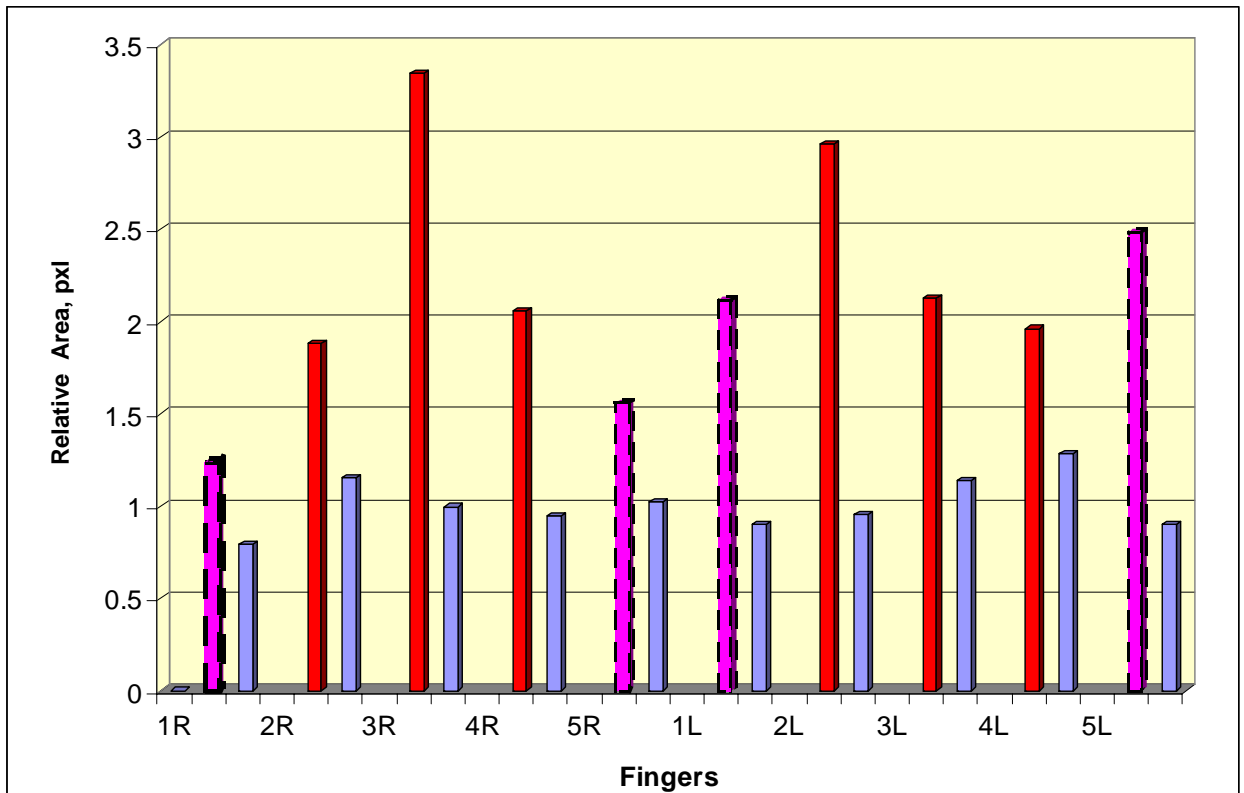


Fig.2.4. Relative Average Area for the experimental and control groups in the 4<sup>th</sup> measurement. Fingers with statistically significant difference are dotted.

