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The Effect of Faradarmani Consciousness Field on Several Growth Parameters of Wheat Plant in Microgravity and Earth's Gravity Conditions

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Abstract

Faradarmani Consciousness Field (FCF) has been introduced by Mohammad Ali Taheri as a non-material and non-energetic field that can have observable effects on various subjects. These effects can be investigated by designing different experiments. Gravity affects the growth and morphogenesis of plants, so in microgravity (MG) conditions in space, these processes are completely affected. This study aimed to investigate the effect of this FCF on the growth of wheat seeds under MG and normal Earth's gravity (NG) conditions. For this purpose, after three days of wheat seed growth in NG, half of the samples were transferred to the clinostat device at 40 rpm for 96 hours. Samples without the effect of the FCF were considered as controls. Some growth traits such as root and shoot length and fresh and dry weight of the samples were measured. The results showed that the changes of these growth parameters in the microgravity environment were not significant compared to the NG condition. The application of the FCF caused a significant increase of 65% average length of roots and shoots NG. In the MG environment, changes under the influence of the FCF were not statistically significant. These observations indicated that the application of FCF on samples under NG and MG conditions resulted in different outcomes. It is suggested to conduct more experiments to investigate the effect of FCF on the biochemical parameters of the plant under altered gravity.

Keywords: Faradarmani Consciousness Field, Microgravity, Wheat

Introduction

Earth is known as a special planet in the solar system and the only place in the universe that can host life. It is not only a human habitat, but also provides a suitable environment for the life of various organisms, from plants and animals to microorganisms.

Living organisms, including plants, have always been subject to gravity, and this force has played a role in the development and formation of their organs. Thus, it is expected that the processes of morphogenesis and growth will be affected due to exposure to microgravity (MG) conditions in space (1).

Over the past few decades, various experiments have been conducted to investigate the changes in the shape and growth parameters of different plants. For example, the D1 space lab experiment showed that cress roots grow in different directions compared to control roots in Earth's gravity (2).

In addition, it has been shown that plants can grow and reproduce under microgravity conditions, such as seed-to-seed growth of *Arabidopsis* (3) and wheat (4). Apart from collecting basic information about plant behavior and response to gravity in the growth process, these experiments can help astronauts in some aspects. For example, future space explorations, such as missions to the moon and Mars, need a life support system, and plants can provide fresh air and food production for humans (5). The purpose of this study is to investigate the effect of Faradarmani Consciousness Fields (FCF) on several growth parameters of wheat seeds in both earth's gravity and microgravity conditions.

Materials and methods

Using Faradarmani Consciousness Field: It was done according to the explanations provided in the considerations section of this issue.

Preparation of Samples and Application of Microgravity

Wheat seeds (*Triticum aestivum L.* cv. Rakhshan) were obtained from Karaj Seedling and Seed Breeding Institute, Alborz province. First, the seeds were sterilized using 1.75% NaOCl for 10 minutes, and then they were washed twice with 95% ethanol.

In the next step, eight seeds were placed in each Petri dish containing agar (1.5 g agar/100 ml) and arranged in one direction. At this stage, the seeds absorb water, and then parafilm was used to stick the lid on the Petri dishes.

A gap was considered between the lid and the Petri dish to allow access to oxygen. After that, it was time to rotate the Petri dishes vertically, a holder was used to do this, and it was ensured that each Petri dish was aligned with a reference line drawn on each plate to show the direction of the gravity vector.

The holders were then placed in the growth chamber at 25 °C, 50 lux light intensity and 80% humidity for three days. After that, the plates containing the germinated seeds were divided into two groups (n= 4 plates in each group). (1) normal earth's gravity (NG) and (2) samples exposed to MG in the clinostat. These groups were divided into two sub-groups: seeds treated with FCF and those without it.

Samples without the effect of FCF were served as controls. The plates were rotated in the clinostat for 96 hours at 40 rpm (2). All the processes in this experiment were performed according to the standard preparation method specified in UNOOSA for Plant Experiments (United Nations, 2013) (6).

Some growth traits such as the length of roots and shoots and fresh and dry weight of seedlings (shoots + roots) were measured. To measure the dry weight, the samples were dried for 24 hours in an oven at a temperature of 105 °C and weighed with a digital scale with three zero accuracy.

Statistical analysis

All statistical analyses were performed using GraphPad 9 software. Each measurement was performed three times, and the results were presented as mean ± standard deviation. To determine statistical significance, two-way ANOVA test was performed and p-value<0.05 was considered as the threshold of statistical significance.

