

Application of a Gas Measurement Method - Measurement of Ki Fields and Non-contact Healing -

Hideyuki KOKUBO^{1,2}, Osamu TAKAGI¹ and Satoshi KOYAMA^{3,1}

¹*Institute for Living Body Measurements, International Research Institute (Chiba, Japan)*

²*Meiji University, School of Information and Communication (Tokyo, Japan)*

³*Meiji University Graduate School of Information and Communication (Tokyo, Japan)*

Abstract: The authors discuss a gas measurement method utilizing *Cucumis sativus* ('white-spin-type' cucumber) as a bio-sensor, and its application to ki fields and non-contact healing. Through non-contact healing experiments using multiple healers, the instructions to change odor intensity were demonstrated to be effective. Furthermore, data from the main test were effectively calibrated using data from a simultaneous blank test; samples in both tests were made from the same cucumbers. It was shown that measurements should be performed using the same lot number of the gas detector tubes. There was a possibility that a subject could affect distant points, from several to 10 m, if he/she has strong ki/qi (or psychic) power. Another possibility was that another anomalous phenomena created a background potential that drifted slowly. Moreover, the authors tried to measure the place 'Bungui-touge', which is claimed to have a strong ki field, in Ina city in Nagano prefecture. Results suggested that an unknown factor may exist in the universe, which causes effects similar to those of human anomalous phenomena.

Keywords: *Cucumis sativus* 'white spin type', gas detector tube, 141L, ethyl acetate, non-contact healing, Bungui, potential, simultaneous calibration technique, SCAT

1. Introduction

The authors have studied quantitative measurement methods for anomalous phenomena, such as non-contact healing (laying-on-of-hands), by using cucumber pieces as a bio-sensor¹⁻¹⁶⁾. Their developed methods include the biophoton method (2006) and the gas method (2009). In the present study, to confirm the specifications of the gas method, the authors discuss more suitable instructions for healers, a simultaneous calibration technique that uses data from a blank test to simultaneously calibrate the main test and the possibility of detecting unknown physical phenomena that may exist in the universe.

Problem 1: Instructions. In a previous study¹⁶⁾ on the gas measurement method, which was in the developmental stage, the authors did not provide information about the gas method to subjects, and gave subjects the same instructions as those for the biophoton measurement method.

'These cucumber samples have been recently made. Fresh and vivid cucumber can brighten more. Please do healing to try increase the vitality of the cucumber pieces and let them

brighten'.

The resultant intensity of biophotons emitted from the cucumbers correlated negatively with the mass of the gas. These instructions are sufficient if reactions of biophotons are the same as those that generate gases. However, it was difficult to judge whether the instructions were suitable for the gas method, because the sample cucumbers were not good (experiments were performed late March to early April), and the J values were small in both the biophoton and gas tests (J value is defined as a natural logarithm of the ratio of experimental and control, and used as an index of healing effects).

Empirically, it is essential that the subject understands well the target item of measurement before each experiment. For example, since the only item measured is the photons, healing effects may never be detected if the luminescence of the cucumber does not change, even if the cucumber is bent like a spoon. Subjects should understand what they should do, although they may be devoted. From this viewpoint, the previous instructions for healers were suitable for comparison of the gas method with the biophoton method, but the suitability of these instructions for the gas method alone should be tested. It is expected that the suitability of instructions can be judged through pilot experiments with experts of healing.

Hideyuki KOKUBO kokubo@a-iri.org
40A, Yuuki Bldg., Sonno 1108-2, Chiba 263-0051 Japan
Phone: +81-43-255-5481 FAX: +81-43-255-5482
<http://wwwsoc.nii.ac.jp/iri>

Problem 2: Simultaneous Calibration Technique.

Variance among individual cucumbers is caused by different growth conditions and harvest seasons. It is the essential factor in the measurement accuracy of the gas method. In order to improve the performance efficiency of the study, the authors considered a technique whereby the data of the main test were calibrated using data from a simultaneous blank test. In this technique, many samples of cucumber were made for an experiment, and one half of the samples was used for the main test and the other half was used for the simultaneous blank test. This technique was named tentatively as the simultaneous calibration technique (SCAT). The technique was expected to decrease the effects of variance among cucumber samples.