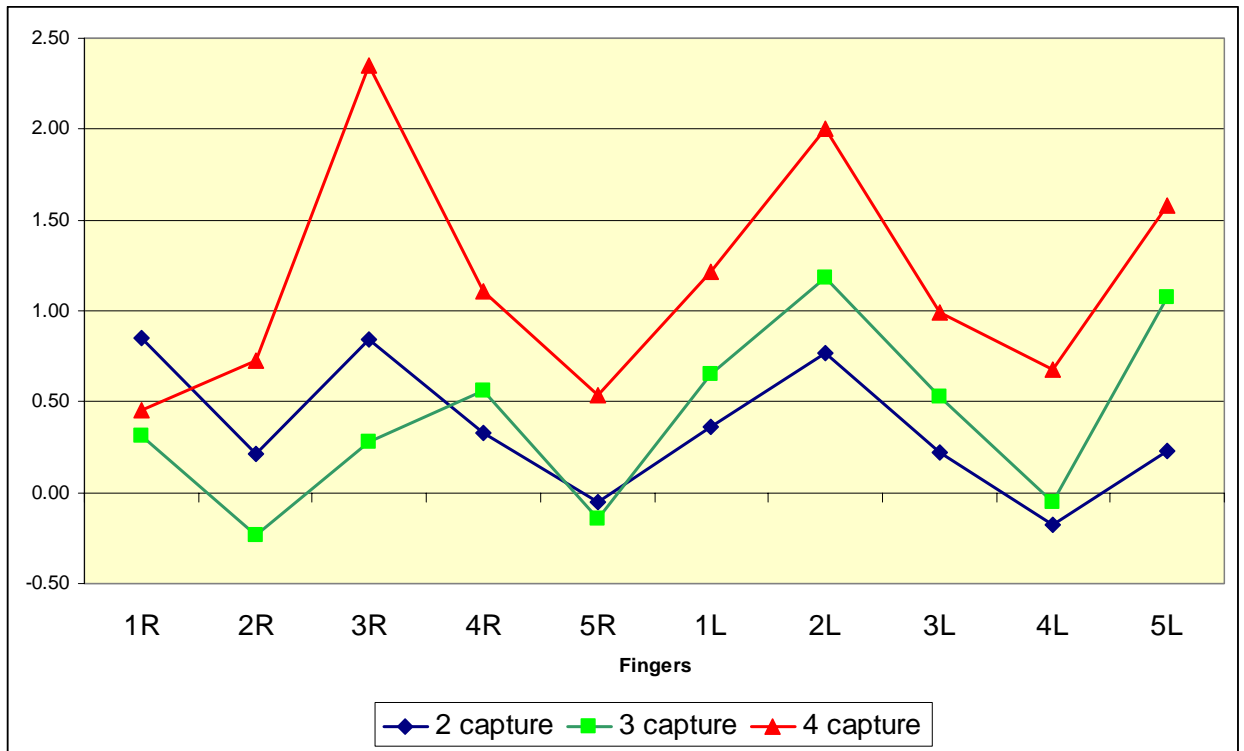


Fig.2.5. The difference between relative area data for experimental and control groups.

Table 2.1. Average Area and results of t-test for the experimental and control groups in the initial measurement.

	<b>1R</b>		<b>2R</b>		<b>3R</b>		<b>4R</b>		<b>5R</b>	
	Experi mental	Cont rol	Experi mental	Cont rol	Experi mental	Cont rol	Experi mental	Cont rol	Experi mental	Cont rol
Average	6964	9640	6043	8120	5426	7652	6376	7038	6990.2	7498
t-test	0.06		0.08		0.07		0.58		0.64	

	<b>1L</b>		<b>2L</b>		<b>3L</b>		<b>4L</b>		<b>5L</b>	
	Experi mental	Cont rol	Experi mental	Cont rol	Experi mental	Cont rol	Experi mental	Cont rol	Experi mental	Cont rol
Average	7086	8586	6177	1018	5246.2	6856	5503.6	6449	6190.3	7333
t-test	0.27		0.31		0.21		0.45		0.33	

Table 2.2. Average Relative Area and results of t-test for the experimental and control groups in the 2<sup>nd</sup> measurement.

	<b>1R</b>		<b>2R</b>		<b>3R</b>		<b>4R</b>		<b>5R</b>	
	Experi mental	Cont rol	Experi mental	Cont rol	Experi mental	Cont rol	Experi mental	Cont rol	Experi mental	Cont rol
Average	1.898	1.04	1.647	1.43	2.033	1.19	1.608	1.2	1.327	1.38
t-test	0.171		0.661		0.085		0.432		0.899	

	<b>1L</b>		<b>2L</b>		<b>3L</b>		<b>4L</b>		<b>5L</b>	
	Experi mental	Cont rol	Experi mental	Cont rol	Experi mental	Cont rol	Experi mental	Cont rol	Experi mental	Cont rol
Average	1.709	1.34	2.088	1.31 7	1.703	1.48	1.515	1.69	1.489	1.25
t-test	0.360		0.285		0.552		0.670		0.306	

Table 2.3. Average Relative Area and results of t-test for the experimental and control groups in the 3<sup>rd</sup> measurement.

	<b>1R</b>		<b>2R</b>		<b>3R</b>		<b>4R</b>		<b>5R</b>	
	Experimental	Control	Experimental	Control	Experimental	Control	Experimental	Control	Experimental	Control
Average	1.26	0.95	1.26	1.50	1.55	1.27	1.75	1.19	1.21	1.36
t-test	0.35		0.60		0.54		0.30		0.59	

	<b>1L</b>		<b>2L</b>		<b>3L</b>		<b>4L</b>		<b>5L</b>	
	Experimental	Control	Experimental	Control	Experimental	Control	Experimental	Control	Experimental	Control
Average	1.69	1.04	2.22	1.04	1.89	1.35	1.46	1.52	2.12	1.05
t-test	0.14		0.20		0.43		0.50		0.19	

Table 2.4. Average Relative Area and results of t-test for the experimental and control groups in the 4<sup>th</sup> measurement.

