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The First Scientific Journal in
T-Consciousness Research



T-Consciousness Fields and Their Application in Microbiology

Mohammad Ali Taheri
Originator of T-Consciousness Theory

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Editorial

T-Consciousness Fields and Their Application in Microbiology

Mohammad Ali Taheri
Founder of T-Consciousness Theory



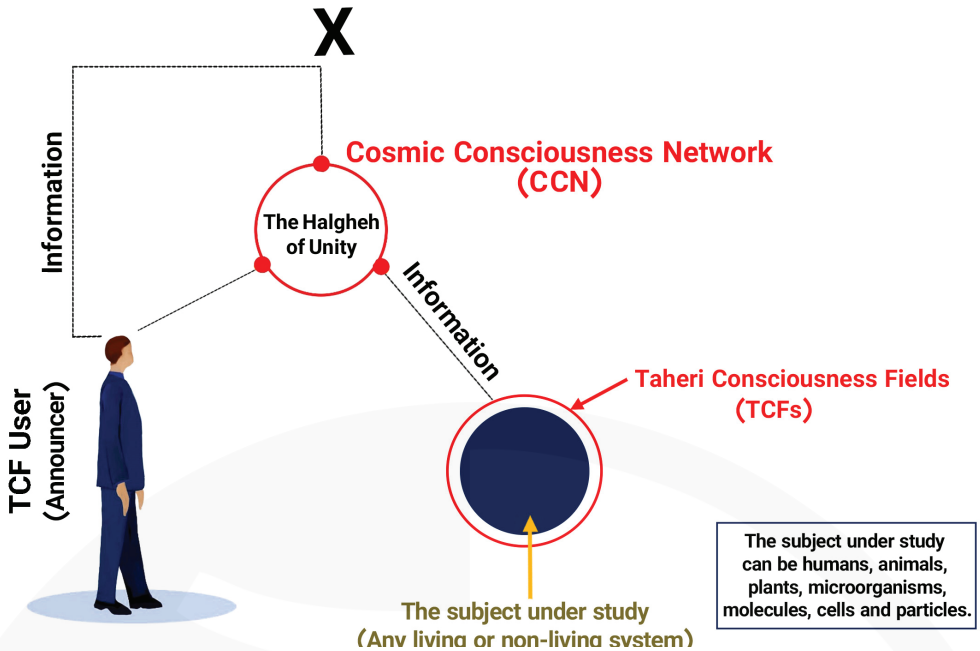
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Consciousness is one of the most complex topics discussed across various scientific fields. Researchers have made extensive efforts to understand its nature, role, and function; nevertheless, no single, shared definition has yet been established. Here, a new theory is presented in which consciousness—nonphysical and non-frequency in nature—is considered the fundamental component of the cosmos and the source of matter, energy, and information. To distinguish this theory from the numerous other theories in the field, the keyword T-Consciousness is used. In this view, in addition to humans and organisms with brains, single-celled organisms, microorganisms, and even inanimate particles possess a degree of consciousness.

In general, conducting practical experiments and providing empirical evidence are among the greatest challenges faced by theories of consciousness. According to the T-Consciousness theory, various T-Consciousness Fields exist with different functions, all of which are subsets of the Cosmic Consciousness Network. These fields have a non-frequency nature, and their effects are initiated through an announcement made by an announcer, referred to as a Faradarmangar. By designing diverse experiments across various domains and documenting the effects of T-Consciousness Fields, it becomes possible to empirically examine this theory.

In this issue, with a focus on microorganisms, multiple studies have been conducted and the results of altered behaviors in various microorganisms are reported. Briefly, the effect of the Faradarmani Consciousness Field on bacterial populations led to changes in growth and metabolic activity. Different effects were also observed on bacterial antibiotic resistance, fungal responses to antifungal agents, and changes in the titers of various viruses.

In addition, this issue includes an animal study examining the effect of the T-Consciousness Field on antibody levels following vaccination against foot-and-mouth disease, with enhanced immunity reported. The hypothesis is that the information transmitted through T-Consciousness Fields can induce changes in the subject under study. The observation that these fields exhibit different effects in culture media (*in vitro*) compared to within living organisms (*in vivo*) suggests that different types of information are transmitted under different conditions. Researchers in this field are invited to conduct further experiments to replicate and expand upon these findings.



A schematic on applying T-Consciousness Fields (TCFs). The effect of TCFs begins with connecting to the Cosmic Consciousness Network (CCN) and through the TCFs user (announcer). Variable T-Consciousness Fields are a subset of CCN, and by applying each TCF, specific information is transmitted. In this way, the subject of study, which can be living or non-living creatures, is exposed to this information. It should be noted that TCFs and the information do not have a material or energetic nature; therefore, they cannot be measured directly and quantitatively. However, it is possible to record and examine their effects by designing different experiments. For this purpose, the behavior or indicators measured by the researchers in the subject under study after being exposed to the TCFs are compared with the control samples (without the effect of TCFs), and the results are reported after statistical data analysis.

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Considerations of This Issue

1- Common introduction

1-1 T-Consciousness and the New Science of Sciencefact

In the past few decades, the nature of Consciousness and its place in science have received much attention. Many philosophical and scientific theories have been presented in this field. In the 1980s, Mohammad Ali Taheri introduced new fields of non-material and non-energy nature, which are called T-Consciousness Fields (TCFs). In this view, T-Consciousness along with matter and energy are the three main elements of the universe and it is different from the other two elements. According to this theory, there are various TCFs with different functions that are a subset of the Cosmic Internet Network called the Cosmic Consciousness Network (CCN).

The main difference between the theory of TCFs and other theoretical concepts presented in relation to consciousness is the application and practical use of TCFs. These fields can be applied to all living and non-living organisms, such as plants, animals, microorganisms, materials, etc. The new science of Sciencefact was introduced in 2020 by Mohammad Ali Taheri, the founder of the Erfan-e-Keyhani-e-Halgheh school, as one of the subgroups of this school. The name "Sciencefact" was chosen because it uses scientific research to confirm the existence of T-Consciousness as a "fact". Although common science only considers the study of matter and energy, Sciencefact investigates the effects of T-Consciousness Fields (which are neither material nor energy) on matter and energy and all their manifestations (such as humans, animals, plants, microorganisms, cells, materials, etc.). By conducting repeatable laboratory research in various fields of science, Sciencefact has emerged as a common ground between them and uses this capability to investigate "T-Consciousness" and "T-Consciousness Fields" resulting from it.

The influence of the T-Consciousness Fields begins with the connection (Etesal) between the Cosmic Consciousness Network as the Whole Consciousness and the studied subject as a component. The connection is established by the mind of the Faradarmangar (a person who has been trained to assign TCFs). The human mind has the role of an intermediary (announcer) that acts with short and immediate attention to the subject of study, and the main achievement is achieved as a result of the effects of the T-Consciousness Fields. These fields cannot be directly measured by science, but their effects on various subjects can be investigated through repeatable experiments.

1-2 Methodology of T-Consciousness Fields Research

The research methodology in the study of T-Consciousness has been founded on the process of *Assumption, Argument,* and *Proof,* in which the basic Assumption is: The Cosmos was formed by a third element called T-Consciousness that is different from matter and energy.

The Argument: The existence of TCFs can be demonstrated by their effects on matter and energy (e.g., humans, animals, plants, microorganisms, cells, materials, etc.)

The Proof is the scientific verification of the effects of TCFs on matter and energy (according to the Argument) through various reproducible scientific experiments.

1-3 Study phases in Sciencefact

Accordingly, to investigate and verify the existence, effects and mechanisms of TCFs, the following five research phases (Phases 0 to 4), and the aims of each phase are outlined below.

In Phase 0 of the studies, the goal is to demonstrate the existence of TCFs by observing their influence on matter and energy. The nature of T-Consciousness and what it is will not be addressed in this phase. Phase 1 is dedicated to exploring various effects of different TCFs. In Phase 2, one examines the reasons behind the effects of these fields. Then, during Phase 3, the mechanisms of TCFs' effects on matter and energy are investigated. Finally, the goal of Phase 4 is to draw conclusions, particularly with regard to the mind and memory of matter and their relation to T-Consciousness, etc.

1-4 Using T-Consciousness Fields

The samples under study were subjected to TCFs according to the specified protocol on the website of Research Management on Consciousness Fields (www.cosmointel.com). The request for *Etesal* (connection) to the Cosmic Consciousness Network to use TCFs can be submitted through the Cosmointel website in the "Assign Announcement" section. This access is freely available to everyone. Researchers can register on this website anytime to experience TCFs and conduct research in this area. Detailed information about the experiment needs to be provided to the research center; for example, the number and names of samples and controls must be specified. These studies were conducted in a double-blind manner, where lab technicians were completely unaware of TCFs theory, and the Faradarmangar at the COSMOintel research center who established the consciousness bond was unaware of the details of the study. Double-blindness is a gold standard that is common in science experiments in the field of medicine and psychology, involving theoretical and practical testing.

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Influence of Faradarmani Consciousness Field on Bacterial Population Growth

Mohammad Ali Taheri[1], Gholamreza Zarrini[2], Sara Torabi[3], Noushin Nabavi[4], Farid Semsarha[5]

* Corresponding author: Farid Semsarha
Email: Semsarha@ut.ac.ir

1. Sciencefact R&D Department, Cosmointel Inc. Research Center, Ontario, Canada
2. Department of Biology, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran
3. Department of Plant Biology, School of Biology, College of Sciences, University of Tehran, Tehran, Iran
4. Research Services at University of Victoria, BC, Canada
5. Institute of Biochemistry and Biophysics (IBB), University of Tehran, Tehran, Iran

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Abstract

The treatment of bacterial infections, along with the rising threat of antibiotic resistance, represents a major global concern and a fundamental challenge in both basic and clinical microbiology. In the present study, we examined the effect of the Faradarmani Consciousness Field—described as having a non-material and non-energy nature—on bacterial populations. Bacterial growth in control and Faradarmani-exposed groups was assessed using turbidity measurements, colony counts, and tetrazolium chloride reduction. The results showed that the Faradarmani Consciousness Field reduced the growth of several bacterial strains (by up to 46%). Additionally, along with reduced bacterial populations, evidence of increased viability (up to 60%) was observed when the cultures were maintained under test-tube conditions. This observation suggests that the effect of the Consciousness Field may vary depending on environmental conditions. Overall, this experiment demonstrated that bacterial behavior changed under the influence of the Faradarmani Consciousness Field compared with the control. Further studies are needed to investigate the mechanism underlying these effects.

Keywords: Faradarmani, T-Consciousness Fields, laboratory bacteria, clinical bacteria, viability assay

Introduction

Bacteria existed long before humans as the first forms of life on Earth, with the need to adapt to environmental conditions and changes over time. Many bacteria use quorum sensing (QS) to control their gene expression in response to population density. During specific stages of growth, or in response to environmental stresses, bacteria produce signaling molecules that reach a threshold concentration and activate regulators that can induce or repress target genes (Frederix et al., 2011). Bacteria, through the development of communication capabilities (e.g., quorum sensing, chemotactic signaling, and plasmid exchange), achieve better adaptability to growth conditions (Ben-Jacob, 2003). Additionally, bacteria can form structured colonies to increase their benefit from accessing resources—an advantage that individual bacterial cells cannot effectively utilize (Shapiro, 1998).

Much research has been conducted to study bacterial growth properties and characteristics (Schaechter, 2015). It has been demonstrated that bacteria grow in a predictable pattern with four distinct phases when placed in a suitable medium. Initially, bacteria grow relatively slowly (lag phase), before reaching a maximum growth rate more rapidly (log phase). Following that, they enter a plateau phase in which the rates of growth and death become equal (stationary phase). In the final decline phase, the rate of cell death exceeds the rate of growth. The growth curve of a bacterial population is similar to that of other living populations in a restricted environment (Henrici, 1928). By observing the intelligent behavior of bacteria, it has been suggested that they possess the ability for 'linguistic' communication and social intelligence (Jacob et al., 2004).

Antibiotics have been developed to combat disease-causing bacteria, such as those responsible for infections, tuberculosis, gonorrhea, plague, or anthrax, among others. However, bacteria have the ability to become resistant to antibiotics under prolonged selection pressures. According to the Centers for Disease Control and Prevention (CDC) (2014), antibiotic resistance is one of the most serious health threats. Each year in the U.S., at least 2.8 million people get an antibiotic-resistant infection, and over 35,000 people die. Due to the increase in resistance rates to conventional antibiotics, alternative methods such as bacteriophage therapy (Golkar et al., 2014), predatory bacteria (Kadouri et al., 2013), or bacteriocins (Cotter et al., 2013) are being investigated. Additionally, many varieties of compounds produced by plants have proven to have therapeutic potential and antimicrobial effects or to elicit modifications to antibiotic resistance (Sibanda et al., 2007). Another alternative for growth inhibition of resistant bacteria is attenuation of bacterial virulence by inactivating the QS system of a pathogen (Hentzer et al., 2003).

There is limited information available regarding the effects of complementary medicine methods on the growth of bacteria in culture media. This study investigates the influence of the Faradarmani Consciousness Field, which has a non-frequency nature. Mohammad Ali Taheri has introduced this field as a complementary medicine modality, whose effectiveness begins through the mind of the announcer (Taheri et al., 2013).

In previous studies, the effects of Faradarmani CF were investigated on changes in cancer cell growth (Taheri et al., 2020a), electrical activity in the brains of Faradarmangars (Taheri et al., 2020b), and wheat plants under salinity stress (Torabi et al., 2020). In this study, the influence of the Faradarmani Consciousness Field on the growth behavior of different populations of laboratory and nosocomial bacterial strains is investigated.

Material and Methods

Application of Faradarmani Consciousness Field

The use of the Faradarmani Consciousness Field (CF) was carried out according to the protocol established at the CosmoIntel Research Center1[1]. Further details are provided in the Considerations section of this issue.

1. www.cosmointel.com

Turbidimetry of the primary selected bacterial strains at 24 hours

Bacterial growth under the influence of Faradarmani CF was measured by turbidimetry at OD600 nm in tube cultures. For this purpose, 36 test tubes containing 10 ml of Müller-Hinton Broth medium were prepared and autoclaved. Two sets of culture tubes were inoculated with 10^2 and 10^5 CFU/ml of the test microorganisms. Control and treatment samples were placed in separate holders in an incubator at different levels. Sampling of the cultures was performed 24 hours after the start of incubation, with a volume of 1.5 ml taken from each tube.

Bacterial growth analysis at different time intervals

To better interpret the growth behavior of bacteria under the influence of the Faradarmani Consciousness Field, growth changes were measured using three methods: 1) Turbidimetry at OD600 nm, 2) Colony counting, and 3) Measurement of bacterial capacity to reduce tetrazolium chloride. To assess the effect of the Faradarmani Consciousness Field at different time intervals, sampling was performed three times in two separate stages: in the first stage at 6, 16, and 24 hours, and in the second stage at 1, 3, and 6 hours.

In this part of the experiment, and as the first step, eight test tubes containing 10 ml of Müller–Hinton Broth and eight Erlenmeyer flasks containing 20 ml of Müller–Hinton Broth were prepared and autoclaved. In the first stage, microorganisms were cultured in both tubes and flasks under treatment (Faradarmani CF) and control conditions. In the second stage, only growth in Erlenmeyer flasks was considered.

One milliliter of bacteria at 10^5 cfu/ml was added to each tube and flask. Control and treatment samples were placed in separate holders inside an incubator at different levels. The Erlenmeyer flasks were placed on an incubator shaker in separate rows, with the greatest possible distance between treatment and control samples. Sampling from the culture media was performed at 6, 16, and 24 hours (first stage) and at 1, 3, and 6 hours (second stage) after the start of incubation, using a volume of 1.5 ml. At each time point, bacterial growth was evaluated using the methods mentioned above.

For assessing cell viability using tetrazolium chloride in the first stage, 10 µl of a 1 mg/ml aqueous solution was added to 1 ml of the microbial sample, and after one hour of incubation at 35°C, the absorbance of the samples was read at 495 nm. In the second stage, all procedures were the same as in stage 1, except that the concentration of tetrazolium chloride was 100 times higher.