Another advantage of the simultaneous calibration technique is that it can identify samples that show responses. In both the biophoton and gas methods, researchers prepared a pair of experimental and control samples and detected target effects by the difference among samples. In general, it is assumed that the change occurs in the experimental sample, which has been treated, and in fact, the change occurs in the sample in almost all experiments. Strictly speaking, however, it is impossible to conclude that the experimental sample changes if we do not compare data with the third blank data. Careful inquiry is necessary, especially in research on ki/qi or psi because very strange phenomena often occur.

Apparent strange phenomena may have relationships to physical properties of ki/qi or psi. Through gas measurement experiments, strange results are often obtained, such as the effects detected by the J value, and the change in control suggested by raw data. One possible reason for such a change is that the zero point of the cucumber sample was accidentally shifted; in other words, the sample showed a large difference in gas amounts because of the directions of growth. However, some results seem to be difficult to explain and pose a source of the problem. The simultaneous calibration technique is expected to judge whether the zero point of the cucumber is shifted accidentally, or the control sample is also affected by anomalous effects.

Problem 3: Measurement of the Background.

Since the development of the biophoton measurement method, some people sometimes have visited the authors' laboratory with devices, which they claimed caused the same effects as those caused by non-contact healers. The authors have tried to measure these devices, but with a purpose different from that of the people who got the devices. The devices have some merits. For example, their powers are considered to be stable, although healers' performances are not stable because of mental and physical conditions; that the experimenters can repeat experiments many times even in hard

conditions. It is important to find a stable, strong power source for studying the physical mechanisms of anomalous phenomena.

Some devices showed results similar to healers, while others did not. Through some tests, the authors have an impression that an unknown factor that exists in the universe, is the source of anomalous phenomena, which are detected by biophoton or gas measurement methods. There is a possibility that a subject uses the factor and his consciousness is not the source of phenomena. Devices interact much with humans in the production process; therefore, it is difficult to distinguish natural effects from human effects. A test of natural phenomena, which have less human intervention, is needed to confirm the possibility.

We can perform experiments outside the laboratory because the gas method is an easy and portable method. In the present study, the authors attempted to measure the place 'Bungui-touge (Bungui pass)' in Ina city in Nagano prefecture, where a strong ki (or qi) field is claimed to exist. This place is located on the Median Tectonic Line, which is the oldest and largest mega fault in Japan. In 1995, a Chinese qigong master visited the place and indicated that Bungui is the strongest ki field. Since then, the place has been fixed, chiefly by the local government, as a special tourist attraction. It is claimed that the strongest point is a steep valley. There are wooden benches and about 20 persons can stay at this particular spot. Visitors often claim they feel a strong power there. Therefore, the authors expected to detect some effects by the gas measurement method.

A common possible problem of measurement of devices or places is that either the experimenter's power or the unconscious biases of the experimenter affect the results. It is considered that such effects can be ignored if the experimenter's estimated power is smaller than the detected power. There is less discussion on the experimenter's effects using quantitative parameters, which are defined by physical values. In contrast, the power of effects can be described quantitatively as a J value in the gas measurement method. Therefore, the gas method is expected to judge whether the effects are caused by nature or the experimenter.

2. Experiments by Humans

All human experiments were performed at the Bio-emission Laboratory of the International Research Institute (Chiba, Japan).

2-1. Experiment A1

Date: Experiments were performed on 16 July and 23 July 2009. In a day, two tests were performed with 10 min intervals.

Subject: Subject N004 (male, 83 y) was a veteran of prayer healing. He had shown a high score, $J = 0.2$, in a

biophoton measurement test in 2006.¹⁾

Instruction: The subject was given an instruction to increase the intensity of biophotons emitted from a cucumber.

Samples and Procedure: A cucumber (*Cucumis sativus*, 'white spin type') was used as a bio-sensor for non-contact healing. Cucumbers were selected according to the standard method: green color is good, shape is straight and round (length 17–24 cm, maximum diameter 2–3 cm and the cross section larger than 4 cm²), and there is no large scar on the surface. Cucumbers were purchased on the experimental day and kept at room temperature (24°C) in the absence of sunlight. One hour before the experiment, the surface of the cucumber was disinfected with ethanol.