	<b>1R</b>		<b>2R</b>		<b>3R</b>		<b>4R</b>		<b>5R</b>	
	Experimental	Control	Experimental	Control	Experimental	Control	Experimental	Control	Experimental	Control
Average	1.24	0.79	1.88	1.15	3.34	0.99	2.06	0.95	1.56	1.02
t-test	0.04		0.22		0.14		0.12		0.05	

	<b>1L</b>		<b>2L</b>		<b>3L</b>		<b>4L</b>		<b>5L</b>	
	Experimental	Control	Experimental	Control	Experimental	Control	Experimental	Control	Experimental	Control
Average	2.11	0.90	2.96	0.95	2.12	1.14	1.96	1.28	2.48	0.90
t-test	0.04		0.14		0.20		0.23		0.04	

## **Appendix. The Electrophotonic Instrument (EPC) based on Gas Discharge Visualisation Techniques.**

The EPC/GDV technique is the main research method in this study. The electric impulse on the camera plate stimulates biological subjects (or chemicals in contact with it) and generates a response in the form of an excited gas plasma. The short electrical impulse (10 mcs) causes this plasma to emit both light and other electromagnetic fields over a wide frequency band. The emissions are directly measured by a charge-coupled device (CCD), the state of the art in measuring low-level light in astrophysics and other scientific endeavors. The CCD registers the pattern of photons detected over time. This digital data is transmitted directly into a computer for data processing. Each image is stored as a graphics file. These two-dimensional images of the light are then used to calculate the area, emission intensity, density, fractality, and other parameters. Experimental conclusions are drawn on the basis of these calculated parameters (Korotkov, 1998, 2002).

This is a direct, real-time detection of a Human Energy Field. The EPC/GDV has corrected the experimental deficits of older forms of electrophotography. What were previously considered as confounding parameters in the older forms of electrophotography, such as pressure, finger size, sweating or changes in physical conductivity, have been overcome with the new EPC method. Light from the electrical coronal discharge patterns are measured at each of the ten fingers, which act as electrical termination points for the 12 main acupuncture meridians of the body. Complex mathematical calculations provide statistics to characterize the strength, shape, dimensions, and irregularities the fingertip images. These calculations are used in the analysis of areas or sectors of fingertip images that reflect different organs and systems of the body, in accordance with the principles of energy meridians. Each individual sector or portion of the fingertip is connected energetically with specific organs and organ systems. This idea was first proposed by P. Mandel (1986) and then clinically verified and corrected by the team of Dr. Korotkov.

The EPC/GDV Technique has been found to be effective in evaluating states of human health (Bevk et. al., 2000; Kononenko, 2001), monitoring of individual reactions to different trainings (Howell, 1999; Dobson and O'Keffe, 2000; Kolmakov and Hanninen, 2000; Bundzen et al, 2002a,b; Gibson, 2002; Roberts, 2002), study of the energy properties of

liquids (Korotkov and Korotkin, 2001; Bell et al, 2003). The GDV Camera is certified in Russia as a medical instrument.

The “EPC/GDV Camera” instrument produced by the “Kirlionics Technologies International,” Saint-Petersburg, Russia ([www.korotkov.org](http://www.korotkov.org), [www.kti.spb.ru](http://www.kti.spb.ru)), utilized in these experiments had the following parameters: single impulse duration – 10 microseconds; repetition frequency – 1024 Hz; induction interval – 0.5-32 s; electrode voltage – 10-15 kV.

Static images of EPC emission from the fingers (GDV-grams) were registered during a 20 ms interval provided by the TV single shot, so that 20 images were averaged by the CCD TV camera as a single pattern registered in the computer as a BMP file (Korotkov, 1998). Fingers were numbered 1-5 with 1 being the thumb and the little finger 5. As the series of BMP files were captured, they were filtered in image processing software and parameters were calculated. These parameters created a time sequence that can be presented as a time curve (Korotkov, 2002).

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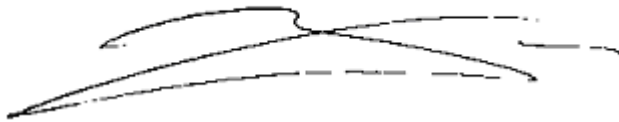
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