Statistical analysis

In this study, each sample was tested in triplicate, and no samples were excluded. Analyses were performed using SPSS (version 27) and the statistical t-test, with a p-value < 0.05 considered the threshold for significance.

Results

Faradarmani CF Effect on the Primarily Selected Bacterial Strains at 24 Hours

To examine the effect of the Faradarmani Consciousness Field on bacteria, four laboratory strains and five clinical (hospital-acquired) strains were used. The effectiveness, based on the percentage of reduction in microbial populations, is reported in Table 1.

Table 1. Change in absorbance at 600 nm for tube culture at 24 hours, comparing the sample under the influence of the Consciousness Field and the control.

Type of strain	Strain*	Characteristics	%Reduction (Early population: 10^2)	%Reduction (Early population: 10^5)
Laboratory	*E. coli*	Symbiotic (G-)	18.38	8.7
	K. pneumoniae (1)	Symbiotic (G+)	33.78	17.32
	S. aureus (1)	Symbiotic (G+)	24.17	45.04
	B. subtilis	Environmental (G+)	24.4	26.98
Nosocomial	*P. aeruginosa (1)*	Pathogenic (G-)	4.2	6.2
	P. aeruginosa (2)	Pathogenic (G-)	1.7	12.7
	K. pneumoniae (2)	Pathogenic (G+)	5.6	0.7
	S. aureus (2)	Pathogenic (G+)	5.4	0.6
	S. aureus (3)	Pathogenic (G+)	7.6	1

* The numbers in parentheses refer to different strains of a bacterial species.

Based on the results presented in Table 1, among the laboratory bacterial strains at a concentration of 10^5 cfu/ml, the greatest reduction was observed in *S. aureus*, while the smallest reduction at the same concentration occurred in *E. coli*. The changes observed in Gram-positive and Gram-negative bacteria under the influence of the Faradarmani Consciousness Field did not differ considerably. Furthermore, among the clinical (nosocomial) bacterial strains, the greatest reduction in microbial population at a concentration of 10^5 cfu/ml was seen in *P. aeruginosa* (2), and the smallest reduction at the same concentration occurred in *S. aureus* (2). According to the obtained results, the effect of the Faradarmani Consciousness Field on clinical strains was lower than on laboratory strains.

Faradarmani CF Influence on Bacterial Growth at Different Time Intervals

Escherichia coli, Pseudomonas aeruginosa, Staphylococcus aureus, and Bacillus subtilis were used to study the effect of Faradarmani CF treatment on the growth behavior of bacteria. In the first step, the growth of the selected strains was examined at 6, 16, and 24 hours in both tube and Erlenmeyer flask cultures through turbidity measurements, colony counting, and tetrazolium chloride reduction methods. After considering the results of the first step, in the second step, similar studies were conducted at 1, 3, and 6 hours in Erlenmeyer flask conditions through colony counting and the tetrazolium chloride method, as discussed below.

Turbidity measurements

Changes in bacterial populations at different time points were measured by turbidimetry at 6, 16, and 24 hours. The test-tube method is a common approach for studying the antimicrobial effects of antibiotics, whereas the Erlenmeyer flask provides a more suitable growth environment for bacteria due to better aeration and greater uniformity of the culture medium. In this study, both tube and Erlenmeyer flask methods were used to determine the effect of the treatment, and the results are presented in Tables 2 and 3.

Table 2. Changes in absorbance at 600 nm for bacterial tube cultures at 6, 16, and 24 hours.

Type of strain	Strain	OD_{600nm}						Efficacy of treatment (%) (-): Decrease in population (+): Increase in population		
		6 hours		16 hours		24 hours				
		Control	Treatment	Control	Treatment	Control	Treatment	6h	16h	24h
Laboratory	*E. coli*	0.168	0.121	0.436	0.409	0.878	0.950	-27	-6	+8
	B. subtilis	0.023	0.021	0.161	0.148	0.333	0.282	-8	-8	-15
Nosocomial	*P. aeruginosa*	0.121	0.113	0.379	0.125	0.985	0.853	-7	-67	-13
	S. aureus	0.152	0.132	0.157	0.135	0.195	0.192	-13	-14	-1.5

Table 3. Changes in absorbance at 600 nm for bacterial cultures in Erlenmeyer flasks at 6, 16, and 24 hours

Type of strain	*Strain*	OD_{600nm}						Efficacy of treatment (%) (-): Decrease in population (+): Increase in population		
		6 hours		16 hours		24 hours				
		Control	Treatment	Control	Treatment	Control	Treatment	6h	16h	24h
Laboratory	*E. coli*	0.157	0.125	1.635	1.428	2.403	2.295	-20	-12	-4
	B. subtilis	0.025	0.015	0.936	0.841	2.380	2.440	-40	-10	+2
Nosocomial	*P. aeruginosa*	0.380	0.301	0.606	0.532	1.816	1.680	-20	-12	-7
	S. aureus	0.150	0.126	0.204	0.222	2.208	1.981	-16	+8	-10

The results of tube and Erlenmeyer flask cultures, measured through turbidity assessment, showed that there were differences in absorbance between the treatment and control samples. In the Erlenmeyer flask environment, the absorbance differences at 6 hours were greater than those observed at 16 and 24 hours. Although a reduction in the population of all bacteria was observed during the early hours of exposure to the Consciousness Field, slight increases were detected at 16 and 24 hours, which may indicate the dynamic nature of the field's effect over time. For example, an 8% increase was observed in *S. aureus* and *E. coli*.

Colony count measurements

Since living and dead bacteria cannot be distinguished using the turbidity method, the colony-counting method was used to measure changes in bacterial populations in the culture medium. For this purpose, in the first phase, the tube and Erlenmeyer flask cultures were plated at 6, 16, and 24 hours in Müller-Hinton medium with two replicates, and colonies were then counted. The results of the colony counts are presented in Tables 4 and 5.

Table 4. Colony count results of treatment and control samples in the tube culture method at 6, 16, and 24 hours.

Type of strain	Strain	Colony Count						Efficacy of treatment (%) (-): Decrease in population (+): Increase in population		
		6 hours/10^4		16 hours/ 10^6		24 hours				
		Control	Treatment	Control	Treatment	Control	Treatment	6h	16h	24h
Laboratory	*E. coli*	NC	NC	357	285	NC	NC	ND	-20	ND
	B. subtilis	55	40	20	16	NC	NC	-27	-20	ND
Nosocomial	*P. aeruginosa*	398	NC	49	41	NC	NC	ND	-16	ND
	S. aureus	310	184	37	29	NC	NC	-39	-25	ND

NC: Uncountable; ND: Not determined

Table 5. Colony count results for treatment and control samples in Erlenmeyer flask culture at 6, 16, and 24 hours.

Type of strain	Strain	Colony Count						Efficacy of treatment (%) (-): Decrease in population (+): Increase in population		
		6 hours/10^4		16 hours/10^6		24 hours/10^8				
		Control	Treatment	Control	Treatment	Control	Treatment	6h	16h	24h
Laboratory	*E. coli*	NC	1328	433	320	NC	NC	ND	-26	ND
	B. subtilis	190	124	51	45	NC	NC	-34	-11	ND
Nosocomial	*P. aeruginosa*	169	179	487	352	NC	NC	+6	-27	ND
	S. aureus	NC	100	64	53	NC	NC	ND	-16	ND

NC: Uncountable; ND: Not determined

The colony count results for the 24-hour samples were not obtainable due to excessive bacterial growth (NC), and in cases where the colony count for either the control or treatment sample was not available, calculating the percentage of treatment effectiveness was not possible. In other cases, the colony count results showed that the Faradarmani Consciousness Field treatment reduced the bacterial population, although for P. *aeruginosa* at 6 hours, the opposite result (an increase in population) was observed.

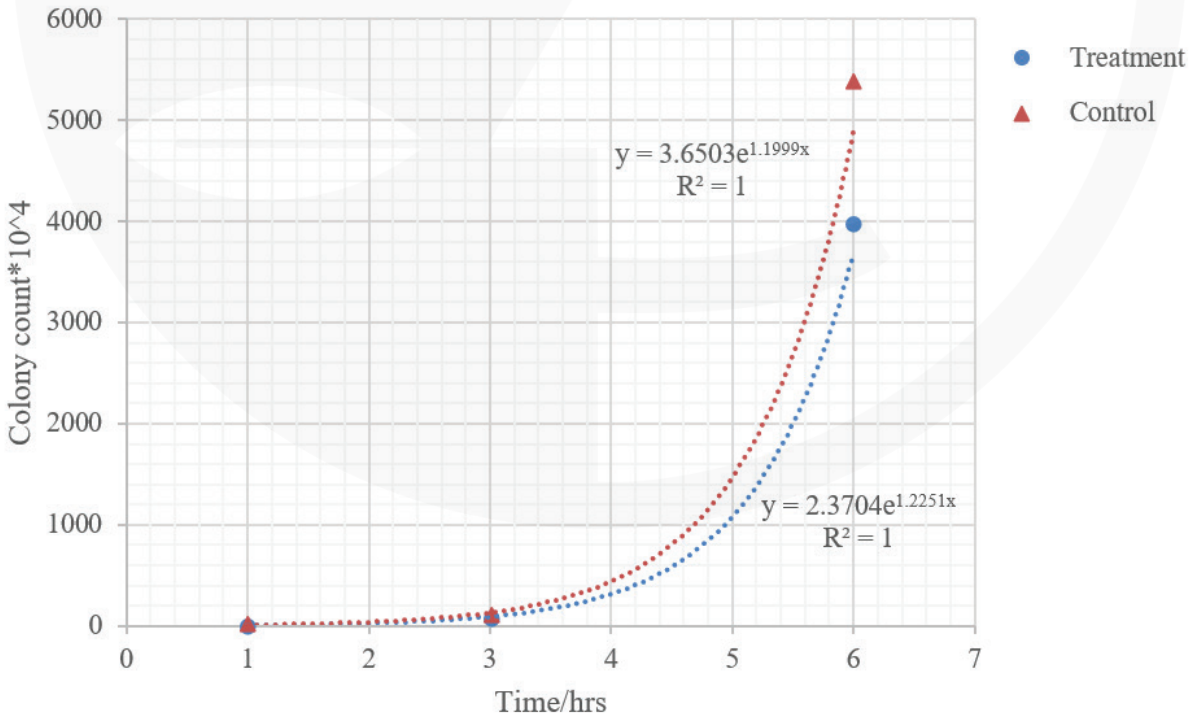
In the second step, after observing the effect of the Faradarmani Consciousness Field in the first stage through turbidity measurements and colony counts, the colony count of the Erlenmeyer flask samples was repeated, and sampling was performed at 1, 3, and 6 hours. The results of this stage are presented in Table 6.

Table 6. Colony counts of Faradarmani Consciousness Field–treated samples and control samples in Erlenmeyer flasks at 1, 3, and 6 hours.

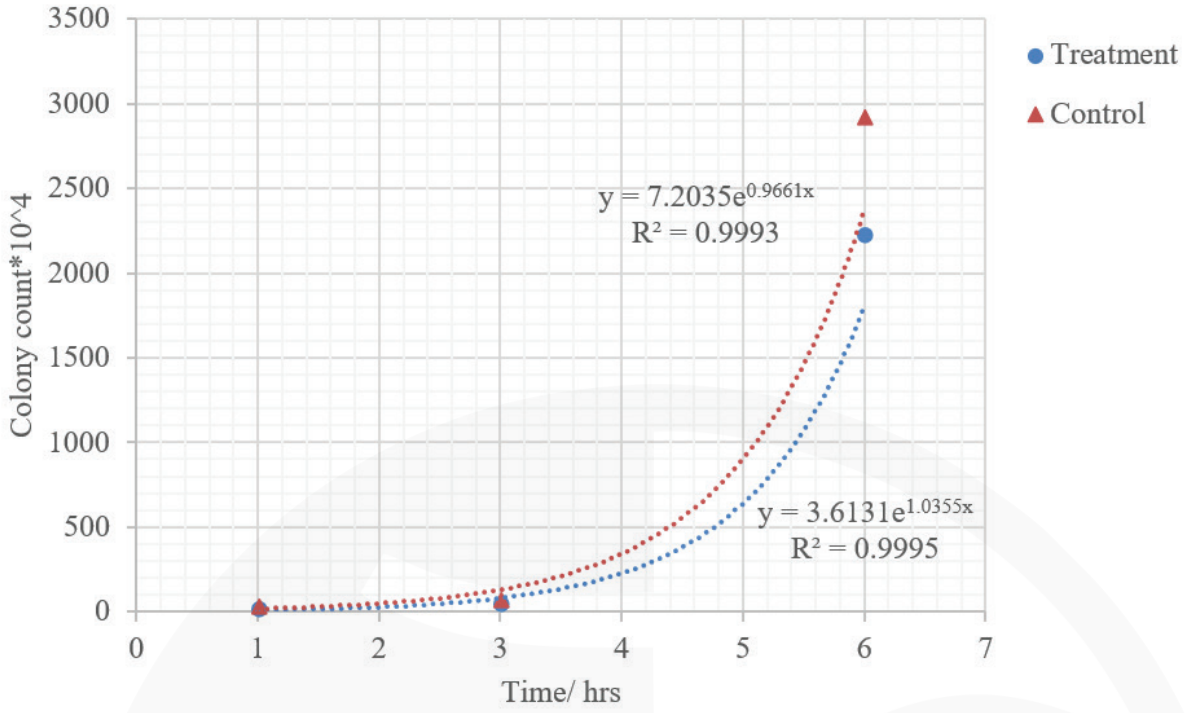
Type of strain	Strain	Colony Count						Efficacy of treatment (%) (-): Decrease in population (+): Increase in population		
		1 hours/10^4		3 hours/10^4		6 hours/10^5				
		Control	Treatment	Control	Treatment	Control	Treatment	1h	3h	6h
Laboratory	*E. coli*	14	9	105	78	538	397	-35	-23	-26
	B. subtilis	3.4	2.2	6.2	4.3	9.6	7.5	-34	-30	-22
Nosocomial	*P. aeruginosa*	26	13.9	77	48	293	222	-46	-37	-24
	S. aureus	11.9	9.1	35	24	88	73	-23	-31	-17

As shown in Table 6, the effect of the Faradarmani Consciousness Field treatment is notable in the first hour of observation for both laboratory and clinical strains. The greatest change was observed in *P. aeruginosa* during the first three hours of the study. These results are consistent with the findings from the previous replication (Table 2), which also showed a reduction in bacterial populations even at the early time points of treatment.

