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Review Article

An Enclosed Plant Terrarium is a Renewable Source of an Aqueous Form of Hybrid-Plasma

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Abstract

Introduction: In previous reports we described a newly discovered non-thermal plasma formed without input of external energy. Moreover, this Hybrid- plasma consisted of the gas/water combination. In the present study we used the gaseous form to produce a mainly aqueous Hybrid-plasma.

Methods: A dehumidifier was activated and placed in a sealed plastic container holding twelve broad leaf plants in which maximum levels of ion counts and humidity had been registered indicative of the presence of Hybrid-plasma gas. After 24 hours, the device was removed and 100-125 cc of water was collected. When the ion counts and humidity returned to initial levels in the plant container, the water extraction process was repeated (n=7).

Protocol 1: Cut flowers of pink carnations were obtained from a local garden center. Two beakers were filled with either 150 cc of distilled water or dehumidified water. Branches with buds starting to flower were photographed daily for 10 days.

Protocol 2: Distilled water, 150 cc was placed in snap cover plastic containers (n=5). Another set of 5 were similarly filled with the dehumidified water. Both sets were instrumented with hygrometers.

Results: After dehumidifying, the percent changes of the ion count and humidity values from starting levels averaged 36% and 41%, in the enclosed plant terrarium respectively. After 24 hours the ion count was restored to maximum levels and humidity registered close to 90% after 7 iterations. After 10 days the bud in tap water had blossomed into a full grown flower, buds in Hybrid-water was essentially the same as at the start of the study. After 24 hours humidity in all plastic containers with dehumidified water registered 99% whereas the humidity in the distilled water containers ranged from 89-92%.

Conclusions: The aqueous form of Hybrid-plasma can be extracted from a gaseous form by using a dehumidifier. Flower buds grown in Hybrid-water fail to bloom whereas those in tap water blossomed over the same time period. Placed in a sealed container, Hybrid water uniformly registered maximum levels (99%, n=7); Distilled water values ranged from 89-92%.

Introduction

In previous publications we described 3 different methods for producing a new form of non-thermal plasma, Hybrid-plasma, part water/part gas [1,2,3]. In the present report we developed a method to convert the gaseous Hybrid-plasma to the aqueous form, which allowed us to determine potential anti-ageing properties of hybrid-plasma water.

Methods

The enclosed plant terrarium

Twelve healthy, watered broadleaf plants were placed in a large 19 quart plastic container and sealed with snap closers. After 24 hours, we noted that the container showed maximum negative ion levels (>3 million counts /sec) immediately when introducing a sensitive ion counter (Andes, Air Ion Counter,101A*) and a hygrometer which indicated 90+ absolute humidity. These high levels of ionization and humidity, the signature of Hybrid-plasma, remained stable for the next 10 days, when monitored daily.

Formation and collection of aqueous hybrid-plasma

A dehumidifier (Lonove, MD399-color) was activated and placed in the plastic container and resealed. After 24 hours, the device was removed and 100-125 cc of water that had been collected was decanted into a clean glass jar. The ion counts and humidity was registered as mentioned above. After another 24 hours another ion count and humidity in the plant container were noted. This process continued for seven iterations until enough experiments were performed for determining reproducibility and collection of water.

*The maximum ion count that registered for this instrument was $2999X10^3/cm^3$

Protocol 1

Cut flowers of pink carnations (Dianthus caryophyllus) were obtained from a local garden center. Two beakers were filled with either 150cc of tap water or Hybrid-plasma water. Two branches with a flower at the end were placed into each of the two beaker. Branches with only buds were distributed similarly. Daily photographs were taken each day. Selected buds which initially showed early flower development in each group were compared at the end of 10 days.

Protocol 2

Two different sized plastic containers, 3.4 ounces, 9.6 quarts respectively, were filled with150cc of dehumidified water from the same source as described above. The same amount of tap water was added to a similar set of containers. Hygrometers

were added to each container placed above the water level.

Results

At 24 hours, after removing the dehumidifier from the enclosed plant container, we noted the humidity and the ion count. Table 1 no parenthesis, (Table 1) shows the average reduction of humidity and ion counts 2 minutes after the humidifier was removed. The percent changes of the ion count and humidity from previous levels averaged 36% and 41%, respectively. After 24 hours the ion count was restored to maximum levels and humidity registered close to 90% after seven iterations of the process described above.

Table 1: shows the average reduction of humidity and ion counts 2 minutes after the humidifier was removed.

% Change in Ion Counts and Humidity		
Exp #	Ion Count	Humidity
1	75	50
2	38	56
3	50	11
4	21	51
5	19	62
6	45	43
7	30	12
Average	36	41

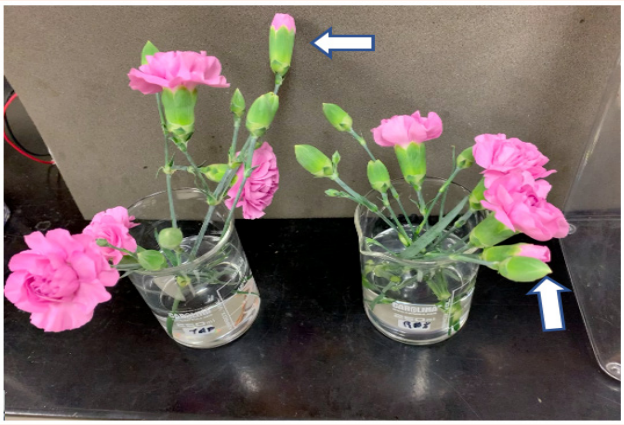

Figure 1: shows the appearance of the bud from each beaker at the start of the comparison (arrows).

