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Research Article

Improvement of Rice Plant Harvest by Specially Processed Water

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Abstract

Most people show the interest sunlight for growth of a plant, although it is essential condition, there is nothing to say. And water is not much than light. Here we focus on the water, but not in because of H_2O itself. We are interested in the pico-sized particle similar to an elementary particle after treatment of the smoked charcoals. This report describes the following one that we discussed the August conditions in the last time. The growth of the rice plant in Uonuma location is unique, and the rice yield is in an activated field with smoked charcoals. The harvest is about twice than in the control field. We discuss that the cause is function of chlorophyll, namely water absorbing efficiency by a plant improves because of the small size of water.

Keywords: activation of rice field; growth of rice; rice yield; pico-sized water; chlorophyll function

Introduction

We checked the growth of rice field in August and reported the growth status in the previous article of this Journal [1]. We found the good results of the rice plants as compared with those in the control field. The function of SIGN water (Spin Information Gauge- field Network) caused the status, which possesses the pico-sized particle similar to an elementary particle after treatment of the smoked charcoals activated with SIGN water. We found promising results for the rice plants compared with those in the control field in October.

In October, they harvested the rice plants in Minami Uonuma (Niigata Prefecture) and obtained more than twice harvest compared with the control rice. Here we report even one area of the field. We discuss that the cause is function of chlorophyll, namely water absorbing efficiency by a plant due to the small size of water.

Methods

We followed the rice growth since August, shown in Figure 1. We tested five rice plants from the activated field and the different field as a control. The size of the field is 30X30m.

We dried them at room temperature weighed the rice from each place.

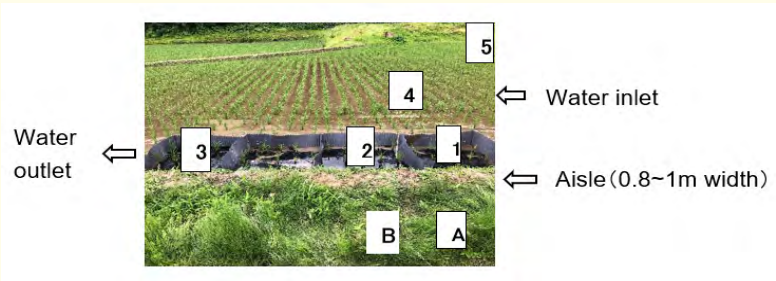

Figure 1: A and B describe the control field across the aisle. No.1 to 5 are the activated one.

Results and Discussion

Power of pico-sized water

The SIGN water has the characteristics of unique size effects and chemical reduction. We reported these functions of CO_2 reduction [2], keeping foods fresh [3] and [4]. Any plant possesses three times more aquaporin proteins than an animal, which only water can squeeze [5, 6]. SIGN water can quickly go through the narrow parts in aquaporin protein due to the pico-size. Furthermore, we presume the SIGN water forms the particle such as $<H^+ \sim e^->$ [7], and I name it infoton generated after the dissociation of hydrogen-bonds of water. We found that the infoton oscillates between H^+ and e^- emitting the electromagnetic wave of far-infrared through terahertz (0.6~12 THz) [3, 4]. We discussed the stability of the pico-sized water with quantum mechanics [8], and on the daily-life usage of SIGN water.

Rice yields

We measured the dried rice of weight change in each place of the rice field for four days shown in Table 1. The average value in the control field was 145.7 g. Meanwhile, the activated field indicated the average value of 267.2 g which A and B; control rice field, and No. 1 to No. 4 are the location in the activated rice field.

Location		***A***	***B***	***1***	***2***	***3***	***4***	***5***
Date	9/28 start	160	155	180	215	320	210	200
	2nd day	150	140	175	210	310	200	185
	3rd day	140	140	170	200	290	195	185
	4th day	140	140	170	200	280	195	185
	Average	147.5	143.8	173.8	206.3	300	200	188.8
Number of the stems		20	24	20	27	36	23	28
Wight of	Rice firs (g)	35	44	52	45	84	45	58
	Average(g)	27.5	34	36	36	60	34	43

Table 1: The yield of rice firs and stems of the plants.

Means approximately twice much compared with the control one. As shown previously, we found how stretching the roots of the activated rice plants in August were remarkably more than the control one [1] and show the part of it in Figure 2.

The rice firs in the activated field yielded 1.4 times more than the control.

Figure 2: The definition of rice stem. We call them two stems; the upper is the stem in the control rice field, and lower stems grew in the activated area. We referred to the photo from Ref [1].