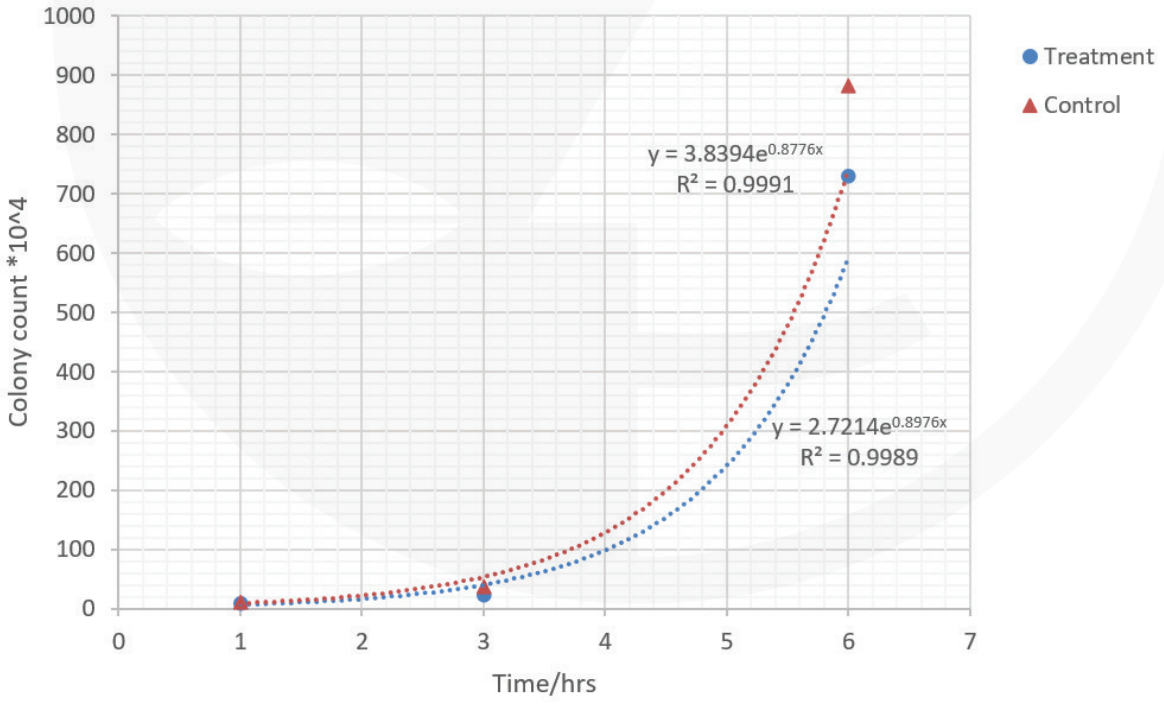
A



B


Colony count*10^4
3500
3000
2500
2000
1500
1000
500
0
0
1
2
3
4
5
6
7
Time/ hrs
y = 7.2035e^0.9661x
R² = 0.9993
y = 3.6131e^1.0355x
R² = 0.9995
Treatment
Control

C


Colony count *10^4
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Time/hrs
y = 3.8394e^0.8776x
R² = 0.9991
y = 2.7214e^0.8976x
R² = 0.9989
Treatment
Control

D

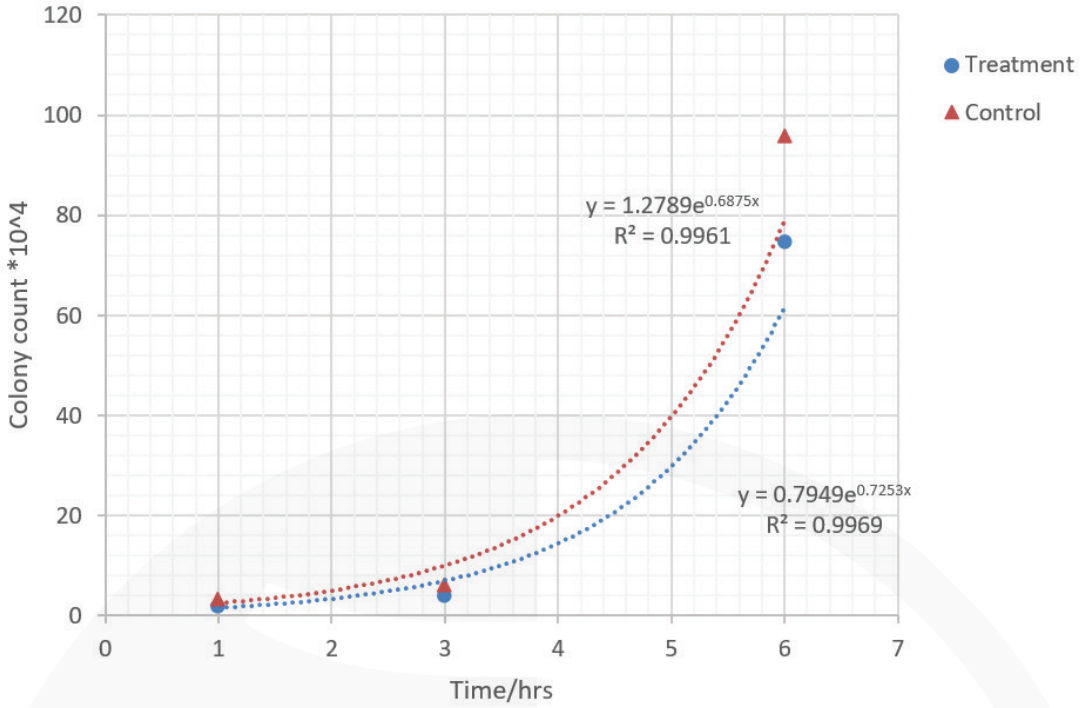


Figure 1. Exponential growth plot during the first six hours of the bacterial life cycle for samples treated with the Faradarmani Consciousness Field compared with control samples. A: *E. coli.* B: *B. subtilis.* C: *P. aeruginosa.* D: *S. aureus.*

As shown in Figure 1, the exponential growth curve of the Faradarmani Consciousness Field–treated samples compared with the control samples demonstrates a clear and significant effect of this field on the different bacterial populations, particularly within the first 1 to 3 hours of bacterial growth.

Results of tetrazolium chloride reduction

This assay was used to evaluate the metabolic status of the bacteria and any potential changes in their bacterial regeneration capacity, which indicates cell viability. The reduction of tetrazolium chloride by dehydrogenase enzymes in healthy bacterial cells produces a red color that can be measured by light absorbance at 495 nm. In the first stage of the tetrazolium chloride assay, measurements at 6 and 16 hours were not recorded due to low bacterial concentration and faint coloration. The earliest possible measurement time was at 24 hours, which is shown in Table 7.

Table 7. Tetrazolium chloride assay in Erlenmeyer flask and tube bacterial cultures measured by optical absorbance at 495 nm at 24 hours.

Type of strain	Strain	Tube culture			Erlenmeyer flask culture		
		A_{495nm}		Efficacy of treatment (%)	A_{495nm}		Efficacy of treatment (%)
		Control	Treatment		Control	Treatment	
Laboratory	*E. coli*	1.7519	1.1173	-36	1.1426	1.0929	-4
	B. subtilis	0.4960	0.7915	+59	0.3839	0. 2790	-27
Nosocomial	*P. aeruginosa*	0.6679	0.7043	+5	2.4616	2.0637	-16
	S. aureus	0.6063	0.7886	+30	0.7366	0.6544	-11

+: Increase in population; -: Decrease in population

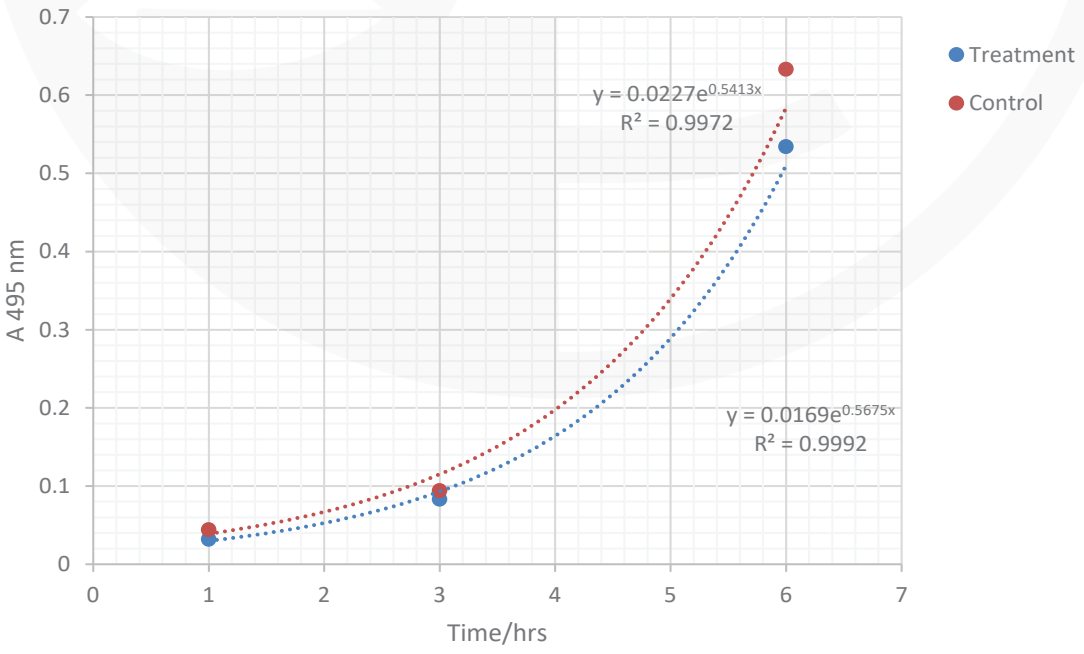
The Erlenmeyer flask culture showed results more consistent with the previously observed reduction in bacterial populations. However, in the tube culture, the results of this method were consistent with the earlier findings and showed a greater increase in the growth of the treated microbial samples compared to the control (compared with the effectiveness results in Tables 2, 3, and 5). Tetrazolium chloride assessment was also performed on the bacterial populations at 1, 3, and 6 hours, and the results are presented in Table 8.

Table 8. Assessment of tetrazolium chloride reduction in the Erlenmeyer flask bacterial culture using absorbance at 495 nm at 1, 3, and 6 hours.

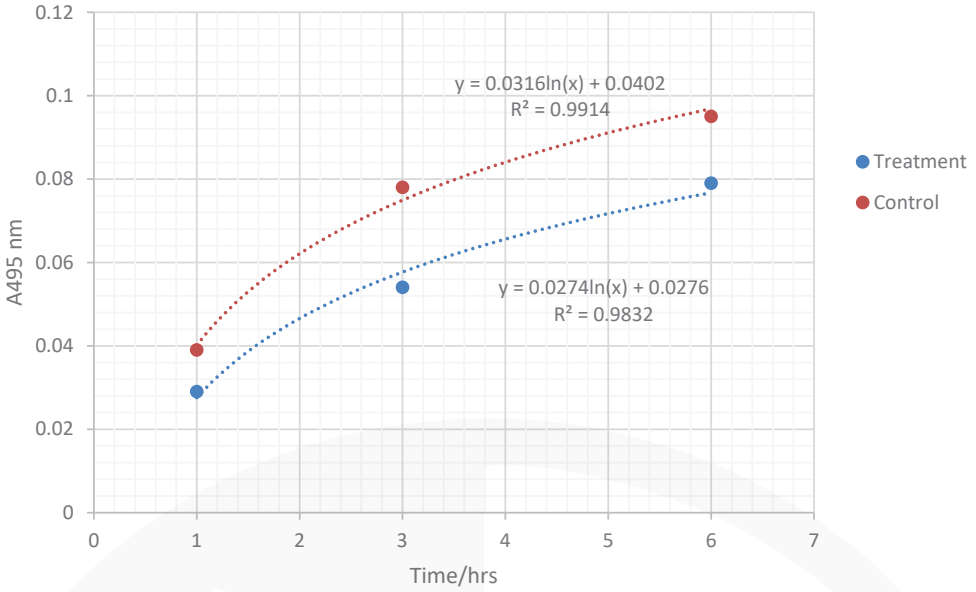
Type of bacteria	Strain	A_{495nm}						Efficacy of treatment (%)		
		1 hour		3 hours		6 hours				
		Control	Treatment	Control	Treatment	Control	Treatment	1h	3h	6h
Laboratory	*E. coli*	0.044	0.032	0.094	0.083	0.633	0.534	-27	-11	-15
	B. subtilis	0.039	0.029	0.078	0.054	0.095	0.079	-25	-30	-17
Nosocomial	*P. aeruginosa*	0.058	0.046	0.085	0.076	0.169	0.134	-20	-10	-20
	S. aureus	0.054	0.037	0.067	0.063	0.094	0.086	-31	-5	-8

The data obtained from tetrazolium chloride reduction over the shorter time intervals in the Erlenmeyer flask conditions are shown in Table 8. Similar to the results observed at the 24-hour time point, a reduction was seen in the samples exposed to the Faradarmani Consciousness Field. The greatest decrease—approximately 30%—was observed in the laboratory strain *B. subtilis* and the clinical strain *S. aureus*.

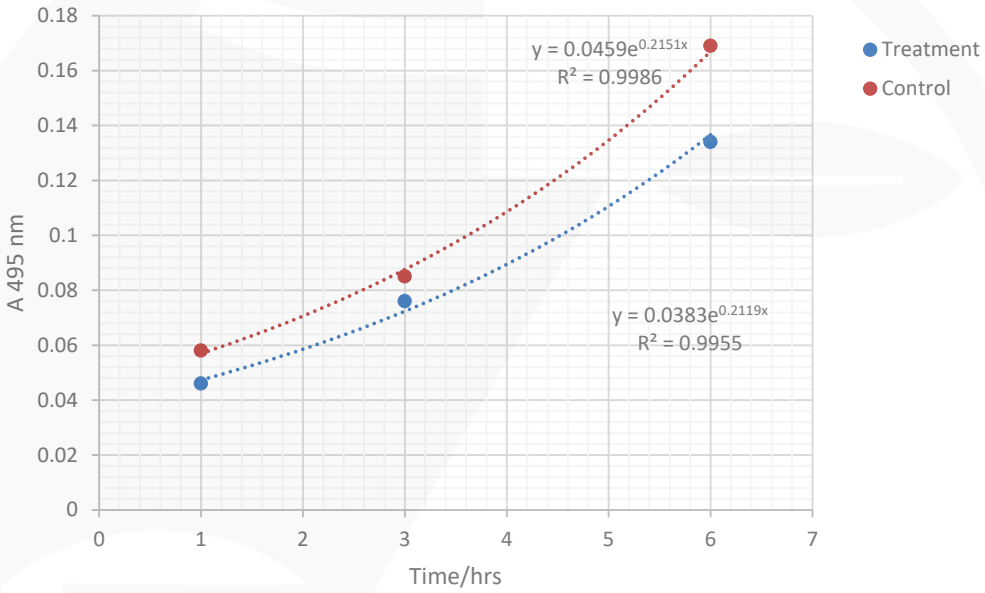
A



B



C



D

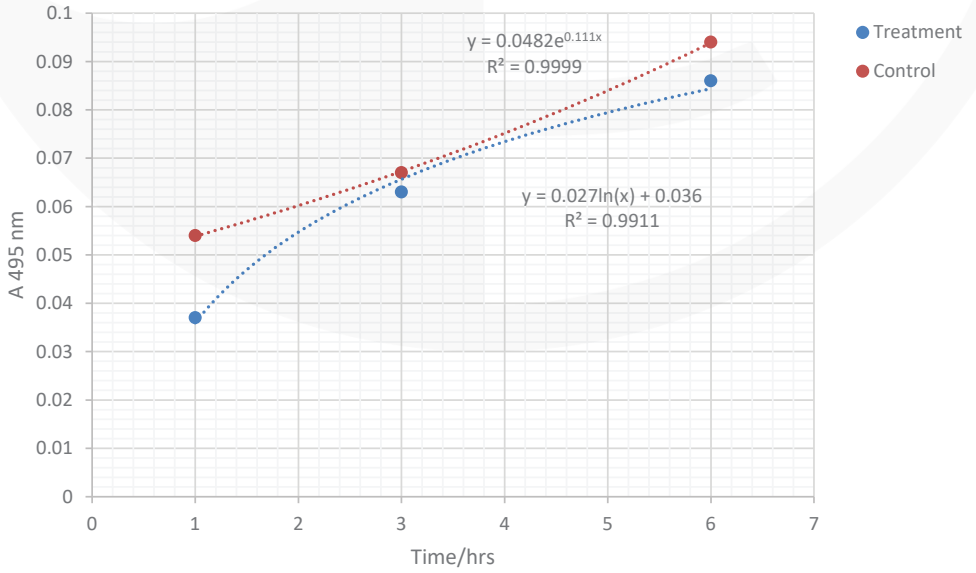


Figure 2. Changes in tetrazolium chloride reduction during the first six hours of the bacterial life cycle in Faradarmani Consciousness Field–treated samples compared with control samples in the Erlenmeyer flask environment. A: *E. coli.* B: *B. subtilis.* C: *P. aeruginosa.* D: *S. aureus.*

Figure 2 shows the exponential and logarithmic plots of the changes in tetrazolium chloride reduction in the control samples and those under the influence of the Faradarmani Consciousness Field. Similar to the data obtained from the other measurement methods for the same strains, we observed a general decrease in metabolic activity in the treated samples grown in the Erlenmeyer flask culture.