Samples were made in the same way as in a previous experiment.¹⁶⁾ Four circular slices (thickness: 2 cm) were cut. Each slice was cut again and opened into 2 slices (thickness: 1 cm); this gave 8 paired pieces. One of each paired pieces was used as the experimental sample and the other (flower side) was the control. One experiment needed two cucumbers (8 pairs of cucumber pieces). Eight pairs were set into 4 glass Petri dishes (2 pairs of dishes). Controls and experimental samples were placed symmetrically in dishes, which were wrapped beforehand with a plastic wrapping sheet. Each dish was labelled, and all dishes were covered with glass lids.

In the first experiment, one pair of dishes was used for biophoton measurement and the other was used for gas measurement. In the second experiment, one of pair of dishes was used for gas measurement and the other was used for a blank test.

Healing treatment was carried out immediately after making the samples. In the first experiment, both experimental dishes were placed on a desk, and in the second experiment, one experimental dish was placed on the table. Subject N004 tried to do healing without touching the samples for 5 min. He could stand or sit (**Fig. 1**). Control dish(es) were set 3 m away from experimental dish(es), and the subject could not see them directly. And all dishes for the blank test were set at the same place of control dishes for the healing tests.

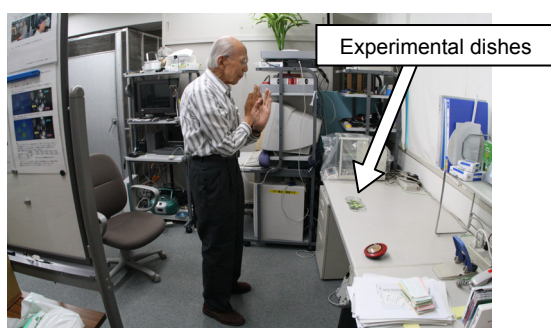


Fig. 1 Prayer Healing (N004)

After healing, experimenters collected all Petri dishes and removed the lids from all dishes. Each dish was put into a 2.2 l sealed plastic container. Four containers were piled and kept in a shelf. The shelf was covered by a cloth. All samples were kept at 24°C for 24 h, without exposure to sunlight.

Biophotons were measured for 18 h by the standard method.

Gas measurement was performed after 24 h. Samples (100 ml) of gas were taken 3 times (total = 300 ml) from a pair of containers using a short-term gas-measuring detector tube for ethyl acetate (141L, Gastec, Japan) and a sampling pump (GV-100, Gastec, Japan). The concentration of gases in each sample was measured. The place of gas measurement was changed every successive measurement to avoid any disturbance from the exhaust gas of the pump.

Data Analysis: Data analysis was performed in the same way as in a previous study.¹⁶⁾ Raw values of detector tubes were used as measured values of concentration. Note that measured values are not actual concentrations, because there is no ethyl acetate gas in the cucumber gas.

Results: **Table 1** shows results of biophoton measurement. The measurement was not performed on 23 July because some mechanical problem occurred just before starting it. There was a statistically significant difference in intensities between experiments I_E and control I_C ($p = 0.045$, paired t-test, one tail). The average J value was 0.089.

Table 2 shows results of gas measurements. The blank test on 23 July failed because the temperature control failed.

In the first experiment on 16 July, the J value of the biophoton test was smaller than what the authors expected. The J value of the gas test was zero. In the second test, the J value was positive. In the experiment on 23 July, both J values of gas tests were zero.

Table 1 Results of Biophoton Measurement

N004	[Counts/10000 pixels]				$\ln(I_E/I_C)$
	I_E	I_C	$I_E - I_C$	I_E/I_C	
16/7/2009	36264	32019	4245	1.133	0.125
	45971	44975	997	1.022	0.022
	34643	29677	4966	1.167	0.155
	37978	35917	2061	1.057	0.056
Average	38714	35647	3067	1.095	0.089
SD	5026	6730	1852	0.067	0.061
	$p = 0.045$				

Table 2 Results of Gas Measurement

N004	Healing test			Blank test		
	E [ppm]	C [ppm]	J value	E [ppm]	C [ppm]	J value
16/7	8.2×100	8.2×100	0			
	6.8×100	5.8×100	0.159	8.2×100	7.9×100	0.037
23/7	8.0×100	8.0×100	0			
	6.0×100	6.0×100	0	-	-	-