We can recognize the growth and the rice yield are better in the activated rice field. We consider that the significant reason is water absorption due to the pico-sized particle. As the result, chemical reduction progresses effectively. We show another piece of evidence after the rice plant harvest in Kumamoto Prefecture (thirty-two latitude) where we visited to activate one of the rice fields in 2019. We show the results in Fig. 3. At that time, we did not measure the rice yield.

Here are the geographical conditions of the two locations;

We obtained the similar results three years ago and a different location in Kumamoto, southern part of Japan. By the way, Niigata Prefecture is a heavy Snowfall-Zone, 38 degrees in latitude and 18.4% of sunshine hour in a year. Meanwhile, Kumamoto Prefecture in Kyushu Island of 32-degree latitude and the sunshine hour is 24.3% in a year. The weather conditions are essential for rice growth, mainly, corresponding to their stage of development.

Namely, high temperature and high humidity are necessary for growing and stem separating a rice plant after planting in May and rainy days, and much isolation after bloom in summer. Then, starch ($C_6H_{10}O_5$) is actively produced. So, rice plant fits very well in Japan, where a plant stores carbohydrate generated by photosynthesis.

Figure 3: Rice roots from the activated field and control one (Kumamoto Prefecture, 2019/10). SP: activated rice area and CON indicates the normal water provided.

Chemical reduction of SIGN water

The second point is the reduction property. It is well-known photosynthesis which can produce glucose and oxygen from CO_2 and water; namely,

$$CO_2 + 4H \rightarrow CH_2O + H_2O.$$

The infoton possesses chemical reduction property. We reported the typical evidence of CO_2 reduction of -26.5% in the car-exhausted gases [2] and we found the O_2 formation and the CO_2 reduction without sunlight by a plant or seeds [3, 4, 9]. We quantify the reduction power of SIGN water with an OR meter (Oxidation-Reduction Potential meter) [11]. An OR measurement is the precious method to visualize SIGN water which possesses the reduction property.

By the way, the oxidation-reduction potential of water is +0.81eV (electron volt) corresponding to approximately 200 THz, which is energy of a near-infrared electromagnetic wave (~3μm).

Photosynthetic capacity

It is almost a hundred years since the structure of chlorophyll was invented by R. M. Willstätter (1913). R. Hill proved that oxygen is evolved during the light requiring of photosynthesis [10, 11]. He also contributed significantly to developing the Z-scheme of oxygenic photosynthesis [12].

We refer the photosynthetic capacity (P_{max}) to describe the leaves of rice plant which forms glycerate 3-phosphate (three carbon) (Fig. 4). The value of P_{max} is defined as the photosynthesis velocity representing the amount of chlorophyll in the fixed condition of light and temperature. It is written in mg $CO_2/dm^2 . h$ [13].

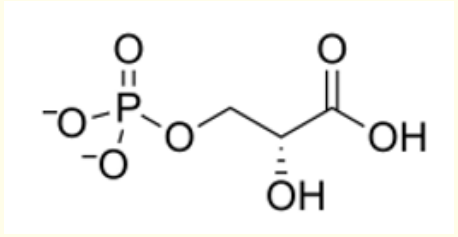

Figure 4: Glycerate 3-phosphate (ref. Wikipedia).

The plants forming C3 compounds are rice plant, wheat, and soybeans.

Sunflowers show P_{max}, 49~51, rice plant, 34~47, and soybeans, 22~43.

As the reference, wheat shows 28~49 [13-16]. A rice plant showing the larger values P_{max} has an important meaning which meets appropriate climate in Japan; namely, a rice plant is precious to the food crisis in Japanese future if we care an agriculture and farm.

It is famous that they recently researched artificial photosynthesis [16]. Some on the development of water splitting leads to the catalysis integrating Z-scheme [17]. They focus on the development of catalysis for giving light energy to a plant, namely, try to find a catalyst [18, 19]. On the other hand, the research to drive oxygenic photosynthesis relates to the cytochrome b_6 f complex [20]. We discussed the chlorophyll as the basic science in terms of water rather than light (or sunshine). Moreover, our exciting theme is the germination and growth of a plant without sun light [9, 21].

Conclusion

We report the recent rice plant status in Niigata Prefecture after August. We obtained evidence of the beginning growth and rice yield after activated rice field, which indicate twice more than the control field. Next year we expect the increasement of the activated rice field. We discuss the effect of a pico-sized SIGN water to result in better chlorophyll functions.

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