Figure 2A Figure 2B

Figure 2A, 2B: shows the comparison after 10 days. The bud in distilled water has blossomed (arrow) 2A; whereas the bud in Hybrid-plasma water has barely grown (arrow) 2B.

Protocol 2

After 24-48 hours the container with Hybrid-water all showed humidity levels at maximum for these hygrometers, 99%; Whereas the humidity in the containers with tap water registered between 89-92%.

Discussion

Major findings

Based on a previous method for producing a Hybrid-plasma environment registering an ion count over 3 million ions/ sec and an average humidity >90%, we introduced a dehumidifier to extract water over a 24hour period. Ion counts were reduced by an average of 36% and humidity averaged a 41% decrease. Over a 10 day period, we compared cut carnation flowers with buds growing in tap water and those grown in the water extracted from Hybrid-plasma (mainly gas). Buds in tap water blossomed into flowers whereas those in Hybrid-plasma water barely grew at all.

Background

Our previous publications have documented 3 methods for producing our newly discovered non-thermal plasma, Hybrid-plasma (Patent pending). The standard method for producing non-thermal plasmas consists of the application of energy, usually electrical discharges, into a gas. These plasmas have short lifespans of seconds. In contrast, Hybrid-plasma is derived from confined free water molecules whose kinetic interaction produces a stable ionization energy field that can be accumulated and stored for multiple experimental studies. In the present report, we have demonstrated that extracting water, from a gaseous form of Hybrid-plasma environment significantly reduced ionization and humidity levels. We hypothesize that the dehumidified water is the counterpart of the mainly gaseous Hybrid-plasma and represents the mainly aqueous form, we call Hybrid-water. As evidence for this hypothesis we found that growing cut flowers and buds of carnations in "Hybrid-water" for ten days demonstrated an anti-ageing effect (slow growth). Buds grown for the same time period in tap water, produced a carnation blossom (Figures 1 and 2A, 2B). In addition, we used the dehumidified water in the same way as we produced the gaseous Hybrid plasma, Specifically, we placed 150cc of dehumidified water in plastic containers with hygrometer above the water level and sealed with snap covers. After 24-48 hours the container with Hybrid-water all showed humidity levels at maximum for these hygrometers, 99%; Whereas, the humidity in the containers with tap water registered between 89-92%. These findings provide evidence that the extracted form of Hybrid-plasma contains significantly greater proportions of water than gas in this newly discovered Hybrid-plasma, i.e., a combination of water and gas.

Potential Implications

To extrapolate an anti-ageing property of Hybrid-water in plants to a similar effect in humans seems like a daunting task. What evidence can provide a link for such a hypothesis. It is well known that there are 5 Blue zones globally where inhabitants with recorded lifespans of 100 years or more. An extensive investigation searching for factors underlying the basis for longevity common to these so-called Blue zones was completed by Buettner and Skemp [4]. The authors cited multiple common traits that might account for the longevity of this singular cohort including such factors as diet, work ethic, social bonding among others. It is interesting to note that one common element that is found in all the blue zones are various forms of water. The majority of these sites are coastal surrounded by water, Interestingly, all have hot water springs in caves known for their therapeutic properties. Ocean spray from waves breaking on the shore are known to produce negative ions by a process known as spray electrification [5,6]. The role of negative ions on enhancing human overall health that is associated with longevity has been documented in an extensive review by Jiang et al [7].

Limitations

In the present study a dehumidifier using electrical energy extracted water from a mainly gaseous Hybrid-plasma environment which resulted in a mainly aqueous form of Hybrid-plasma (Hybrid water). In contrast, we have published several methods for production of Hybrid gas which required no input of external energy [1-3]. Our ongoing studies are directed at methods for producing substantial amount of Hybrid water also without application of an external energy source.

Conclusions

The aqueous form of Hybrid-plasma can be extracted from a gaseous form by using a dehumidifier When cut carnation flowers and buds were grown in tap water or hybrid water, buds in the former blossomed whereas, buds showed little, if any, growth in the hybrid water, indicative of an anti-ageing property. Hybrid-water which was allowed to form Hybrid-gas/water invariably showed humidity levels of 99%; Whereas the humidity in containers with mainly gaseous Hybrid-plasma derived from tap water registered levels between 89-92%.

References

1. Scherlag BJ, Scherlag RA, Scherlag A, Po SS (2020) Molecular Filter for Free Water Molecules: Water through Glass. Lett Health Biol Sci 5(1): 4-7.
2. Scherlag RA, Brush RS, Agbaga MP, Elkholey K, Po SS, et al. (2020) Confined Water for Passive Generation and Accumulation of Non-Thermal Plasma. Environ Sci Ecol: Curr Res 3: 1047.
3. Scherlag BJ, Scherlag RA, Po SS (2022) Another Method for Producing Hybrid-Plasma: The Hidden Science of the Enclosed Plant Terrarium. Environ Sci Ecol: Curr Res 3: 1051.
4. Buttner D, Skemp S, Blue Zones (2016) Lessons From the World's Longest Lived Am J Lifestyle Med 10: 318-321
5. Kolarz P, Gaisberger M, Mad P (2012) Characterization of ions at Alpine waterfalls Atmos ChemPhys12: 3687-3697.
6. Beattie JK (2016) The mechanism of spray electrication: The waterfall effect Published: 13 Atmos Chem Phys.
7. Jiang SY, Ma A, Ramachandran S (2018) Negative air ions and their effects on human health and air quality improvement (2018) Int J MolSci 19: 2966-2984.