2-2. Experiment A2

Based on the results of Experiment A1, the authors modified the experimental design as follows:

1. Activated carbon filters were attached to the inlets of containers so as to avoid any disturbance caused by the exhaust gas of the pump and residual gas in the room, and to facilitate control the room temperature.
2. Measurements were performed by only the gas method. The authors did not perform a comparison between the biophoton and gas methods.
3. Sample numbers were doubled and all tests were performed using the simultaneous calibration technique (SCAT).
4. All gas detector tubes were chosen from the same lot group (lot no. 90831 was used in this experiment), because there was a possibility that the characteristic properties of the gas detector tubes differed among lot groups. This possibility was suggested by the experiment at 'Bungui' (see later section). Moreover, the experimenter made a pair of gas detector tubes before measurements. The pair was made so that each tube had the same length from the top of the column to the top of reagent. Use of paired tubes was considered to decrease the variance in the quality of tubes.

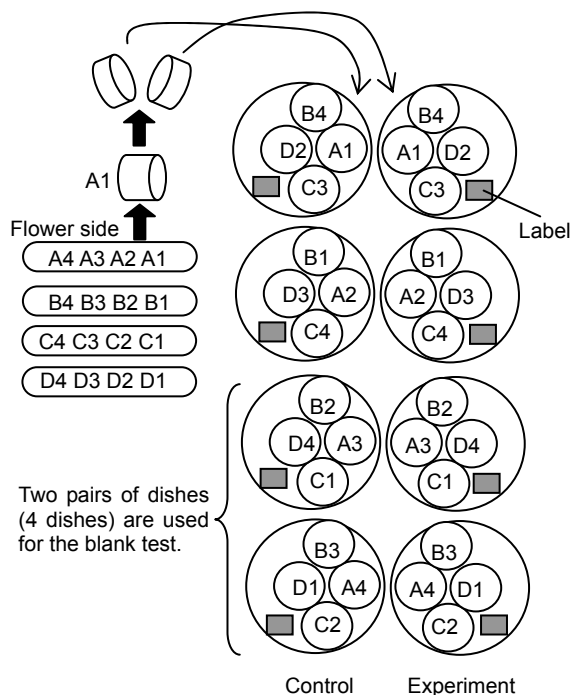
Date: 18 October and 16 November 2009.

Instruction: Do healing to increase the intensity of biophotons emitted from a cucumber.

Subject: Subject K019 (male, 65 y) was a veteran with 22 years of experience and had founded his own school of healing (Fig. 2). He was a well known expert healer who had often succeeded in putting to sleep a group of wild animals using ki. This experiment was performed after two pre-tests.

**Fig. 2 Healing by Ki/qi (K019)**

Procedure: Samples were made in the same way as in Experiment A1. This experiment was done by SCAT, and 4 cucumbers were used for one measurement. Sample pieces were set symmetrically in 4 pairs of Petri dishes (diameter 91 mm, height 21 mm, total 8 dishes) using a rotating order as in Fig. 3. Next, Two pairs of dishes were selected at random for the blank test and the other pairs were used for the healing test. Labels were set in dishes and each dish was covered by a glass lid.

**Fig. 3 Sample Pairs Preparation in SCAT**

Healing was done just after making samples. Two experimental dishes were set on a desk and instructions were given to the subject. The subject did healing for 30 min without touching the samples. Two control dishes were set 3 m away from the experimental dishes, and the subject could not see them directly. All Petri dishes for the blank test (2 pairs, 4 dishes) were also set at the same place as the control dishes for the healing test.

Just after the healing treatment, the lids were removed from each Petri dish and then each dish was set into each sealed container. The containers were set in a shelf, similar to Experiment A1, and kept for 24 h at room temperature (24°C).

The experiment was repeated once more after a 30 min interval.

A third experiment was also performed. However, it was one of a series of biophoton experiments and is still on-going. Therefore the results of the third experiment are omitted in the present paper.

In addition, an additional blank test was performed on 16 November after the third test. The additional test started about 30 min after the subject returned to his home. In the test, all experimental Petri dishes (4 dishes) were set so that they were adjoined mutually on the desk where the subject did healing, while all control dishes (4 dishes) were set 3 m away from the experimental dishes. There was no person in the room during the additional blank test. The objectives of the test were to increase the number of samples and check any residual effects. After 30 min, all Petri dishes were set in sealed containers and kept for 24 h at room temperature (24°C).