Discussion

This study examined the effects of the Faradarmani Consciousness Field, which has a non-frequency nature, on bacterial populations. This influence occurs without any material or physical intervention and begins solely through a short, instantaneous attention toward the treatment samples. The innovative aspect of this study lies in evaluating the effects of this Consciousness Field as a qualitative intervention. In this experiment, multiple laboratory and clinical bacterial strains were used under various culture conditions, including Erlenmeyer flasks and test tubes. Changes in bacterial populations under the influence of the Consciousness Field were recorded and analyzed at different time intervals using various methods and multiple repetitions.

The results obtained from this study provided evidence of the influence of this field across multiple repetitions. One of the most significant challenges regarding theories related to consciousness is the possibility of testing them empirically. The fact that the effects of T-Consciousness Fields can be recorded in a laboratory setting creates a valuable opportunity for researchers to practically investigate the theory of Consciousness Fields. This is especially important because consciousness is often discussed only at the level of humans and brain-bearing organisms, whereas according to Taheri's theory, in addition to humans and animals with brains, microorganisms and even inanimate particles also possess a degree of consciousness.

The results showed a reduction in bacterial population as well as a decrease in bacterial metabolic activity under the influence of the Faradarmani CF. In addition, under culture conditions where the bacteria were grown in test tubes, the field led to an increase in cell viability. This observation suggests that the effect of the Faradarmani Consciousness Field may vary depending on environmental conditions. Therefore, it is necessary to investigate the effect of this field under *in vivo* conditions as well, in order to determine how it influences the growth of microorganisms within living organisms.

To further investigate bacterial populations under the influence of T-Consciousness Fields, we recommend conducting studies on additional bacterial strains, particularly focusing on antibiotic resistance in drug-resistant clinical strains. Considering the repeatability of applying T-Consciousness Fields, we also suggest that researchers explore different types of T-Consciousness Fields to observe potential physiological and metabolic changes in bacteria exposed to these fields.

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Influence of Faradarmani Consciousness Field on Antibiotics Resistance in Bacteria

Mohammad Ali Taheri[1], Gholamreza Zarrini[2], Sara Torabi[3], Noushin Nabavi[4], Farid Semsarha[5*]

* Corresponding author: Farid Semsarha
Email: Semsarha@ut.ac.ir

1. Sciencefact R&D Department, Cosmointel Inc. Research Center, Ontario, Canada
2. Department of Biology, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran
3. Department of Plant Biology, School of Biology, College of Sciences, University of Tehran, Tehran, Iran
4. Research Services at University of Victoria, BC, Canada
5.Institute of Biochemistry and Biophysics (IBB), University of Tehran, Tehran, Iran

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Abstract

Antibiotic resistance has increased due to the overuse of antibiotics in treatment and has become a major challenge in eliminating bacteria, accompanied by severe financial and human consequences worldwide. The resistance of hospital-acquired bacteria is a significant concern, and many scientific studies aim to develop strategies to prevent antibiotic resistance. Mohammad Ali Taheri has introduced T-Consciousness Fields as new types of fields. These fields are neither matter nor energy and therefore cannot be directly measured. However, it is possible to study their effects through controlled experiments. After examining the effect of the Faradarmani Consciousness Field (FCF) on bacterial populations in a previous study, the aim of this study was to investigate the effect of FCF on the antibiotic resistance of identified hospital bacterial strains. Using disk diffusion and MIC methods, it was observed that the resistance of the bacterial populations changed. Specifically, the strains *Pseudomonas aeruginosa, Escherichia coli, Bacillus subtilis, Klebsiella pneumoniae, Acinetobacter baumannii,* and *Staphylococcus aureus* showed a decrease in antibiotic resistance, while the *S. aureus* and *P. aeruginosa* strains showed an increase in antibiotic resistance. Based on the obtained results, the Faradarmani Consciousness Field may influence antibiotic resistance responses in resistant populations. This observation requires further investigation. If these findings can be replicated by other researchers, the Faradarmani Consciousness Field could be considered a potential solution to this global issue.

Keywords: antibiotic resistance, T-Consciousness Fields, disk diffusion method, Faradarmani, MIC method

Introduction

Antimicrobials have been used since ancient times. A variety of agents in the environment have been commonly used to eliminate harmful bacteria. These substances include agents such as herbs, honey, garlic, ginger, echinacea, goldenseal, clove, and oregano (Torrance and Isaacson, 2003). John Parkinson (1567–1650) was the first person to document the treatment of infections using molds (Gould, 2016). Modern antibiotics such as tetracycline have been detected in human bone excavated in Sudanese Nubia (Bassett et al., 1980). In the twentieth century, while investigating Staphylococcus, Alexander Fleming accidentally discovered penicillin (Ligon, 2004; Fleming, 1929). The discovery and early development of penicillin is one of the most significant medical achievements, saving the lives of millions of people worldwide (Ligon, 2004). Nevertheless, infectious diseases remain a leading cause of death each year, with lower respiratory infections ranked as the fourth leading cause in 2019 (WHO, 2021). In 1945, Fleming warned about the dangers of misusing penicillin, and the first case of penicillin resistance was reported in 1947 (Barber and Rozwadowska-Dowzenko, 1948).

Antimicrobial resistance poses a severe threat to human health and represents a major financial burden (WHO, 2017). Since the overuse of antimicrobial drugs promotes bacterial resistance, antibiotic stewardship strategies are increasingly implemented to protect patients from the harms of unnecessary antibiotic use and to combat antibiotic resistance (CDC, 2021). In an effectiveness study conducted by the antimicrobial stewardship team in Shanghai, China, the relationship between antibiotic use and resistance in Gram-negative bacteria was evaluated from 2008 to 2013. The researchers found that reducing the frequency and dosage of antibiotics had only limited effects on reversing bacterial resistance (Guo et al., 2015).

There are different mechanisms of resistance to antimicrobials, including intrinsic (passive) and acquired (active) resistance. In intrinsic resistance, Gram-negative bacteria such as *Pseudomonas aeruginosa* have low membrane permeability and a high natural resistance to antibiotics (Nakae, 1995). Acquired resistance can occur through changes in the bacterial genome obtained via horizontal transfer of resistance genes from other strains and species (for a review, see Bockstael and Van Aerschot, 2009; Todar, 2011). The horizontal transfer of plasmids has been reported to play a vital role in the adaptation of bacteria to various environments (Heuer and Smalla, 2012; Sobecky and Coombs, 2009).

One of the major classical mechanisms of antibiotic inactivation is the chemical modification of antibiotics by enzymes such as penicillinase (β-lactamase) (Abraham and Chain, 1940). β-lactams constitute a large class of antibiotics, including penicillins, cephalosporins, carbapenems, and monobactams (De Pascale and Wright, 2010). To overcome β-lactamase-mediated resistance, β-lactamase inhibitors such as clavulanate, sulbactam, and tazobactam have been developed (Drawz and Bonomo, 2010). For example, β-lactam antibiotics are generally ineffective against *Mycobacterium tuberculosis;* however, it has been reported that meropenem combined with the β-lactamase inhibitor clavulanate shows inhibitory activity against *M. tuberculosis* (Hugonnet et al., 2009).

About 100 years ago, viruses that infect bacteria (bacteriophages) were discovered (Salmond and Fineran, 2015). They have since been proposed as an alternative approach to combat antibiotic-resistant bacteria (Kortright et al., 2019). Phages are highly specific for particular bacterial strains and are nontoxic to patients, whereas synthetic antibiotics are often associated with undesired kidney or liver damage (Saha and Mukherjee, 2019). However, data on the use of bacteriophages to treat bacterial diseases in humans are still insufficient, and further studies are required (Principi et al., 2019).

Finding an effective strategy to combat antibiotic resistance is essential. According to Taheri's theory, there are various T-Consciousness Fields (TCFs) that are subsets of the Cosmic Consciousness Network. These fields are non-frequency in nature, and their effect is initiated through the mind of the announcer (*Faradarmangar*) with an instantaneous and short attention to the subject under study (Taheri, 2013).

In a previous study by the authors, the effects of Faradarmani CF on bacterial population growth were examined (Taheri et al., 2021b). The aim of the present study was to investigate the effects of Faradarmani CF on the antibiotic resistance characteristics of hospital strains.

Material and Methods

Application of Faradarmani Consciousness Field

Application of the Faradarmani Consciousness Field to the samples was carried out according to the protocol defined by the Cosmointel Research Center[2]. Additional details can be found in the Considerations section of this issue.

Disk Diffusion Method

In this study, we examined the effect of the Faradarmani Consciousness Field on antibiotic resistance in hospital-acquired Gram-negative bacteria (*Pseudomonas aeruginosa, Klebsiella pneumoniae*) and a Gram-positive bacterium (*Staphylococcus aureus*). Inhibition zones were measured according to CLSI tables (https://clsi.org). In this test, we used antibiotic discs from PADTAN TEB Co. (Tehran, Iran), with the concentrations provided in Table 1.

Table 1. Antibiotic discs and their corresponding concentrations used in the disk diffusion test.

Antibiotics	*Concentration (µg/Disc)*
Doxycycline (D)	**30**
Streptomycin (S)	**10**
Colistin (C)	**10**
Ceftriaxone (CRO)	**30**
Cotrimoxazole (SXT)	**25**
Ciprofloxacin (CP)	**5**
Clindamycin (CC)	**2**
Erythromycin (E)	**15**

MIC Method

To confirm the effects of the Faradarmani Consciousness Field on antibiotic resistance, we used three hospital-acquired bacteria — *Pseudomonas aeruginosa, Acinetobacter baumannii,* and *Staphylococcus aureus* — as well as a laboratory strain, *Bacillus subtilis.* Responses were measured in both treated (Faradarmani) and untreated (control) conditions.

The antibiotics used in this experiment included six agents obtained from MAST (UK): amoxicillin (AMX), ciprofloxacin (CIP), ceftazidime (CAZ), meropenem (MEM), gentamicin (GEN), and tetracycline (TE). MIC values were determined using the Broth Microdilution method across 16 concentrations (from 256 µg/ml to 0.5). All experiments were performed in duplicate.

Statistical Analysis

In this study, each sample had two replicates, and no data points were excluded. Analyses were performed using SPSS software (version 27) and the t-test, with a p-value of < 0.05 considered statistically significant.

Results

The results of the present study are presented in two sections based on the methods used to evaluate bacterial resistance and susceptibility.

Results from the Disk Method

The effect of the Faradarmani Consciousness Field on hospital-acquired resistant bacteria was measured using the disk method and is presented in Table 2

[2]www.cosmointel.com

Table 2. Inhibition zone size changes measured by the disk diffusion method. Decreases relative to the control are indicated with "–" and increases with "+".

		Bactericide					Bacteriostatic		
		COL	CTR	SXT	STR	CIP	ERI	CLN	DOX
p. aeruginosa (1)	Pathogen	0	+4%	+2.3%	-7.10%	-3.7%	+4.7%	+3.7%	+3.2%
p. aeruginosa (2)	Pathogen	+3.48%	-4.5%	+1.5%	+5.55%	+6.6%	0	+4.3%	+4.37%
S. aureus (1)	Commensal / Opportunistic pathogen	0	+12.5%	0	-3.6%	0	0	-2.9%	-1.5%
S. aureus (2)	Commensal / Opportunistic pathogen	0	-0.7%	0	0	0	0	-0.58%	0
K. pneumonia	Pathogen	+2.5%	0	0	+3.96%	0	0	+10%	0

Abbreviations: Colistin, COL; Ceftriaxone, CTR; Cotrimoxazole, SXT; Streptomycin, STR; Ciprofloxacin, CIP; Erythromycin, ERI; Clindamycin, CLN; Doxycycline, DOX.

As shown in Table 2, the changes in halo size (decrease or increase in antibiotic resistance) range from –0.58% to 12.5%. Treatment with the Faradarmani Consciousness Field resulted in decreased halo size (increased resistance) in 8 cases (4 antibiotic-sensitive and 4 antibiotic-resistant). Conversely, the Faradarmani Consciousness Field increased halo diameter (decreased resistance) in 15 cases (6 antibiotic-sensitive and 9 antibiotic-resistant). Additionally, in 17 cases (12 antibiotic-resistant and 5 antibiotic-sensitive), no change in halo diameter was observed following Faradarmani treatment.

Results from the MIC (Minimum Inhibitory Concentration) Method

To complement the results of the previous method and increase accuracy, the effect of the Faradarmani Consciousness Field on hospital-isolated resistant strains was measured using the MIC method, as shown in Table 3. This effect was determined based on the differences between the Faradarmani-treated samples and the control.

Table 3. MIC values of antibiotics in control samples compared with treated strains: Control MIC – Treated MIC (success rate: "–" indicates increased resistance, and "+" indicates decreased resistance).

	TE	GEN	MEM	CAZ	CFM
S. aureus	24-32 (-33%)	16-8 (+50%)	-	-	128-64 (+50%)
S. aureus (MRSA)	64-32 (+50%)	-	32-16 (+50%)	-	-
E. coli	16-8 (+50%)	-	-	24-14 (+42%)	-
B. subtilis	-	-	64-32 (+50%) 2-0.75 (+62.5%)	-	256-128 (+50%)
K. pneumonia	-	-	-	-	16-8 (+50%)
P. aeruginosa	-	32-16 (+50%) 4-3 (+25%)	-	-	-
A. baumannii	-	-	64-32 (+50%)	-	-

Abbreviations: Tetracycline (TE); Gentamicin (GEN); Meropenem (MEM); Ceftazidime (CAZ); Cefixime (CFM)

Based on the results presented in Table 3, the Faradarmani Consciousness Field reduced resistance in both Gram-positive and Gram-negative bacteria. The only sample that showed an increase in resistance under the influence of Faradarmani was *S. aureus.* The Faradarmani Consciousness Field had no effect on bacteria treated with ciprofloxacin, amoxicillin, or azithromycin. However, the greatest effects of the Faradarmani were observed in treatments with tetracycline, meropenem, and cefixime (three cases).

Discussion

In this study, the effect of the Faradarmani Consciousness Field on the antibiotic resistance of various bacteria was examined. As mentioned in the introduction, this field has no physical or frequency-based nature. Therefore, its influence cannot be considered a quantitative intervention like the use of drugs. It is hypothesized that the information transmitted through TCFs may induce changes in the behavior of the subject under study—in this case, bacteria. From this perspective, the application of the Faradarmani Consciousness Field can be regarded as a qualitative intervention (Taheri, 2013).

According to the results obtained from the disk diffusion test, the direction and magnitude of this field's effects on different bacterial strains and their responses to antibiotics are not uniform, and no consistent pattern is observed. This finding suggests that the mechanism of action of the Consciousness Field does not follow a general mechanism like that of drugs or physical interventions. For example, antibiotics are classified as bacteriostatic, which inhibit bacterial growth, or bactericidal, which kill bacteria (Baquero and Levin, 2021). In contrast, the mechanism of the TCFs does not appear to operate in a linear or fixed manner; rather, it seems to involve complex cellular and regulatory interactions accompanied by information transmission.

Similarly, in the MIC test, although no changes were observed under the influence of the Faradarmani Consciousness Field for some antibiotics, three antibiotics showed a significant reduction of about 50%, indicating increased sensitivity to the antibiotics. It is noteworthy that these antibiotics have different mechanisms of action, such as inhibiting protein synthesis or inhibiting cell wall synthesis, and the effect of the field appeared to be independent of their mechanisms. Therefore, further studies are needed to elucidate how the Faradarmani Consciousness Field influences the behavior of microorganisms.

Previous studies have examined the effects of TCFs on the MCF-7 cancer cell line (Taheri et al., 2020a), Alzheimer's disease in both *in vivo* and *in vitro* models (Taheri et al., 2022), spatial memory and avoidance behavior in a rat model of Alzheimer's disease (Taheri et al., 2021a), wheat plants under salt stress (Torabi et al., 2020), viral growth (Taheri et al., 2021c), and brain electrical activity of *Faradarmangars* (trained individuals) during the application of Faradarmani (Taheri et al., 2020b). Further research is needed to determine the effects of TCFs on various biological systems. Replication of the present experiment by other researchers is essential and valuable for understanding the effects of the Faradarmani Consciousness Field on bacterial resistance responses.

