

Wave Length and Photon Emission from Cucumber - Effects of 70GHz Extremely High Frequency (EHF) and Non-contact Healing -

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Abstract: When pieces of cucumber (*Cucumis sativus* “Shiroibo kyuuri”) are exposed to the air, the intensity of photon emission from cucumber reaches the maximum about 5h later and then decreases gradually. The authors measured the time transition of intensity using 2 cameras; an image intensifier (I.I.) camera Model C2400-47, wave length 280-650nm and a CCD camera ImagEM C9100-13, wave length 400-1000nm. Samples of cucumber were treated for 30min by 70GHz millimeter wave (Extremely High Frequency: EHF) or non-contact healing. In the range from red to infrared rays, the intensity of photon emission was very large and there was a difference in intensities between directions of growth of samples. No effects of the millimeter wave were observed by either the I.I. or the CCD cameras; however effects of non-contact healing were detected by the I.I. camera. It was considered that red to infrared rays should be eliminated to detect effects of non-contact healing.

Keywords: biophotons, *Cucumis sativus* “Shiroibo kyuuri”, infrared ray, 70GHz, millimeter wave, non-contact healing

1. Introduction

Through the authors' studies¹⁻⁸⁾, it has been confirmed that the intensity of photon emission from cucumber sample will be changed by non-contact healing such as laying-on-of-hands, the change occurs about 5 h after healing, and the change is not caused by heat of the hands. Pulse magnetic stimuli caused the change of photon intensity of cucumber, but it was considered as a heating effect by an induction current⁹⁻¹⁰⁾. Although animal experiments by Takeshige and Aoki¹¹⁾ and cells experiments by Yamamoto et al.¹²⁾ suggested some relationships between magnetic fields and healing, the authors have not found any relationships between magnetic fields and healing in biophoton experiments with cucumber yet. However, it was possible to find some phenomena similar to healing if high frequency electromagnetic waves or different electromagnetic phenomena were used¹³⁻¹⁶⁾.

In the present study, the authors exposed cucumber samples to a weak millimeter wave (extremely high frequency: EHF) and compared the data with non-contact healing. In addition, the authors researched relationship between wave length of

photons and effects of healing with an image intensifier (I.I.) camera and a CCD camera which can detect visual light and near infrared rays¹⁷⁾.

2. Methods

Experiments were done at the Bio-Emission Laboratory of the International Research Institute (IRI) in May 2008. Ways of making sample pairs and measuring biophotons were done according to the authors' standard evaluation method^{1,5)}.

2.1 Measuring Systems of Biophotons

Biophotons were measured by 2 camera systems (**Fig. 1**) (Hamamatsu Photonics); the I.I. camera (Model C2400-47; sensitivity, 60mA/W at 400nm; wave length, 280-650nm) and the CCD camera (ImagEM C9100-13; camera temperature, -80°C kept by water cooling; wave length, 400-1000nm). Distances between samples and camera lenses were 250mm in the I.I. camera system and 400mm in the CCD camera system. Moreover, as a moisturizer, deodorants with jelly which contained charcoal powder (New Kimco Giant, Kobayashi Pharmaceutical Co.) were put into dark boxes. Dark boxes were kept at room temperature (24°C).

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Fig. 1 Left: C2400-47 Right: ImagEM C9100-13

2.2 Making Sample Pairs

Bloomless cucumbers (*Cucumis sativus* “Shiroibo Kyuuri”) were purchased on each experimental day. 8 sample pairs were cut from 2 cucumbers, and they were arranged symmetrically in glass Petri dishes for CCD and I.I. measurements (Fig. 2). During stimulating treatments, each Petri dish was covered by a glass cap.