Results: Table 3 shows raw data. Invalid data on November 16 were caused by failed measurements. The average J value was -0.133 in the healing test, while the J value was nearly zero ($J = -0.008$) otherwise. There was a statistically significant difference between the tests ($p = 0.026$, t-test, one tail).

Table 3 Results of K019

K019	Healing test			Blank test		
	E [ppm]	C [ppm]	J value	E [ppm]	C [ppm]	J value
18/10/2009	480	540	-0.118	440	400	0.095
	400	450	-0.118	450	510	-0.125
	360	490	-0.308	310	410	-0.280
	400	420	-0.049	380	360	0.054
16/11/2009	390	440	-0.121	400	420	-0.049
	440	420	0.047	—	—	—
	360	470	-0.267	400	410	-0.025
	—	—	—	410	360	0.130
16/11/2009 Additional blank test				400	360	0.105
				370	400	-0.078
				400	360	0.105
				400	410	-0.025
Average	404	461	-0.133	396	400	-0.008
SD	43	43	0.121	37	44	0.124

Calibration was performed by subtracting the average J value of each paired blank data from the corresponding paired healing data. The calibrated average J value of the healing test was -0.131 ($n = 5$, $SD = 0.141$), and there was a significant difference between the healing and blank tests ($p = 0.037$, t-test, one tail). In this calculation, a data set was omitted because some paired blank data was lack.

The average J value of the additional blank test was 0.027 ($SD = 0.093$). Residual effects were not detected.

Fig. 4 shows average measured values of gas detector tubes and their 95% confidence intervals. There was a significant difference ($p = 0.013$, analysis of variance). The measured values of experimental samples from the healing test were nearly equal to those of the blank test. Control of the healing test was separated from the others.

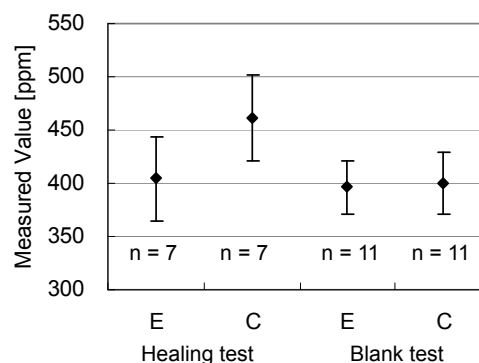


Fig. 4 Measured Values and 95% Confidence Intervals

2-3. Discussion of Experiments A1 and A2

Before the experiments, the authors expected that the J value would become about -0.2 because both N004 and K019 were considered experts of healing. However, the results did not meet the authors' expectation. This is because the instructions for the biophoton test were not suitable for the gas test. Correspondence between reactions of gas generation and biophoton emission is not completely possible¹⁷⁾. In the gas measurement method, a more useful instruction instead would be to change the amount of gas or the intensity of the odor.

An important point of the gas measurement method is to adjust conditions before experiments so that the average J value of the blank test becomes zero¹⁶⁾. Table 4 is an example of excellent results, but about ± 0.1 is acceptable in usual blank tests because of variance in the quality of cucumbers. The quality of the cucumber in Experiment A2 was excellent, and the average J value of the blank test was nearly equal to zero. Therefore, the results did not change much even after calibration.

Table 4 Example of Blank Test

Lot: 90831	E [ppm]	C [ppm]	J value
25/10/2009 Harvest from Gumma.	400	410	-0.025
	410	410	0.000
	400	400	0.000
	390	400	-0.025
Average	400	405	-0.013
SD	7	5	0.013

The simultaneous calibration technique (SCAT) is considered useful to identify samples that respond to stimuli. Fig. 4 suggests that healing effects appeared on the control samples but not on experimental samples. It is a very strange result, but the authors, because of their experiences, cannot deny the occurrence of such phenomena. However, it is difficult to explain the reason

at present, because such a phenomenon is not often detected.