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Effect of Faradarmani Consciousness Field on the Susceptibility of *Candida albicans* and *Aspergillus fumigatus* to Antifungal Drugs

Mohammad Ali Taheri[1], Laleh Amani[2], Simin Sharifi[3], Ali Zaman Vaziri[4], Hossein Keyvani[5*]

1. Sciencefact R&D Department, Cosmointel Inc. Research Center, Ontario, Canada
2. Department of Biology, Science and Research Branch, Islamic Azad University, Tehran, Iran
3. Department of Pharmaceutical Biotechnology, Faculty of Pharmacy, Tabriz University of Medical Sciences, Tabriz, Iran
4. Cancer Biomedical Center (CBC) Research Institute, Tehran, Iran
5. Department of Virology, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran

* Corresponding author: Hossein Keyvani, Department of Virology, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran.
Email: Keyvanlab@yahoo.com

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Abstract

A suitable antifungal therapy is needed to achieve successful patient outcomes for all serious fungal infections. Only a few antifungal agents are available, so the emergence of resistance to a single drug and, currently, multidrug resistance has critically hampered the management of patients. Faradarmani Consciousness Field (CF), introduced by Taheri, is neither energy nor matter and does not have a quantity, so it cannot be directly measured. Nevertheless, their effects can be assessed indirectly through controlled laboratory experiments. This study aimed to evaluate the effect of Faradarmani CF on the susceptibility of *Candida albicans* and *Aspergillus fumigatus* to antifungal drugs. For this purpose, antifungal susceptibility was assessed via the disk diffusion method to evaluate the Faradarmani CF effect. Faradarmani CF significantly reduced the resistance of *C. albicans* and *A. fumigatus* to nystatin. As well as reduced resistance to amphotericin B, this difference was observed in both fungi, but it was not significant compared to the control. Considering the results, the drug resistance of *C. albicans* and *A. fumigatus* decreased under the influence of Faradarmani CF, and it can be examined *in vivo* for fungal infections. In addition, it is recommended that the effects of Faradarmani CF on other drug-resistant pathogens be investigated.

Keywords: Faradarmani Consciousness Field, Taheri Consciousness Fields, *Candida albicans, Aspergillus fumigatus*

Introduction

The invasive mycoses caused by opportunistic pathogenic fungi such as *Aspergillus fumigatus* and *Candida albicans* have increased considerably over the past three decades (Hajjeh et al., 2004; Seagle et al., 2021). This increase in infections is directly correlated with an increase in the population of at-risk patients, leading to the development of serious fungal infections and excessive morbidity and mortality (Gudlaugsson et al., 2003; Rayens et al., 2021). Serious, life-threatening fungal infections have been reported with a growing number of pathogens, including *C. albicans* and *A. fumigatus,* which are well-known opportunistic pathogens (Pfaller et al., 2004).

Resistance to the available three types of antifungal drugs (echinocandins, azoles, and polyenes) can severely restrict treatment options. Drug resistance is particularly concerning for severe infections that may be harder to treat, such as invasive fungal infections, which affect the heart, brain, eyes, blood, or other parts of the body (Gupta et al., 2021; Seagle et al., 2021; Fernández-García et al., 2017).

According to Taheri's theory, there are various T-Consciousness Fields with different functions that are a subset of the Cosmic Consciousness Network. These fields do not have a physical or frequency nature and cannot be measured directly using quantitative tools. More details about this theory are provided in the Common Considerations section of this issue. In short, the possibility of practical investigation of these fields allows researchers to study them by designing numerous experiments (Taheri, 2013). In this study, the effect of Faradarmani CF on the resistance of *C. albicans* and *A. fumigatus* to antifungal drugs amphotericin B and nystatin was investigated.

Material and Methods

Applying the Faradarmani CF

The studied samples were influenced by the Faradarmani Consciousness Field, according to the guidelines set up at the Cosmo Intel Research Center (www.COSMOintel.com).

In the present study, Faradarmani CF was applied to the treatment group using the disk diffusion method after fungal culture and before inserting the disks. The Faradarmani CF was only applied to the plates of the treatment group.

Evaluation of the effect of different dilutions of amphotericin B and nystatin

The effects of amphotericin B and nystatin on *C. albicans* and *A. fumigatus* were measured by the disk diffusion method (Fothergill, 2012). In the first stage, the effects of different dilutions of amphotericin B and nystatin on fungi were investigated, and the minimum effective concentrations of the drugs were calculated. Then, the effect of Faradarmani CF on fungi was measured at the selected drug concentration.

C. albicans and *A. fumigatus* were obtained from laboratory archives and were cultured on Sabouraud Dextrose Agar (SDA) medium. It was used from *A. fumigatus* spores and the *C. albicans* yeast phase for the agar diffusion test. Fungal inocula contained 1 $\times 10^6$ to 5×10^6 cells/mL (0.5 McFarland densities), and the standard suspension was used for agar diffusion methods (Fothergill, 2012).

Before experimenting, to evaluate the effective concentrations of antibiotics, different dilutions of amphotericin B (Sigma) and nystatin (Jaber ibn Hayan, Iran) were prepared. Prepared dilutions of amphotericin B were 200, 20, and 2 mg/mL, as well as 200, 20, and 2 µg/mL for *C. albicans* and *A. fumigatus,* respectively. Dilutions of 10,000, 1,000, 100, and 10 units/mL of nystatin were prepared for both fungi. Finally, two concentrations of nystatin, 10 units/mL and 100 units/mL, against *C. albicans* and *A. fumigatus* were selected. As well, two concentrations of amphotericin B, including 2mg/mL and 200 µg/mL for *C. albicans* and *A. fumigatus,* were selected, respectively. The blank disks were placed in microtubes containing different dilutions of the drugs for 5 minutes. After ensuring that the disks were properly mixed with the evaluated drugs by shaking the microtubes for 1 minute, the disks were placed in three replicates on cultured plates. The plates were incubated at 37 °C for 24 hours. The inhibiting zone was measured. The selected

amounts for each drug, based on the appropriate zone diameter, were determined to prevent fungal growth. Disk diffusion tests were performed with disks containing selected concentrations of drugs in treatment and control groups (Faradarmani CF).

Statistical analysis

The independent t-test was used to assess the significance of differences between the control and treatment groups; $p < 0.05$ was considered statistically significant.

Results

For the evaluation of Faradarmani CF effect on the susceptibility of *C. albicans* and *A. fumigatus* to nystatin and amphotericin, two concentrations of nystatin, including 10 units/mL and 100 units/ mL, were selected against *C. albicans* and *A. fumigatus,* respectively. Two concentrations of amphotericin B, including 2mg/mL and 200 µg/mL for *C. albicans* and *A. fumigatus,* were selected, respectively. The results of the disk diffusion test showed a significant effect of Faradarmani CF on the zone size in plates treated with Faradarmani CF compared to the control plates (untreated with Faradarmani CF) in the fungi treated with nystatin. In addition, the zone size increased in the plates treated with Faradarmani CF in the fungi treated with amphotericin, but this increase was not significant compared to the control (Table 1).

Table 1. The zone size (mm) of *A. fumigatus* and *C. albicans* against nystatin and amphotericin in Faradamani CF treatment and control groups ($p < 0.05$*)

	Nystatin		Amphotericin B	
	Control	FCF treatment	Control	FCF treatment
A. fumigatus	16.25 ± 1.7	20.75 ± 2.21*	15.25 ± 2.21	16 ± 1.8
C. albicans	16 ± 0.81	24.75 ± 2.9*	9.75 ± 1.7	11 ± 1.8

FCF: Faradarmani Consciousness Field

Discussion

The use of antifungal drugs to treat fungal infections can lead to antifungal resistance (Revie et al., 2018). Resistance to almost all antifungal drugs has been described in various pathogens, including *Aspergillus* and *Candida* species (Beardsley et al., 2018). Treatment options for controlling fungal infections are limited, and combining multiple drugs to achieve a better therapeutic effect is tempting. In recent years, several new resistance patterns have been observed, including antifungal resistance from environmental sources in *A. fumigatus* and the emergence of multidrug resistance (simultaneous resistance to multiple antifungals) in various *Candida* species (Sanglard, 2016). Finding a way to treat at-risk patient populations with drug-resistant fungal infections is essential.

Disk diffusion assays demonstrated that Faradarmani CF significantly enhanced nystatin's inhibitory activity, as evidenced by larger zone diameters on treated plates compared with untreated controls. Although an increase in inhibition zones was also observed in amphotericin B treated fungi exposed to Faradarmani CF, this effect did not reach statistical significance.

In previous research, we observed the effects of the TCFs on the MCF7 cancer cell line (Taheri et al., 2020a), spatial memory, and avoidance behavior of a rat model of Alzheimer's disease (Taheri et al., 2021a), tolerance of Triticum *aestivum* L. under salinity stress (Torabi et al., 2020), bacterial population growth (Taheri et al., 2021b), and the electrical activity of the brain during Faradarmani in the Faradarmangars population (Taheri et al., 2020b).

TCFs are not directly measurable, but their effects can be investigated indirectly through various experiments. Overall, these results suggest that Faradarmani CF may potentiate the antifungal efficacy. We suggest that further research be conducted on the effect of Faradarmani on other drug-resistant microorganisms to investigate its impact on their antimicrobial susceptibility.

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Conflicts of Interest

The authors declare no conflict of interest.

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Ms. Laleh Amani was a prominent, compassionate, and enthusiastic researcher at Cosmointel who passed away in 2021.

Effect of the Faradarmani Consciousness Field on the Susceptibility of Antibiotic-Resistant Human Pathogenic Bacteria *Pseudomonas aeruginosa*

Mohammad Ali Taheri[1], Laleh Amani[2], Simin Sharifi[3], Ahmad Khalili[4], Noushin Nabavi[5], Hossein Keyvani[6*]

1. Sciencefact R&D Department, Cosmointel Inc. Research Center, Ontario, Canada
2. Department of Biology, Science and Research Branch, Islamic Azad University, Tehran, Iran
3. Department of Pharmaceutical Biotechnology, Faculty of Pharmacy, Tabriz University of Medical Sciences, Tabriz, Iran
4. Cancer Biomedical Center (CBC) Research Institute, Tehran, Iran
5. Research Services at the University of Victoria, Victoria, British Columbia, Canada
6. Department of Virology, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran

* Corresponding author: Hossein Keyvani, Department of Virology, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran.
Email: Keyvanlab@yahoo.com

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Abstract

Faradarmani Consciousness Field is one of the several Taheri Consciousness Fields (TCFs) introduced by Mohammad Ali Taheri. TCFs do not possess a quantity, so we cannot directly measure them. However, their effects can be indirectly evaluated through laboratory experiments. The resistance of bacteria to antibiotics is a global challenge because the number of antibiotic-resistant bacterial strains has increased annually and spread worldwide. It seems novel approaches are needed to solve this problem. In this study, the effect of Faradarmani CF on the susceptibility of antibiotic-resistant *Pseudomonas aeruginosa*, a human opportunistic bacterial pathogen, was evaluated. Antibiotic susceptibility in the presence and absence of Faradarmani CF was assessed via the antimicrobial disk diffusion method. Afterward, it was used in RT-qPCR to evaluate the expression levels of the *MexA*, *MexB*, and *OprM* genes in a *P. aeruginosa* strain overexpressing the MexAB–OprM efflux pump. According to the disk diffusion test results, Faradarmani CF significantly decreased antibiotic resistance in *P. aeruginosa* ($p < 0.05$). The RNA expression levels of the MexB and *OprM* genes were decreased in the Faradarmani treatment group compared with the control group ($p < 0.05$). The RNA expression level of *MexA* decreased, but it was not significant ($p > 0.05$). We showed that the drug resistance of *P. aeruginosa* decreased under the influence of Faradarmani CF, and that this effect can be examined *in vivo* in *P. aeruginosa* infections and in clinical studies. In addition, it is recommended that the impact of TCFs on other drug-resistant pathogens be investigated.

Keywords: Faradarmani Consciousness Field, Taheri Consciousness Fields, Cosmic Consciousness Network, *Pseudomonas aeruginosa,* antibiotic resistance

Introduction

Bacterial resistance to antibiotics is skyrocketing. It is one of the major problems in treating infectious patients, and finding a solution seems vital (Mendelson et al., 2015). *Pseudomonas aeruginosa,* as an opportunistic pathogen, is renowned for its outstanding adaptation to different environments. Diseases associated with this bacterium range from mild folliculitis to life-threatening pneumonia and septicemia (Mesaros et al., 2007). Decreased susceptibility to antibiotics and disinfectants has been extensively reported in clinical isolates, making infection with *P. aeruginosa* difficult to treat (Willcox, 2011; Abidi et al., 2013; Mohammadinia et al., 2012). One of the most prominent mechanisms underlying this resistance is the activity of efflux pumps belonging to the Resistance-Nodulation-Division (RND) family. Among these, the MexAB-OprM efflux system plays a central role in multidrug resistance. This tripartite complex consists of MexB, the inner membrane transporter that actively recognizes and expels a broad spectrum of antibiotics; OprM, the outer membrane channel that provides the exit pathway for substrates; and MexA, the periplasmic adaptor protein that stabilizes the assembly by bridging MexB and OprM. Together, these components form a highly efficient efflux system that contributes to the intrinsic resistance of *P. aeruginosa* against β-lactams, fluoroquinolones, tetracyclines, chloramphenicol, and other agents. Overexpression of MexAB-OprM, often due to mutations in regulatory genes, further enhances resistance and complicates therapeutic management of infections caused by this pathogen (Avakh et al., 2023; Li et al., 2015).

According to Taheri's theory, there are different T-Consciousness Fields with various functions that are a subset of the Cosmic Consciousness Network. These fields do not have a physical or frequency nature and cannot be measured directly using quantitative tools. More details about this theory are provided in the Common Considerations section of this issue. In short, the possibility of practical investigation in these fields allows researchers to study them through a range of experiments (Taheri, 2013).

Previous studies have explored the influence of TCFs across diverse biological and physiological contexts, including their impact on the MCF7 breast cancer cell line (Taheri et al., 2020a), spatial memory and avoidance behavior in an Alzheimer's disease rat model (Taheri et al., 2021a), wheat plants (Torabi et al., 2020), bacterial population (Taheri et al., 2021b), and alterations in brain electrical activity observed during Faradarmani Connection among Faradarmangars (Taheri et al., 2020b)

This study aimed to investigate the effects of Faradarmani CF on antimicrobial susceptibility in the opportunistic pathogen *P. aeruginosa*. Antibiotic susceptibility was assessed using the disk diffusion test, and the expression of resistance-related genes was examined.

Material and Methods

Application of Faradarmani CF

The samples studied were influenced by the Faradarmani Consciousness Field, according to the guidelines set up at the CosmoIntel Research Center (www.COSMOintel.com). In the present study, Faradarmani CF was *announced* for cultured bacteria in plates for the disk diffusion method as the treatment group. The Faradarmani CF was only applied after the culture of bacteria and before inserting the disks on the test plates.

Preparation of bacteria and disk diffusion test

P. aeruginosa was prepared from the laboratory archive (strains had previously been isolated and biochemically identified) and cultured on blood agar (BA) and nutrient agar (NA).

Two antibiotics, including penicillin and ampicillin, were selected against the resistant strain of *P. aeruginosa* (with up to 70-80% resistance rate). The disk diffusion method was performed according to the CLSI (Clinical and Laboratory Standards Institute) standards. The effects of penicillin (10 units/disk) and ampicillin (10 µg/disk) disks on bacteria were assessed by evaluating three replications of commercial antibiotic disks (Padtan Teb Company). The disk without antibiotics was used as the negative

control. *P. aeruginosa* was cultured uniformly on the surface of BA media using a sterile swab. The Faradarmani CF was applied only after the bacterial culture and before inserting the test plates. Then, the disks were placed at least 2 cm apart with slight pressure. The cultured Petri dishes were incubated at 37 °C, and the diameter of the bacterial growth inhibition zone was measured after 24 hours. The bacteria were cultured in NA medium to confirm the results obtained in BA medium.