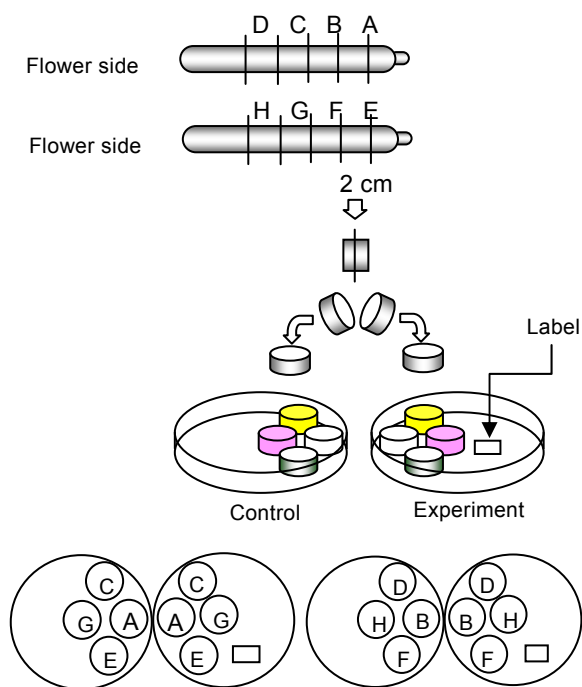


Fig. 2 Making Sample Pairs

2.3 Ways of Stimulation

Stimulation by millimeter wave or non-contact healing was given to experimental samples for 30min

at room temperature. Control samples were set at 3m from the experimental samples in the same room. After treatments, biophotons of experimental and control samples were measured by I.I. and CCD for 18h.

The ultra weak 70GHz millimeter wave was generated by the Kobert 01T (Kobept 01T) made in Ukraine. The generator probe was touched in consecutive order of samples for 10 s on the surface of the glass cap just above each sample (Fig. 3 Left).



Fig. 3 Left: Experimental samples for CCD and I.I. during 70GHz millimeter wave treatment. Right: Non-contact healing by N007.

There were three healers: U003 (male; 70y; healing way, Perfect harmony (TDE); experience, more than 3y), S010 (male; 52y; healing way, Dou-zen; experience, less than 1y) and N007 (female; 52y; original healing way; experience, more than 10y). Each healer did a 30-min trial to increase intensity of photon emission. U003 and S010 did laying-on-of-hands and N007 did her original meditative healing (Fig. 3 Right). This test was the first experiment for S010 and N007. J value is defined as the natural logarithm of the ratio of photon intensities of experimental and control samples and is a quantitative index of controllable healing power^{1,2}. U003 had shown his ability in the authors' previous experiments in 2006 in which he had $J=0.160$ ⁴.

In addition, a non-treatment test was also done using the CCD camera system.

3. Results

3.1 Photon Intensity and J Value

Table 1 shows J values and photon intensities [counts/10000 pixels] which were accumulated for 18h. I_E is photon intensity of experimental sample and I_C is photon intensity of control sample. Intensities obtained by the CCD camera were larger than those from the I.I. camera from 40,000 to 100,000 times.

Table 1 Photon Intensity [Counts/10000 pixels] and J value

I.I.	I_E	SD	I_C	SD	$I_E - I_C$	I_E / I_C	J value	1.96SE
U003	33183	5386	37283	10155	-4100	0.909	-0.1	0.106
S010	13992	5291	13870	3573	122	0.991	-0.014	0.109
N007	19702	2178	24927	3042	-5225	0.799	-0.234	0.154
Kobert	24015	4219	24532	4566	-517	0.99	-0.019	0.158

CCD	I_E	SD	I_C	SD	$I_E - I_C$	I_E / I_C	J value	1.96SE
U003	1181305195	48481099	1199606480	57545504	-18301285	0.985	-0.015	0.026
S010	1313763029	32508304	1360524590	100835494	-46761560	0.969	-0.033	0.056
N007	1160131266	42902865	1199129941	38263699	-38998675	0.968	-0.033	0.024
Kobert	1363255121	27305966	1410024090	21272152	-46768969	0.967	-0.034	0.011
Test	1220087295	50049220	1265489298	53772660	-45402003	0.965	-0.037	0.034

SD: standard deviation. SE: standard error.

Fig. 4 shows J values and their 95% confidential intervals of I.I. and CCD measurements. Healer N007 showed a remarkable decrease of photon intensity in the I.I. measurement. N007 was considered as an expert healer (Class A)^{1,2)} because the absolute value of her J was larger than 0.2. However, she failed to control the direction of her ability against the experimental task to increase photon emission. J values of the other healers and the millimeter wave generator treatment were nearly equal to zero.