Results and discussion

In Figure 1, the changes related to the length of shoots and roots in microgravity and earth's gravity conditions are shown. As can be seen, the samples under the influence of the FCF showed a significant increase in length.

However, in the clinostat environment, although an increase in growth is observed compared to the earth's gravity, the changes were not significant and the behavior of the sample under the field and control was almost similar.

Changes related to the fresh and dry weight of samples were not significant. The lowest value according to the diagram corresponds to the samples under the field in MG conditions.

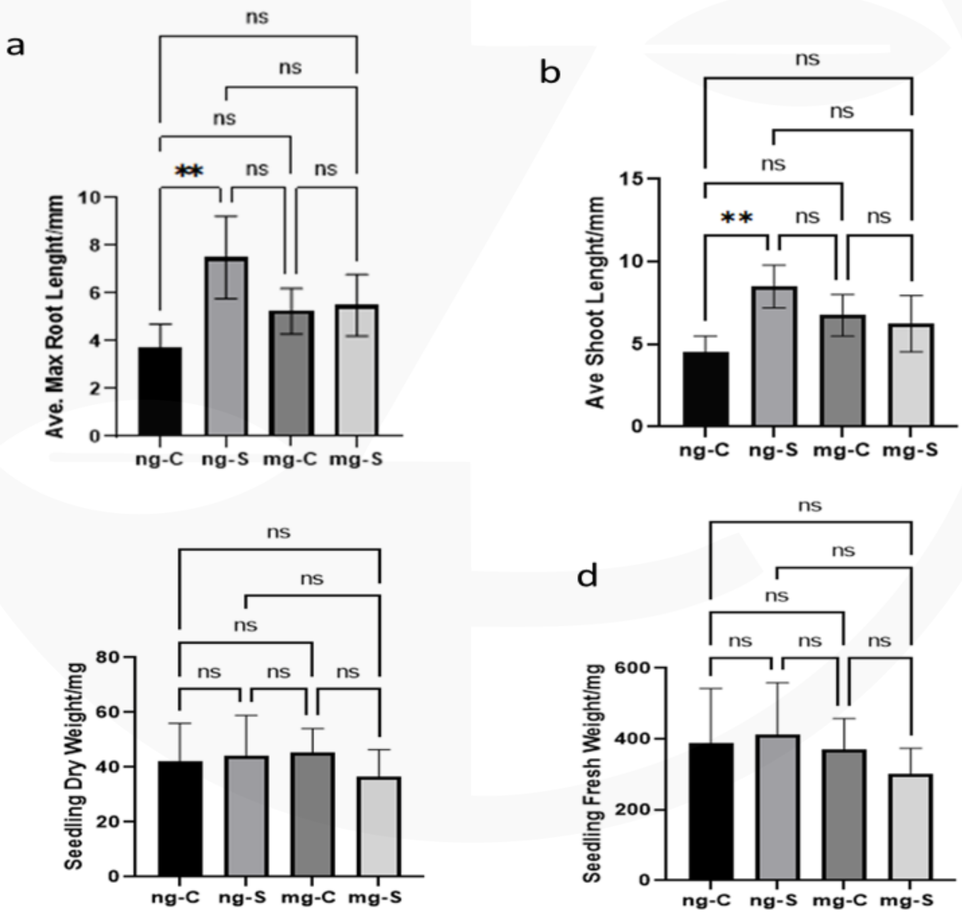

Figure 1. Changes related to the length of roots (a), (b) shoots, dry weight (c) and fresh weight of seedlings (d) in normal earth's gravity (ng) and microgravity (mg). ng-C: control under normal Earth's gravity; ng-S: samples under FCF treatment in normal Earth's gravity; mg-C: control under microgravity; mg-S: samples under FCF treatment in microgravity. *: p-value<0.05, **: p-value<0.01.

This observation is in agreement with previous studies; For example, it has been confirmed that plant cells in Earth's gravity must consume energy to adapt to this mechanical load, while under microgravity this energy may be used in the biosynthesis of some metabolites for growth (7).

Also, it has been revealed that MG stress induced elongation growth (8). In normal earth's gravity, the application of the FCF caused a significant increase in root growth. Based on previous findings, plants with longer primary roots have better resistance to abiotic stresses such as salinity and drought (9). According to the previous experiment, we observed that the wheat plant under the effect of FCF had better resistance to salt stress (10).

In conclusion, in addition to the fact that the effect of FCF is confirmed in this experiment, according to the results obtained, it can be understood that this field leads to different results in altered gravity conditions. Therefore, to better understand this field, it is suggested to conduct more experiments in hyper-gravity and microgravity environments, and other biochemical parameters, such as changes in plant hormones, should also be investigated under this field.

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