Such strange phenomena are often explained by using an analogy to quantum physics.¹⁸⁾ Here, the authors try to interpret the result of **Fig. 4** in a similar way. First, the important factor is the existence of a 'pair' of experimental and control samples. The upper surfaces of both samples were connected before cutting. It is assumed that a non-local connection between samples is kept for some time after cutting. Therefore, a reaction occurs on the control sample if healing acts on the experimental sample. However, this explanation cannot explain why the measured value of the experimental sample was equal to values of the blank test. The explanation of the relationship between the healing and blank tests is also needed even if anomalous effects caused an anomalous difference between the experimental and control samples. In other words, we should consider another factor, which affects the whole experimental system. This factor can be explained by mental effects such as unconscious activities of subjects or experimenters. In addition, it can be explained as a reflection of properties of physical mechanisms of anomalous phenomena. For example, it can be assumed that a background potential of anomalous phenomena exists in the universe and drifts slowly. As a model, imagine an apple floating in water. Here, the difference of potential, which is caused by healing, corresponds to the difference between the head and hip of the apple. The blank test corresponds to the water surface (reference level). When the amount of water is sufficient, the hip of the apple sinks under the reference level. However, when there is less water, the level of the hip is the same as the reference level and the head is higher than the reference level. Experiment A2 suggests that the background potential drifts slowly over several weeks or more. At present, no one can say whether such an event has actually occurred or not. Further studies are needed. However, it is worth considering that the background potential of anomalous phenomena exists in the universe and drifts slowly. It is a candidate to answer the repeatability problem. Furthermore, it is possible to discuss only target effects using the simultaneous calibration technique even if the background potential exists and drifts.

2-4. Experiment B

Based on the results of A1 and A2, the instructions were changed. In Experiment B, subjects were instructed to try to increase the intensity of the odor of the cucumber.

Date: Experiments were performed on 29 November, 2 December and 9 December 2009.

Subjects: Subjects were 2 beginners (A010, female, 44 y; H005, female, 40 y) and 2 star psychic sisters (W003, female, 41 y; W004, female, 43 y)(**Fig. 5**). A010 was a

student of K019 and had been learning for a few months. H005 learned healing techniques when studying abroad, but had no practical experience. W003 and W004 were famous Chinese sisters who were well known in Japan as very strong psychic sisters, but they did not do healing everyday.



Fig. 5 Healing by W003, W004, A010 and H005

Making Samples and Procedure: The preparation of samples and the procedure of the experiment were the same as in Experiment A2. All gas detector tubes were from the same lot (no. 90831). Both A010 and H005 were tested twice a day by SCAT. Both W003 and W004 were tested together but only one time because of their schedule. Their results were summed. An exception was in the experiment of W003 and W004, where the distance between experiment samples and controls was about 10 m, and gas measurements were performed 26 h after healing. Moreover, an additional blank test was performed after the W sisters returned home on the condition that experimental samples were set on the place where the sisters had done healing and controls were set about 10 m away from the experimental samples.

Results: **Table 5** shows calibrated J values. The beginners' J values were 0.098 and 0.039. Both J values were positive, although they were smaller than 0.1. The J value of the W sisters was very large ($J = 0.322$) and there was a significant difference between healing and blank tests ($p = 0.015$, t-test, one tail).

Table 6 shows raw J values. Calibration was needed for data of the W sisters because the J value of their blank test was extremely biased. In general, it is rare that the average J value of the blank test is smaller than -0.2 . There is a possibility that the large negative J value of

the blank test was caused by the W sisters.

Table 7 shows the additional blank test of the W sisters. The average J value was 0.090, which was similar to the raw J value (0.102) of healing of the W sisters.

Table 5 Calibrated J values of Experiment B

	W003 & W004		A010		H005	
	Healing	Blank	Healing	Blank	Healing	Blank
J value	0.077	0.128	0.176	0.156	0.014	0.008
	0.559	-0.128	0.444	-0.156	0.143	-0.008
	0.269	-0.006	-0.284	-0.081	-0.001	-0.048
	0.384	0.006	0.056	0.081	-0.001	0.048
Average	0.322	0.000	0.098	0.000	0.039	0.000
SD	0.202	0.104	0.302	0.144	0.070	0.039
T-test	p = 0.015		p = 0.290		p = 0.184	