For the CCD measurements, J values of healers

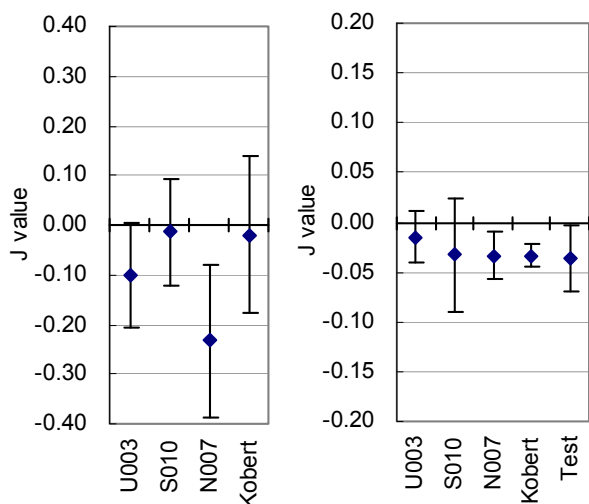


Fig. 4 J value and 95% confidential interval (n=4)
Left: I.I. measurements. Right: CCD measurements.

and the millimeter wave generator treatment were the same as the non-treatment J value. There was no special effect. Average J value of all data was -0.03, and that suggested calibration of the zero point was needed if biophotons of cucumber pieces are to be measured by red to infrared rays. In other words, there is a difference in photon intensities of samples according to the growing directions although the measurement surfaces of sample pairs are symmetrical.

3.2 Time Transition

Figs. 5 and 6 show time transitions of the average photon intensities of all data and intensity differences between controls and experiments. In I.I. measurements, there was no large difference for 18h. However, in CCD measurements, the intensity of experimental samples was larger than control samples at first, and then it decreased rapidly. Finally, the photon intensity of control samples (flower side) was larger than that of experiment samples. The intensity of I.I. measurements reached the maximum 6h after the start of measurements, while the intensity of CCD measurements reached the maximum 4h after the start. Moreover, the maximum value of intensity of the CCD camera was larger than that of the I.I. camera by about 40,000 times. Blue-green photons, emitted from oxygen, are considered to be detected by I.I. However their intensity was very small. Therefore, the peak in Fig. 5 was buried completely by the red to near infrared rays in Fig. 6. It would be necessary to consider the difference of intensities between blue-green and red-near infrared rays if healing effects are to be detected.

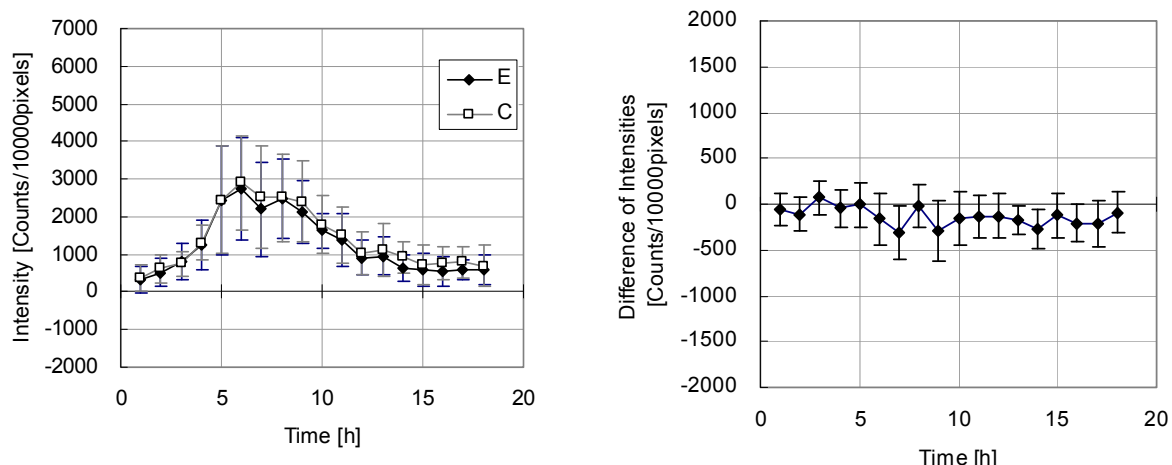


Fig. 5 Time transition of average of all data of I.I. measurements (n=16) [280-650nm]

Left: Intensity and SD (E: experiment. C: control). Right: Difference of intensities and 95% confidential intervals (n=16).