Evaluation of gene expression levels

Reverse Transcription Real-Time Polymerase Chain Reaction (RT-qPCR) was performed from bacteria cultured in the BA medium. RNA extraction for the Faradarmani CF treatment and control groups of bacteria was performed using the RNX-plus reagent kit according to the manufacturer's protocol, and to ensure the accuracy of the extraction, quantitative evaluation was performed using a Nanodrop (Thermo Scientific, USA) and 1% agarose gel electrophoresis. The cDNA synthesis was performed according to the Takara (Korea) kit protocol using random hexamers.

Real-time PCR was performed using a Takara Kit (Korean company) to quantitatively evaluate gene expression by analyzing the amplification curve (Ct value). The target genes, *MexA*, *MexB*, and *OprM*, are associated with the MexAB-OprM efflux pump in *P. aeruginosa.* The expression levels were normalized to *rpoD* as the housekeeping gene. The expression levels of mRNAs were calculated using the comparative ΔCt method. The standard strain of *P. aeruginosa* PAO1 (ATCC 27853) was used as the positive control of the reaction. The microtube containing all the reaction material except cDNA was used as the negative control. The primers listed in Table 1 were used.

Table 1. Sequences of primers used in this study

Gene name	Primer Sequences (5'-3')
MexA	F: CGACCAGGCCGTGAGCAAGCAGC R: GGAGACCTTCGCCGCGTTGTCGC
MexB	F: TGTCGAAGTTTTTCATTGAG R: AAGGTCACGGTGATGGT
OprM	F: GATCCCCGACTACCAGCGCCCCG R: ATGCGGTACTGCGCCCGGAAGGC
rpoD	F: GGGCTGTCTCGAATACGTTGA R: ACCTGCCGGAGGATATTTCC

Real-time PCR was performed via the SYBR Green-based PCR Master Mix and analyzed on a Corbett 6000 Rotor-Gene thermocycler (Corbett Research) under the following procedure: one denaturation cycle of 95ºC for 5 min, followed by 40 amplification cycles of 95º C for 30 sec, annealing temperature for each gene for 30 sec, 72ºC for 30 sec and a final extension of 72 ℃ for 5 min. The melting curve analysis was performed to assess the lacking primer dimers and amplification specificity. Relative changes were calculated using the ΔΔCt method.

Statistical analysis

In the disk diffusion test results, zone sizes were measured, and the mean ± standard deviation (SD) was calculated. The Kruskal-Wallis test for nonparametric data and SPSS 18 software were used to analyze the results. The $p< 0.05$ was considered statistically significant.

Results

The figures from the disk diffusion test of antibiotic-resistant *P. aeruginosa* against ampicillin and penicillin disks in each group of the present study are shown in Figure 1 and Table 2.

Faradarmani CF significantly decreased the resistance of *P. aeruginosa* to both penicillin and ampicillin ($p < 0.05$) (Table 2 and Figure 1B), and no inhibition zone was observed around the penicillin and ampicillin disks in the control plate (Figure 1A). Disk diffusion test of Faradarmani-treated blood agar on nutrient agar, performed for penicillin, showed the persistence of this effect (Figure 1C)



Figure 1. Disk diffusion test results for a P. aeruginosa-resistant strain with penicillin and ampicillin disks, and a disk without antibiotic as the negative control. A) Growth of *P. aeruginosa* resistant strain around the antibiotic disks (penicillin and ampicillin) in BA medium and absence of Faradarmani CF, B) Growth inhibition zone of *P. aeruginosa* resistant strain around the antibiotic disks (penicillin and ampicillin) in the presence of Faradarmani CF in BA medium. C) Repetition of the BA medium of the Faradarmani CF treatment group in the NA medium.

Table 2. The inhibition zone (mm) of the disk diffusion test on BA medium of *P. aeruginosa*

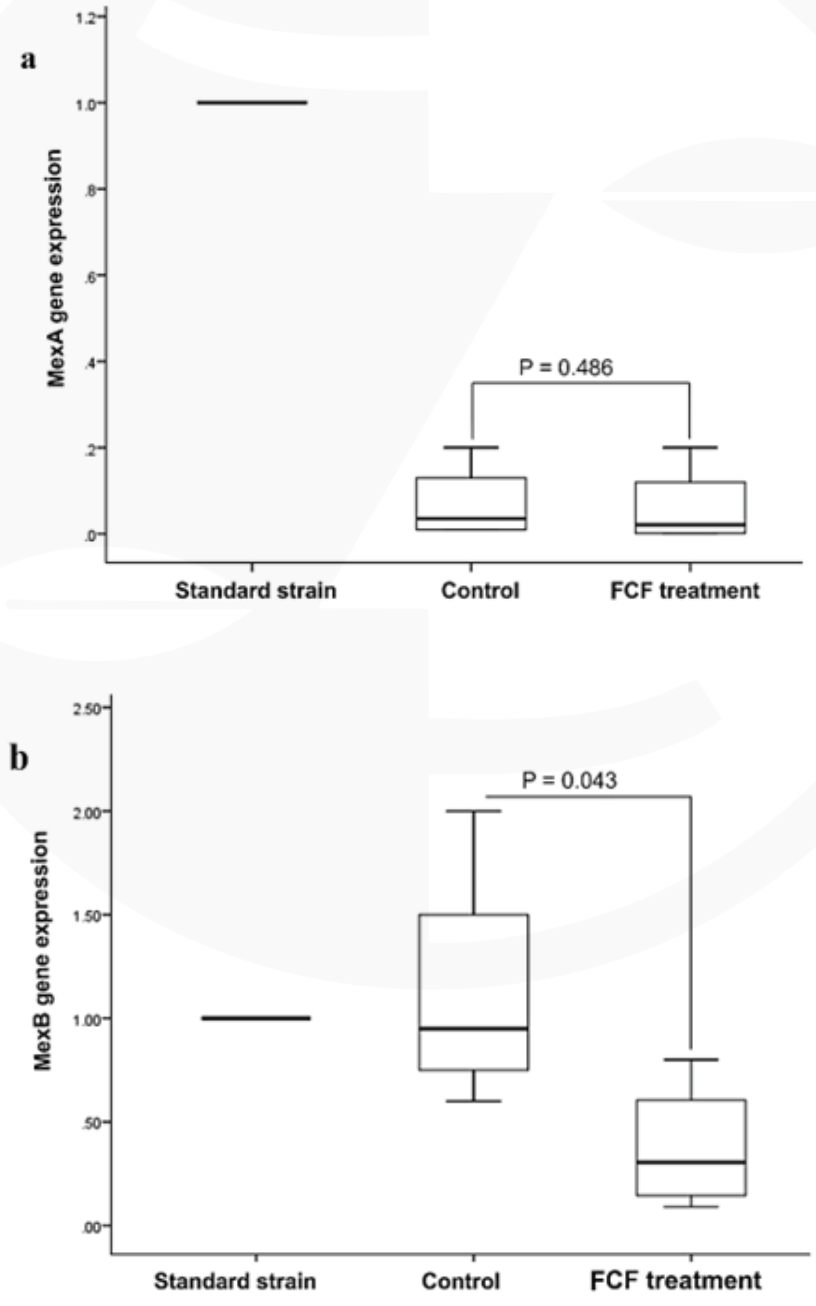
	Control		Faradarmani CF treatment	
Antibiotics	**Ampicillin**	**Penicillin**	**Ampicillin**	**penicillin**
P. aeruginosa	0	0	18±1.6*	20.75±1.5*

An asterisk (*) displays a significant difference compared with the control ($p < 0.05$)

Expression levels of *MexA*, *MexB*, and *OprM* were compared across three groups: standard strain, control, and Faradarmani CF-treated samples (Figure 2). The RNA expression level of *MexA* in the presence of the Faradarmani CF decreased, but this difference was not statistically significant (p=0.486). This result suggests that Faradarmani CF treatment did not alter *MexA* transcription under the tested conditions.

In contrast, *MexB* expression was significantly lower in the treatment group than in the control group (p=0.043). The median expression level in Faradarmani CF-treated samples was approximately threefold lower than in controls, indicating that Faradarmani CF treatment may suppress MexB-mediated efflux activity.

Similarly, *OprM* expression was significantly downregulated in treated samples compared with controls (p=0.042), with a reduction of approximately 2-fold. This downregulation may reflect altered membrane-associated efflux function in response to Faradarmani CF exposure.



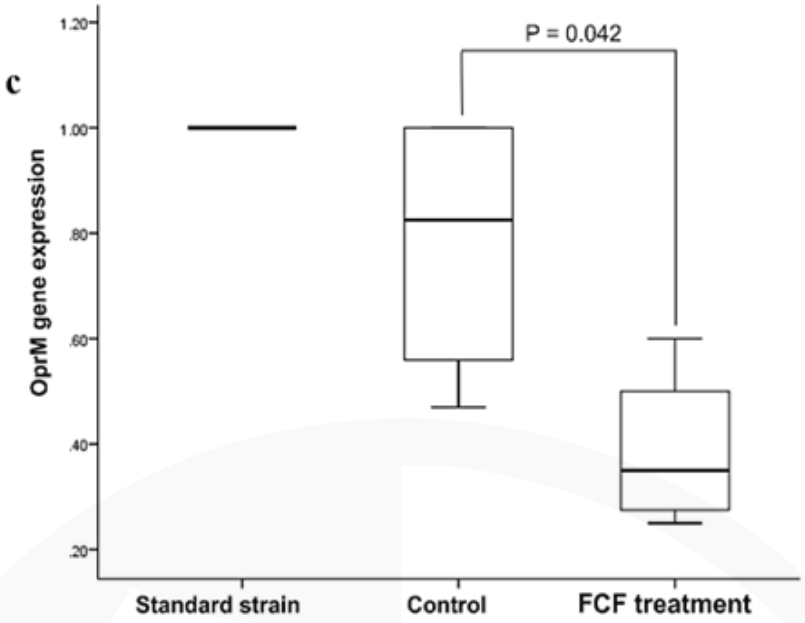


Figure 2. RNA expression level of *MexA* (a), *MexB* (b), and *OprM* (c) genes in the control and Faradarmani treatment and the standard strain of *P. aeruginosa* PAO1 as the positive control. An asterisk displays a significant difference ($p < 0.05$) between the Faradarmani CF (FCF) treatment and control groups.

Discussion

The incidence of drug-resistant infections is increasing in hospitals and other clinical care settings. Infections caused by these drug-resistant microorganisms are difficult to treat, involve challenges in diagnosis and treatment, and cause increased morbidity and mortality (Boucher et al., 2009). Finding a way to treat patients with drug-resistant infections is crucial.

In this study, the effect of Faradarmani CF on the susceptibility of an antibiotic-resistant strain of *P. aeruginosa* was evaluated. It was found that Faradarmani CF increased the susceptibility of bacteria to penicillin and ampicillin in both phenotypic and genotypic tests.

Faradarmani CF treatment selectively modulated the expression of efflux pump genes in *P. aeruginosa*. While *MexA* remained unaffected, *MexB* and *OprM* were significantly downregulated in treated samples (~3-fold and ~2-fold reductions, respectively) compared to controls. These findings suggest that Faradarmani CF treatment interferes with the MexAB-OprM efflux system by suppressing its transporter (MexB) and outer membrane channel (OprM), potentially impairing efflux activity and enhancing bacterial susceptibility to antimicrobials.

TCFs are not directly measurable, but their effects can be investigated indirectly through various experiments. The findings of this study highlight a potential novel approach to reducing antibiotic resistance in opportunistic pathogens, though further research is needed to clarify the underlying mechanisms and evaluate clinical applicability of TCFs.

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Conflicts of Interest

The authors declare no conflict of interest.

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Ms. Laleh Amani was a prominent, compassionate, and enthusiastic researcher at Cosmointel who passed away in 2021.

Evaluation of the Influence of Faradarmani Consciousness Field on Viral Growth

Mohammad Ali Taheri[1], Mohammad Reza Etemadi[2], Sara Torabi[3], Noushin Nabavi[4], Farid Semsarha[5*]

* Corresponding Author: Farid Semsarha, Email: Semsarha@ut.ac.ir

1. Sciencefact R&D Department, Cosmointel Inc. Research Center, Ontario, Canada
2. Department of Biology, Faculty of Basic Sciences, Islamic Azad University of Arak, Arak, Iran
3. Department of Plant Biology, School of Biology, College of Sciences, University of Tehran, Tehran, Iran
4. Research Services at University of Victoria, BC, Canada
5. Institute of Biochemistry and Biophysics (IBB), University of Tehran, Tehran, Iran

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Abstract

Taheri Consciousness Fields are non-material and non-energy fields whose reproducible effects can be examined under laboratory conditions. Previous experiments have reported the effects of the Faradarmani Consciousness Field on animal and plant models. Observing significant Faradarmani effects on the viability of cell lines and on bacterial population growth led us to investigate the effects of this field on viral titers. The aim of this study was to evaluate the effect of the Faradarmani Consciousness Field on four types of viruses—enveloped and non-enveloped, and DNA and RNA viruses—using the TCID50 assay. The results showed that the Faradarmani Consciousness Field altered viral titers by 0.4 to 1.85 log compared to the control. The responses of viruses with different characteristics to the Faradarmani also varied. Further studies are needed to elucidate the mechanism by which this non-physical field affects viruses.

Keywords: Cytopathic effects, Faradarmani Consciousness Field, TCID50, Viral quantification

Introduction

The virus was discovered at the end of the 19th century by Dmitri Ivanovsky. Specifically, the tobacco mosaic virus was the first pathogen identified as a virus, and with it, many fundamental virology concepts related to viral purification were developed (Zaitlin, 1998). Viruses are extremely small and can pass through filters that bacteria cannot (Van Regenmortel, 2008). In the late 1930s, with the invention of the electron microscope, the biological study of viruses—and in particular, bacteriophages—became possible (Luria et al., 1943). Viral genomes consist of either DNA or RNA, but not both simultaneously. DNA or RNA contribute to diverse characteristics in viruses; they can be double-stranded or single-stranded, linear or circular, and range from 2 kb to 2500 kb in length (O'Carroll and Rein, 2016). The protein shell, known as the capsid, protects the nucleic acid (Pal, 2019). Viruses come in various shapes and sizes and are classified based on morphological features, such as the type of nucleic acid, capsid symmetry, the presence or absence of an envelope, and additional characteristics of the capsid (Norrby, 1983).

Viruses exist wherever life is found, and they are the most abundant biological entities (Suttle, 2005; Louten, 2016). It has been reported that there are 10^{31} viruses on Earth. They can infect all types of life forms, including animals, plants, bacteria, and archaea (Koonin et al., 2006). Viruses are not considered alive because they can only replicate inside host cells (López-García, 2012) and are therefore described as "organisms at the edge of life" (Reybicki, 1990). Recently, it has been suggested that whether viruses are considered alive depends on the definition of life. For example, Koonin and Starokadomskyy describe a common argument according to which viruses must be alive because they can be "killed," as in the case of alcohol-based hand sanitizers (Koonin and Starokadomskyy, 2016). A similar line of reasoning was presented following the discovery of virophages—viruses that parasitize other viruses—where the ability of viruses to become "sick" was interpreted as blurring the boundary between living and non-living entities (Ruiz-Saenz and Rodas, 2010).

Over the last four decades, we have witnessed various viral pandemics, including HIV, SARS-CoV, influenza A (A/H1N1), MERS-CoV, Ebola virus, SARS-CoV-2, and most recently, Coronavirus Disease 2019 (COVID-19), each presenting new challenges (Roychoudhury et al., 2020). Scientists have invested significant effort into understanding how to prevent pandemics. According to the CDC, aside from vaccination and medication, nonpharmaceutical interventions (NPIs) are strategies that individuals and communities can use to help slow the spread of respiratory viruses such as influenza (e.g., staying home when ill, washing hands), particularly when vaccines are not yet available.