Table 6 Raw J value

	W003 & W004		A010		H005	
	Healing	Blank	Healing	Blank	Healing	Blank
Raw data	-0.243	-0.192	0.020	0.000	-0.038	-0.044
	0.239	-0.448	0.288	-0.312	0.091	-0.060
	0.148	-0.128	-0.365	-0.163	-0.024	-0.071
	0.262	-0.115	-0.025	0.000	-0.024	0.025
Average	0.102	-0.221	-0.021	-0.119	0.001	-0.038
SD	0.235	0.155	0.268	0.150	0.060	0.043
T-test	p = 0.031		p = 0.274		p = 0.166	

Table 7 Additional Blank Test

W003 & W004	E [ppm]	C [ppm]	J value
Measured value	5.1 × 100	4.4 × 100	0.148
	5.2 × 100	4.0 × 100	0.262
	4.0 × 100	4.1 × 100	-0.025
	3.9 × 100	4.0 × 100	-0.025
Average	4.55 × 100	4.13 × 100	0.090
SD	70	19	0.141

2.5 Discussion of Experiment B

In the biophoton measurement method, the authors classified healers tentatively by their controlled healing power as $J < 0$: beginner class, $0.1 < J < 0.2$: middle (veteran) class and $J > 0.2$: expert class. It is considered that similar classification is also possible in the gas measurement method.

The simultaneous calibration technique revealed that the J value of the W sisters was larger than the authors' expectation. There is a possibility that the authors concluded that the power of the W sisters was the same as of the beginners if data were not calibrated. The simultaneous calibration technique should be used

as a standard technique of the gas measurement method.

In the gas method, the target effect is detected as a difference between pairs of experimental and control samples. Therefore, the difference depends on the positions of samples and becomes small if a gently-sloping and broad ki potential (or anomalous phenomena) is made around a subject. It is necessary to move a control sample far away enough in order to measure the potential depth correctly. However, as a matter of fact, the distance, which we can consider infinity, is unknown. In the biophoton measurement, the distance between samples is generally from 3 to 5 m. It is enough apparently for experiments with healers whose J value is 0.2, but there is a possibility that 10 m distance is not enough if a subject has stronger ki (or psychic) power ($J > 0.3$). However, there is another possibility that the W sisters were not skilled to localize their effects because they were not veterans of healing, although they were strong psychics. Further studies are needed to research an anomalous potential around the subject.

The change of instructions was considered effective for the gas measurement method. However, based on the above discussions and the data of the W sisters presented in **Table 6**, possibilities emerge that to decrease the odor intensity is easier than to increase odor and that the response is different depending on the growth direction. Further studies are also needed for these possibilities.

Although the J value of the additional blank test was a common value, it is similar to the raw J value of healing ($J=0.102$). It suggests a possibility of residual effects, which should be studied in the future.

3. Experiment at 'Bungui'

3-1. Method

Date and time: Date was 16 September 2009. Weather was fine. The time range was from 14:25 to 14:55.

Place: The Bungui pass in Ina city in Nagano prefecture. Location was N 35°42', E 138°47'; height about 1420 m.

Procedure: Eight cucumbers were purchased in Ina. Eight cucumbers were used for 2 sets of SCAT. Four pairs of Petri dishes were used for the ki-field experiment and 4 pairs of Petri dishes were used for the blank test. Experimental dishes for the ki-field test (4 dishes) were piled up, and then rolled and hardened using aluminium foil. The pile and shock-absorbing materials were placed together into carton box A (height 20 cm, length 20 cm, depth 20 cm). Control dishes (4 dishes) and blank test dishes (8 dishes) were also piled in groups of 4 dishes and then rolled and hardened using aluminium foil, and then placed into carton box B with shock-absorbing materials. Preparation was done at a small rest house about 100 m distant from the target place. Next, Experimenter A brought Box A to the target

place. Box B was left in the house without sunlight and kept by Experimenter B.

There were about 20 visitors at the target place. Box A was set on a bench in the front row from 14:25 to 14:55 (for 30 min). During exposure, Experimenter A took photographs and also explained the history of Bungui to visitors. After 30 min, Boxes A and B were brought by a car to the gym of the Irinoya center 4.8 km distant from the target site. Then, samples dishes were set in containers and kept. After 24 h (15:06 of 17 September), gas measurement was performed there (**Fig. 6**). Activated carbon filters were attached to the inlet of the containers. Room temperature was 23.4°C during measurements.