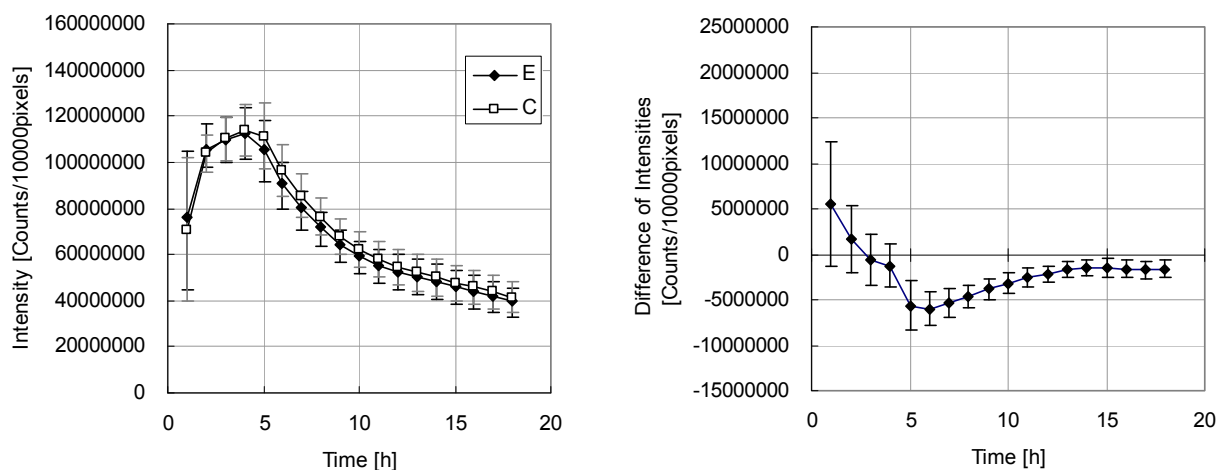


Fig. 6 Time transition of average of all data of CCD measurements (n=20) [400-1000nm]

Left: Intensity and SD (E: experiment. C: control). Right: Difference of intensities and 95% confidential intervals (n=20).

3.3 Spatial Distribution

In CCD measurements, the most brilliant part was the side surface of cucumber (Fig. 7 Left). Many chloroplasts are located there. Strong photon emission was possibly caused by biochemical reactions related to photosynthesis because treatments were done under room lighting. Additionally, the photon intensity was large around the seeds, in a ring-like pattern of the middle area of a sample cross section (Fig. 7 Right), 4 or 5 h after the start of measurements. However, the reasons are unknown yet.

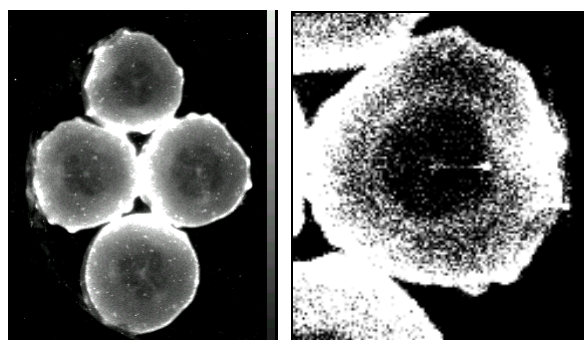


Fig. 7 Spatial distribution of photon emission for 18h and an enlarged photo 5h after the start of measurements (CCD)

4. Discussion and Conclusions

The authors researched effects of 70GHz millimeter wave treatment against biophotons emitted from pieces of cucumber. There were no obvious effects. However, there are possibilities to detect effects if different wave lengths or increased power are used.

In the present study, healing effects could not be detected by red to infrared rays. One of the reasons may be interference from photosynthesis which is activated by room lighting. If samples are kept in a dark room and all healing treatment processes are also executed in the dark room, it may be possible to detect a healing effect in the range of red to near infrared rays.

In the measurement by red to near infrared rays, there is a difference in photon intensities between the growing directions of samples. This suggests that ways of arrangement and making sample pairs should be done intentionally and that careless randomization should be avoided.

Because the time transition of photon intensity is difference among parts of a sample, further studies on tissue or structure of samples are needed.

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