According to Taheri's theories, various T-Consciousness Fields (TCFs) with a non-frequency nature exist as subsets of the Cosmic Consciousness Network. The effects of these fields are initiated through a brief, instantaneous attention to the subject under study, carried out by the announcer (Taheri, 2013). These fields can be evaluated in the laboratory for their effects on a wide range of subjects, including both living organisms and inanimate materials. In a previous study, it was observed that the Faradarmani Consciousness Field altered the growth rate of various types of bacteria (Taheri et al., 2021a).

Further details about the theory of TCFs have been discussed in recent articles (Taheri et al., 2020a). Using this approach, it has been reported that the Faradarmani CF alleviated the adverse effects of salt stress on wheat plants (Torabi et al., 2020). Other observations employing this method include the effects of the Faradarmani CF on altering cancer cell growth patterns (Taheri et al., 2020b), on behaviors and biochemical changes in Alzheimer's disease rat models (Taheri et al., 2021b), and on the electrical activity of the brain (Taheri et al., 2020c). To further explore these concepts in other organisms, we designed an *in vitro* model to evaluate the effect of the Faradarmani CF on the growth characteristics of a panel of viruses with different morphogenetic properties. The aim of the present study is to examine the effect of the Faradarmani Consciousness Field on various viruses with diverse morphogenetic characteristics.

Material and Methods

Application of Faradarmani CF

The Faradarmani Consciousness Field was applied to half of the samples according to the protocol established by the Cosmointel Research Center, and the samples without exposure to this field were considered as controls. In this study, the $TCID_{50}$ method (the 50% tissue culture infectious dose) was used to assess the effect of the Faradarmani Consciousness Field on viral titer. The Faradarmani Consciousness Field was announced every hour and continued for 72 hours from the time the cells were infected.

Virus selection

Viruses are generally classified into two major groups: enveloped and non-enveloped. In this experiment, prototype viruses from both categories were selected to evaluate the effect of the Faradarmani Consciousness Field on them. The enveloped viruses used in this study included Vesicular Stomatitis Virus (VSV) and Herpes Simplex Virus 1 (HSV-1), while the non-enveloped viruses included Encephalomyocarditis Virus (EMCV) and Reovirus. The characteristics of the selected viruses are summarized in Table 1.

Table 1. Model viruses used in the present study.

Virus	Family	Genome type	Genome size / (kb)	Structure	Weight (MDa)	Size (nm)	Host	Reference
VSV	Rhabdoviridae	(Negative) Single strand RNA	11	Enveloped	265.5	70	Animal	Rodriguez et al., 2002
EMCV	Picornaviridae	(Positive) Single-strand RNA	7.8	Non-enveloped	8.6	30	Animal	King et al., 2011
HSV1	Herpesviridae	Double strand DNA	152	Enveloped	200	125	Human	Williams et al., 1965
Reovirus	Reoviridae	Double strand RNA	18.2-30.5	Non-enveloped	130	80	Human	MacLachlan, 2017

Calculation of Viral Titer Using $TCID_{50}$

The viral stock titers were determined using the Reed and Muench method. This method, which is one of the standard approaches for calculating the 50% endpoint, enables a quantitative estimation of viral titer based on the pattern of cell culture infection across different virus dilutions. In this study, the data obtained from the cellular responses to the virus dilutions were used to calculate the 50% Tissue Culture Infectious Dose ($TCID_{50}$).

Titer of Viruses Exposed to the Faradarmani Consciousness Field

Host cells were cultured in 96-well plates at 90–100% confluency. Vero cells were used for examining VSV and HSV-1, while the L929 cell line was used for EMCV and Reovirus. After inoculation of the selected viruses into the cells, they were studied in two groups: a group exposed to the Faradarmani Consciousness Field and a control group that did not receive the field. For comparison, control plates were inoculated with the same viruses and maintained under identical conditions. Ten-fold serial dilutions of the selected viruses were prepared in DMEM and used to infect susceptible cells at 37 °C for 1 hour, allowing sufficient time for viral adsorption. Control plates and samples exposed to the Consciousness Field were placed on different shelves of the incubator, both under identical CO_2 levels. The Faradarmani Consciousness Field was applied from the time of viral inoculation of the host cells until 72 hours post-infection (hpi). The plates were incubated for 72 hours post-infection at 37 °C in a CO_2 incubator. Subsequently, the cells were stained with Giemsa dye and examined for cytopathic effect (CPE) using an inverted light microscope (Labomed TCM400). The $TCID_{50}$ of the viruses was calculated using the Reed and Muench method with the following formula:

$$proportionate\ distance\ (PD) = ((\%\ above\ 50\%) - 50\%)) / ((\%\ above\ 50\%) - (\%\ below\ 50\%))$$

$$log\ TCID50 = (log\ dilution\ above\ 50\%) + (PD \times log\ dilution\ factor)$$

Results

The viral titers in plates inoculated with the selected viruses and exposed to the Faradarmani treatment were calculated and compared with plates inoculated with the same viruses but without the Faradarmani treatment (positive controls) at 72 hours post-infection. The progression of cytopathic effects (CPE) was observed using an inverted microscope.

The results of CPE induction in both groups—cells treated with the Faradarmani Consciousness Field and control cells—are shown in Figure 1. Plates infected with EMCV and stained with Giemsa, which were used for viral titer calculation, are presented in Figure 2.

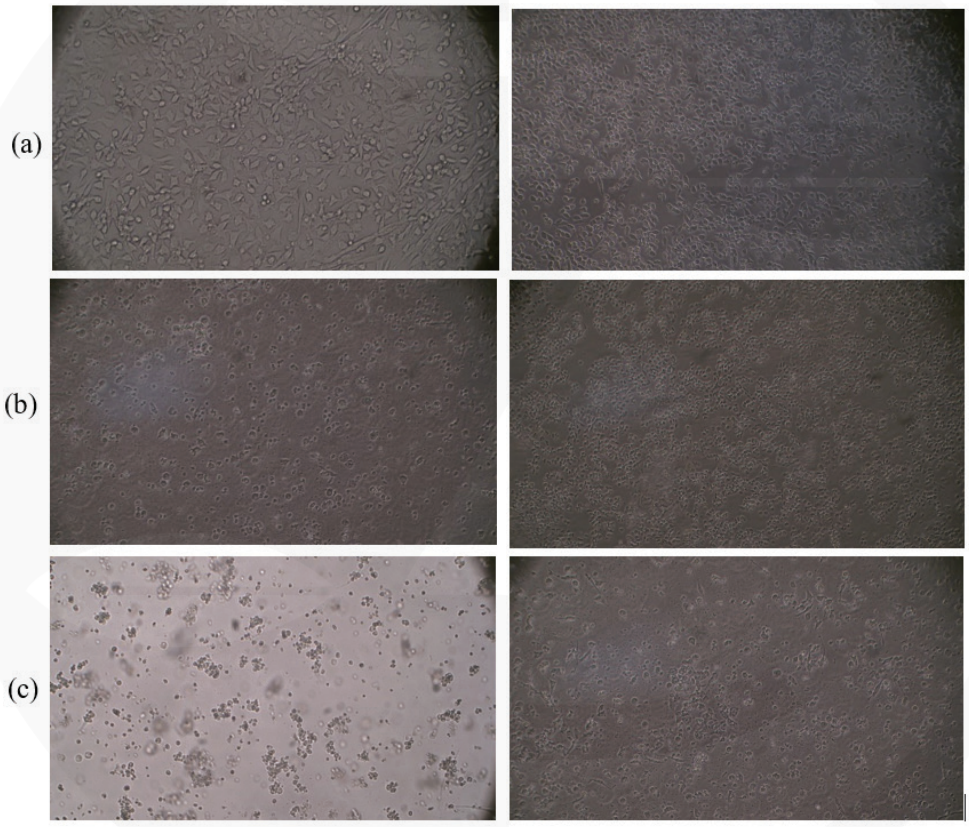


Figure 1. Vero cells (left) and L929 cells (right): (a) before titration with VSV/EMCV, (b) CPE induction in the control group without Faradarmani Consciousness Field treatment, and (c) VSV/EMCV-infected cells treated with the Faradarmani Consciousness Field. Images are shown at 40× original magnification.

Table 2. TCID50 of the selected viruses of the present study. FCF: Faradarmani Consciousness Field

Virus	Permissive cell	Virus titer in control sample (TCID50/ml)	Virus titer in FCF treated sample (TCID50/ml)	Log Difference -: decrease +:increase
VSV	Vero	10^{8}	10^{7}	-1
EMCV	L929	10^{9}	$10^{7.15}$	-1.85
HSV-1	Vero	$10^{4.4}$	$10^{4.9}$	+0.5
Reovirus	L929	$10^{9.9}$	$10^{9.5}$	-0.4

As presented in Table 2, treatment with the Faradarmani Consciousness Field resulted in a reduction in viral titer for the RNA viruses VSV, EMCV, and Reovirus, with decreases of 1, 1.85, and 0.4 log, respectively, in the treated samples. This reduction indicates an inhibitory effect of the treatment on RNA viruses in their respective host cells. In contrast, HSV-1, which is a DNA virus, showed a slight increase in titer (0.5 log) in the treated samples, suggesting that the Faradarmani Consciousness Field may exert different effects depending on the type of virus.

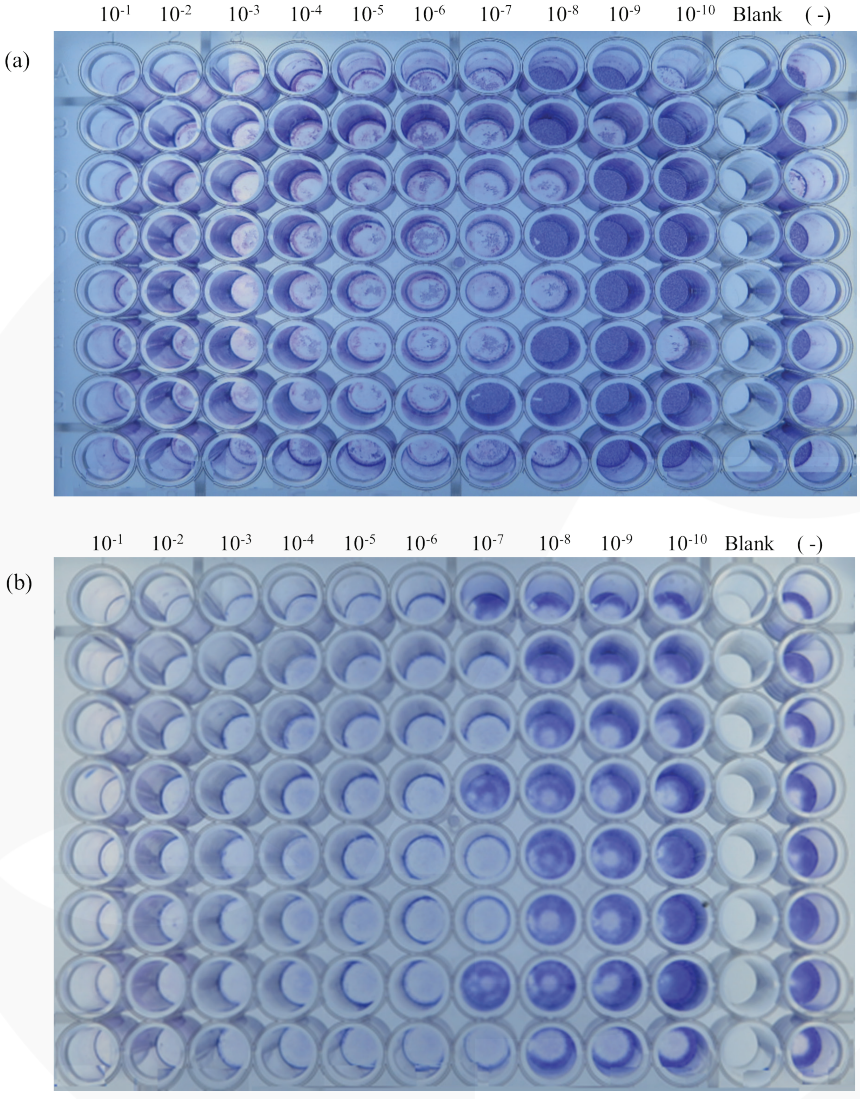


Figure 2. The 96-well plate used for EMCV titration: (a) positive control and (b) Faradarmani Consciousness Field–treated sample. The infected cells were not stained with Giemsa. Serial dilutions of the virus were arranged from left to right in each plate. The first column on the right was used as the negative control (mock-infected). The number of infected wells decreases from left to right as the viral dilution increases.

Based on the 96-well plate images shown in Figure 2, treatment with the Faradarmani Consciousness Field resulted in reduced color intensity and consequently decreased EMCV activity compared with the positive control. This difference is clearly visible in the middle and central wells of the plate, suggesting a potential inhibitory effect of this treatment on the virus.

Discussion

In this preliminary study, the role of the Faradarmani Consciousness Field was investigated for the first time on four types of viruses. The results showed that the titers of RNA viruses were significantly reduced under the influence of the Faradarmani field. It appears that, in RNA viruses, the presence or absence of an envelope—as well as genome size—may influence their response to the Faradarmani Consciousness Field (as seen in the comparison between EMCV and VSV).

DNA and RNA viruses respond differently to the Faradarmani Consciousness Field, as demonstrated by the results for HSV-1, which differed from those of the other RNA viruses examined in this study. This difference may be due to the fact that DNA viruses (such as HSV-1) rely on distinct mechanisms for survival and replication within the host cell. Further studies involving a broader range of viruses under both *in vitro* and *in vivo* conditions are needed to clarify how Faradarmani may influence their replication.

According to Taheri's theory, analyzing the behavior of biological systems requires considering both hardware and software components. In this view, in addition to the physical component—which is likened to hardware—there must also be a software component responsible for determining the function and behavior of the hardware. This software component, considered as the *mind*, is assumed to carry out information processing. It is hypothesized that information transmitted through T-Consciousness Fields can alter the behavior and characteristics of the subject under study.

In this study, the titers of several viruses changed under the influence of the Faradarmani Consciousness Field. This effect, which occurs without any physical intervention, is referred to as a *software effect*. For example, while the death or inactivation of microbes by antimicrobial agents is considered a physical intervention, the distinct effects observed here on different viruses may be viewed as a qualitative intervention.

In summary, this study first provided evidence for the influence of the Faradarmani Consciousness Field on viral titers, and second, demonstrated that the effect of this field varies depending on the type of virus. Based on these preliminary findings, further investigations are recommended to clarify the mechanisms through which these T-Consciousness Fields exert their effects.

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Effect of the Faradarmani Consciousness Field on Immune Response Induced by an Inactivated Vaccine Against Foot and Mouth Disease Virus (FMDV) in Rats and Replication of FMDV *In Vitro*

Mohammad Ali Taheri[1], Laleh Amani[2], Simin Sharifi[3], Ahmad Khalili[4], Ali Zaman Vaziri[4], Hossein Keyvani[5*]

1. Sciencefact R&D Department, Cosmointel Inc. Research Center, Ontario, Canada
2. Department of Biology, Science and Research Branch, Islamic Azad University, Tehran, Iran
3. Department of Pharmaceutical Biotechnology, Faculty of Pharmacy, Tabriz University of Medical Sciences, Tabriz, Iran
4. Cancer Biomedical Center (CBC) Research Institute, Tehran, Iran
5. Department of Virology, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran

* Corresponding Author: Hossein Keyvani, Department of Virology, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran.
Email: Keyvanlab@yahoo.com

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Abstract

Foot-and-mouth disease (FMD) is one of the highest-risk factors affecting the animal industry worldwide. Currently, available commercial FMD vaccines have numerous limitations, such as slow induction and short-term maintenance of antibody titers. Therefore, a novel approach is needed that can induce high neutralizing antibody titers to protect the host in the early stages of FMD virus (FMDV) infection and maintain high antibody titers for extended periods after a single vaccination dose. There are several T-Consciousness Fields (TCFs), introduced by Mohammad Ali Taheri. TCFs are not matter or energy, so they cannot be measured directly. However, we can indirectly evaluate their effects through several reproducible laboratory experiments. The present study aimed to evaluate the effect of Faradarmani CF, a type of the TCFs, on FMDV replication, titer, and RNA copy number as well as the humoral immune response against two types of inactivated FMDV vaccines with different adjuvants in rats. Two types of FMD vaccines with different adjuvants (Freund's and Alum) were prepared, and 30 male Wistar rats were immunized with the vaccines. Rats were divided into six groups (n=5 per group). Four groups of rats were studied using different treatment combinations, and two groups served as positive and negative controls. Vaccination intervals were every 14 days, three times. Serum neutralization test (SN) and Enzyme-linked immunosorbent assay (ELISA) were used to assess changes in antibody levels in rat serum samples after each immunization. The results showed that Faradarmani CF induced viral replication *in vitro*. In addition, antibody levels in treated groups under both Freund's adjuvant and Alum adjuvant vaccines increased significantly compared to groups without Faradarmani CF treatment. In conclusion, our data suggest that Faradarmani CF may offer a practical approach to improving immunization and vaccination success against FMDV serotype O. It is recommended that the effects of TCFs across different vaccine types be investigated.