Fig. 6 Experiment at Bungui

3-2. Results

When half the gas measurements were performed, gas detector tubes of lot no. 90831 got over. Therefore, the remaining measurements were performed with tubes of lot no. 90630. The results show a reversed tendency in the first half and the second half (**Table 8**). According to two-way layout analysis of variance, there was an interaction between the first half and the second half ($p = 0.014$). **Fig. 7** shows calibrated J values of both halves.

Table 8 Raw Data of Ki Field

	First half (Lot no. 90831)			Second half (Lot no. 90630)		
	E [ppm]	C [ppm]	J value	E [ppm]	C [ppm]	J value
Ki field	430	520	-0.190	700	620	0.121
Ki field	370	600	-0.483	610	*500	0.199
Blank	510	500	0.020	500	580	-0.148
Blank	600	600	0.000	620	700	-0.121

* Only this measurement was used by Lot 90831.

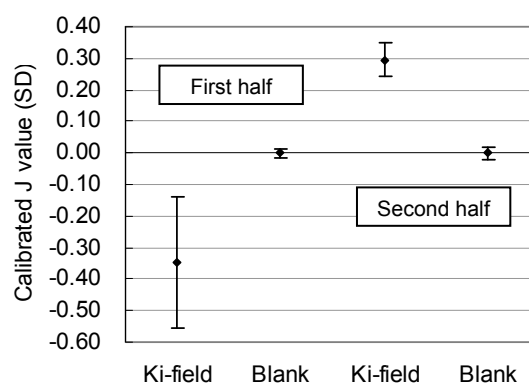


Fig. 7 Calibrated J values

Variances of the ki field are larger than the blank test.

3-3. Discussion

Until this experiment, the authors had not been careful to note variation in the quality of gas detector tubes. They found variation during measurements because there was a large difference of position of the scale on the tube between lots 90630 and 90831, and also the variation of the length from the top of the column to the top of the reagent was very large in lot 90630. Since this finding, the authors changed the procedure to use pairs of selected tubes. At present, they consider that the lot no. 90630 was an exceptional lot with large variation. The 141L tube shows a color reaction (dark brown) for 8 gases (ethyl acetate, ethyl acrylate, methyl acrylate, isopropyl benzene, isopropyl ether, cymene, 2-hexanol and mesityl oxide) and also for interactive gases of various aromatic hydrocarbons, alcohols, ketones and esters (color is green brown if there is only an interactive gas). The problem of the lot number never occurred in usual measurements. However, experimenters should be careful to measure cucumber gas (a complex gas of C₉/C₆ aldehyde and alcohol), which is not among the targets of 141L. Furthermore, the difference of color reaction suggests that we can make detector tubes for which the reaction characteristics for cucumber gas differ.

Absolutes values of calibrated J values are about 0.3, and those are nearly equal to the J value of strong psychics in **Table 5**. This value suggests effects of the ki field because the J values are too large for an experimenter's effect. This result in turn suggests a possibility that an unknown physical factor exists in the universe, which can cause similar results as human anomalous phenomena. Furthermore, the unknown factor seems to have a common property with human anomalous phenomena. However, the present experiment should be treated as a pilot test because of the

unexpected lot number problem. Further experiments are needed.

The distance between experimental and control samples was about 100 m in the present ki-field experiment. The value $J = 0.3$ corresponded to the difference of potential between those places. The potential of Bungui, a huge natural feature, is spread widely, possibly more than 100 m. However, it is difficult to measure a broad potential because experimenters need more time to move. A huge amount of work is expected for measuring a huge potential correctly.

4. Conclusions

1. It is considered that the instructions to change odor intensity are effective for the gas measurement method.
2. The simultaneous calibration technique (SCAT) is effective as a standard technique. In this technique, data of the main test are calibrated using data of the simultaneous blank test; samples in both the tests are made from the same cucumbers.
3. Measurements should be performed using gas detector tubes with the same lot number.
4. There is a possibility that the effects of a subject reach distant points, from several to 10 m, if he/she has a strong power.
5. A possibility is suggested that an unknown factor exists in the universe, which causes effects similar to those caused by human anomalous phenomena.
6. A possibility should be discussed, namely, a background potential of anomalous phenomena exists and drifts slowly.

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