Keywords: Foot-and-mouth disease, Faradarmani Consciousness Field, Taheri Consciousness Fields, Vaccine

Introduction

One of the highly contagious viral diseases is Foot-and-mouth disease (FMD), which can affect cloven-hoofed livestock and cause significant financial losses in the livestock industry due to its severe reduction in animal productivity, rapid transmission, and high mortality in newborn animals caused by myocarditis (Grubman et al., 2004). This disease is characterized by high fever and causes the formation of vesicles on the mouth, tongue, nose, snout, hooves, teats, and other hairless areas of the animal's skin (Arzt et al., 2011).

Foot-and-mouth disease virus (FMDV) is the etiological agent of FMD, which is a single-stranded, positive-sense RNA virus belonging to the Aphthovirus genus of the Picornaviridae family. There are seven distinct serotypes (A, O, C, Asia1, SAT1, SAT2, and SAT3) of this virus (Robinson et al., 2016). The most prevalent serotype of FMDV is serotype O, which circulates in several parts of the world (Klein, 2009).

FMDV serotypes exhibit high antigenic and genetic variation, so antibody responses induced by one serotype are not effective against other serotypes, and vaccination does not provide cross-protection (Yang et al., 2008; Knowles et al., 2003). Therefore, vaccine strains for each type should be prepared and used to protect against each serotype and topotype. Furthermore, vaccines should be administered continuously to maintain antibody titers. Nevertheless, these approaches are time-consuming, and the efficacy of these vaccines remains unclear.

While vaccination policy has been applied to prevent and treat FMD, there are numerous limitations to the vaccines available on the market (Lyons et al., 2019; de Los Santos et al., 2018; Mahapatra et al., 2018). Some limitations include the need for repeated vaccination, the need for a long time to achieve a protective level of vaccine-mediated antibodies, low and short-lived antibody titers, and inadequate host protection due to a humoral immune response alone. Therefore, innovative methods for FMD vaccines are needed to overcome current limitations and improve their efficacy (Lee et al., 2020).

According to Taheri's theory, there are different T-Consciousness Fields with various functions that are a subset of the Cosmic Consciousness Network. These fields do not have a physical or frequency nature and cannot be measured directly using quantitative tools. More details about this theory are provided in the Common Considerations section of this issue. In short, the possibility of practical investigation in these fields allows researchers to study them through a range of experiments (Taheri, 2013).

This study aimed to evaluate the effects of Faradarmani CF on FMD virus replication, titer, and RNA copy number, as well as the humoral immune response against two types of FMD vaccines with different adjuvants in rats.

Material and Methods

Faradarmani CF application

The samples studied were influenced by the Faradarmani Consciousness Field, according to the guidelines set up at the CosmoIntel Research Center (www.COSMOintel.com).

In the present study, Faradarmani CF was announced simultaneously with the vaccine injections in treatment groups. Similarly, for *in vitro* examinations, at the same time the virus was inoculated into the cell culture flasks, the treatment groups were exposed to Faradarmani CF.

FMD virus replication

FMD serotype O virus (FMDV serotype O) was initially prepared at the Pirbright Institute and used in this project. BHK (Baby hamster kidney cell line was cultured in Dulbecco's Minimum Essential Medium (DMEM) high glucose, 5% fetal bovine serum (FBS), 1% antibiotics (penicillin and streptomycin), and incubated at 37 °C and 5% CO2. Following 80% confluency of the monolayer of BHK Cell cultures in T-25 flasks, 0.5 mL of FMDV serotype O was inoculated with 107 TCID50 into each Faradarmani CF-treated and control flask. Each day, the cytopathic effect (CPE) was recorded under an inverted microscope for 48 hours. After

48h, samples were sent for real-time PCR testing. All procedures were conducted in a biosafety level-3 (BSL-3) laboratory

Viral titration

96-well cell culture microplates were employed to determine viral titers (10^{-5} to 10^{-9} dilutions) using the Reed & Muench method (Reed et al., 1938). Then, the plates were incubated for 72 h at 37 °C and 5% CO2. The flasks were examined daily to assess the appearance of cytopathic effects.

Viral RNA extraction and real-time RT-PCR reaction

Total RNA from the samples was extracted using the High Pure Viral RNA Kit (Roche) according to the manufacturer's instructions. The Real-time reaction was carried out using the Superscript III/ Platinum Taq one-step kit (Invitrogen). A set of primers was used to detect an FMDV fragment of the 3D (polymerase RNA) gene. The total volume of 20 µL reaction mix contained 0.4 µL MgSO4, 10 µL 2x-reactions buffer, 2.6 µL diethylpyrocarbonate (DEPC) water, 0.4 µL Enzyme Superscript III/ Platinum, 0.25 µL of each primer, 0.1 µL probe, 6µL extracted RNA. Then, the tubes were placed into a Corbett Rotor-Gene device. The steps of amplification were done in the following temperature cycles: Reverse transcription (one cycle), 50 ºC for 30 minutes, the initial denaturing (one cycle), 95 ºC for 2 minutes, 95 ºC for 30 seconds, and 60 ºC for 30 seconds (40 cycles).

Preparation of complete FMD virus antigen for vaccines

Each flask of BHK cells (80% confluency) was inoculated with 2 mL of virus ($10^{6.8}$ TCID50/ mL). After 18 hours, all flasks showed full cytopathic effect (CPE). The flasks containing the cells and the virus were then frozen at -70 °C and thawed twice to lyse the cells and release intracellular viruses. In the next step, the resulting suspension was filtered through a 0.2 µm filter. The viral suspension (500 mL) was centrifuged at 3000 rpm for 10 min at 4 °C. Deactivation of the virus was performed by binary ethylenimine at a concentration of 5 mM for 24 hours at 25 °C. Unused ethyleneamine in the viral suspension was neutralized by sodium thiosulfate (5 mM). Polyethylene glycol (8% w/v, 6000 kDa) was used to concentrate the inactivated virus. Finally, the prepared antigen was collected in a volume of 10 mL. The concentration of the prepared antigen was 2.5 mg/mL, determined by the Lowry method (Lowry et al., 1951).

Vaccine preparations

Vaccine containing aluminum hydroxide gel

For the preparation of the aqueous vaccine, 33% aluminum hydroxide gel (pH 7.2) and saponin (6 mg/dose) were used.

Vaccine containing Adjuvant Freund

To prepare the vaccine containing Freund's adjuvant, two types of complete and incomplete adjuvants (Sigma Co.) were used. In this vaccine, 50% antigen was mixed with 50% Freund's adjuvant. Homogenization of the vaccine was performed using a 10 mL syringe, with the tube filled and emptied repeatedly. In the first injection, the vaccine containing complete Freund's adjuvant was used, and in subsequent injections, the vaccine containing incomplete Freund's adjuvant was used.

Grouping of rats

In this study, 30 male Wistar rats, weighing about 300 g on average, were used. Rats were divided into six groups (n=5 per group). Subcutaneously, 0.5 mL of the vaccine was injected into each rat in the area between the two shoulders. The five rats were considered the negative control group. Grouping was done as follows:

- Group 1: FMDV (Type O) + Alum adjuvant
- Group 2: FMDV (Type O) + Alum adjuvant + Faradarmani CF
- Group 3: FMDV (Type O) + Freund's adjuvant
- Group 4: FMDV (Type O) + Freund's adjuvant + Faradarmani CF
- Group 5: Alum + recombinant VP1 (Positive Control)
- Group 6: Negative Control

Vaccination intervals were every 14 days. Blood samples were taken on day zero and before each immunization dose. Blood samples were centrifuged at low speed (1500 × g for 10 min at 4 °C), and the serum was isolated. The sera were incubated at 56 ° C for 30 minutes to inactivate their complement. Then, they were stored at -20 ° C until serological tests.

Serological tests

Serum neutralization test (SN) and ELISA (Enzyme-linked immunosorbent assay) were used to assess changes in antibody levels in rat serum samples after vaccination.

SN test

At first, the sera were serially diluted in Roswell Park Memorial Institute (RPMI) medium, and 50 µL of each dilution was added to each well in duplicate. Second, 50 µL of serotype O virus with a titer of 10^3 TCID50/ mL was added to each well. Then, plates were placed in an incubator at 37 °C for 60 minutes. Next, 50 µL of the IBR-S2 cell line (0.5×10^5 /well) was added. Finally, the plates were incubated at 37 °C. After 48 hours, the plates were examined for CPE effects. Test results were determined based on CPE observation. The highest dilution of serum that prevented CPE in 50% of wells was considered the neutralizing antibody titer. Finally, serum titers were calculated.

ELISA

FMDV serotype O was diluted 1/10 with coating buffer (NaHCO3/Na2CO3, 0.05 M, pH 9.5), and 100 µL was added to 96 microplate wells and incubated at 4 °C overnight. All contents of the microplate were discharged and washed three times with PBS-T (500 µL PBS, 20 µL Tween 20). Skim milk (5%) in PBS-T was used to block the space between antigen molecules at the bottom of the wells. After blocking, the sample was washed four times with washing buffer.

To determine the appropriate dilution of the sera, two positive and two negative control serum samples were diluted in a checkerboard pattern. Four dilutions (1:25, 1:50, 1:100, and 1:200) of the mentioned sera were prepared and tested in PBS-T and 1% skim milk. Finally, a 1:100 dilution was determined to be the proper concentration.

For the addition of unknown sera, 100 µL of rat serum was added to each well and incubated for 75 minutes at 37 °C. The washing steps were repeated four times.

For adding the secondary antibody, 100 µL of Rabbit Anti-Guinea Pig Horseradish Peroxidase Conjugated (Sigma) was added to each well and incubated at 37 °C for 75 minutes. After this step, washing was done 5 times. Substrate 3,3',5,5'-Tetramethylbenzidine (TMB) (100 µL was then added to all wells and placed at room temperature and in the dark for 15 minutes. In the end, 50 µL of 1 M hydrochloric acid was added as a stop solution, and the optical absorbance (OD) of the samples was read on an ELISA reader at 450 nm.

Results

Impact of Faradarmani CF on replication, titer, and RNA copy number of FMD virus

In this study, the virus's compatibility with BHK cells and their growth and proliferation were evaluated in cell culture. Results of virus titration (TCID50 calculation) are presented in Table 1. On average, a half-log is added to the virus titer for each passage. The duration of the observed cytopathic effects began at 6 to 7 hours after virus inoculation and reached a peak at 12 hours. In cultures affected by the Faradarmani CF, cells could survive longer in the face of the virus.

The Ct values were used to assess the results of the real-time RT-PCR assay. There were differences in Ct values between the Faradarmani CF treatment and control groups. The lower Ct values in the Faradarmani CF treatment group indicate that the number of viruses was higher in the samples under the influence of Faradarmani than in the controls.

Table 1. TCID50 and Real-time PCR assay results

	NO.	TCID50 (log)	Overall mean (log)	Distance (log)	Ct values
Faradarmani CF treatment group	**1**	7.2	6.96	0.53	8
	2	6.7			10
	3	7			8
Control group	**4**	6.8	6.43		9
	5	6			10
	6	6.5			9
Faradarmani CF treatment group (Second repeat)	**1**	8.25	8	0.44	6
	2	7.75			7
	3	8			6
Control group (Second repeat)	**4**	8	7.56		6
	5	7.2			8
	6	7.5			8

Serum neutralizing (SN) test and ELISA tests

In this study, serological evaluations of samples were performed at 14-day intervals after immunization. The sera of each group were mixed (pooled) at each stage of blood sampling. In all groups, a significant change in antibody levels was observed at the second blood sampling stage (before the second injection). A significant increase in neutralizing antibody titers was observed in blood samples after the second injection in all groups except the control group. Interestingly, in Faradarmani CF-treated groups receiving Freund's adjuvant and Alum adjuvant vaccines, there was a significant increase in protective antibodies in rats that received multiple injections compared to groups without Faradarmani (Table 2). Therefore, the Faradarmani CF can be considered an effective treatment to increase the success of immunization and vaccination against serotype O FMD virus. Moreover, the immune stimulation rate of the recombinant VP1 protein was lower than that of the groups with and without Faradarmani CF during the third and fourth immunizations, as measured by neutralizing antibody titers. The effect of the Faradarmani CF on the immunogenicity of the FMD vaccine with Freund's adjuvant was more than that of the alum adjuvant.

Table 2. Results of the serum neutralization test after injection of different vaccines

Studied groups	First BS (0 day)	Second BS (14 day)	Third BS (28 day)	Fourth BS (42 day)
FMDV (Type O) + Alum adjuvant	0.3	0.5	0.8	1.4
FMDV (Type O) + Alum adjuvant + FCF	0.3	0.7	1.1	1.7
FMDV (Type O) + Freund's adjuvant	0.3	0.5	0.9	1.2
FMDV (Type O) + Freund's adjuvant+ FCF	0.3	0.8	1	1.9
Alum+ recombinant VP1 (Control)	0.3	0.5	0.6	0.8
Negative Control	0.3	0.3	0.3	0.3

BS: Blood sampling, FCF: Faradarmani Consciousness Field, VP1 is a structural viral peptide that has high immunogenicity.

The antibody concentration was evaluated by ELISA, with whole virus particles used for coating, and the mean OD results are shown in Table 3. The sera of each group were pooled at each stage of blood sampling. The 0.2 cut-off was determined based on bovine negative serum samples.

Increased antibody titers against FMD virus serotype O were observed in all vaccinated rat groups. The ELISA results indicate a significant increase in antibody titer in the Faradarmani CF-treated groups compared to the untreated group.

Table 3. Results of the ELISA test after injection of antigens with alum and Freund's adjuvants in the studied groups.

Studied groups	First BS (0 day)	Second BS (14 days)	Third BS (28 days)	Fourth BS (42 days)	Fifth BS (56 days)
FMDV (Type O) + Alum adjuvant	-	0.35	0.59	0.92	2.60
FMDV (Type O) + Alum adjuvant + FCF	-	0.5	0.81	1.2	3.1
FMDV (Type O) + Freund's adjuvant	-	0.28	1.10	1.57	2.82
FMDV (Type O) + Freund adjuvant+ FCF	-	0.41	1.5	2.1	3.5
Alum+ recombinant VP1 (Control)	-	0.30	0.55	0.42	0.65
Negative Control	-	0.10	0.20	0.15	0.12

BS: Blood sampling; FCF: Faradarmani Consciousness Field; VP1 is a structural viral peptide with high immunogenicity.

Discussion

In virus culture, Faradarmani CF treatment increased cell survival. Viruses, as intracellular parasites, rely on their host cells for energy, macromolecular synthesis, and genome replication (Whitaker-Dowling et al., 1999; de Castro et al., 2013). Therefore, in groups under the influence of Faradarmani CF, viruses have more time to replicate in host cells.

In the present study, Faradarmani CF increased protective antibodies in rats receiving multiple injections in both the Freund and Alum adjuvant vaccine groups compared to groups without Faradarmani CF. Therefore, the Faradarmani CF can be used to improve immunization and vaccination success against the FMD serotype O virus. The effect of the Faradarmani CF on the immunogenicity of the Freund's adjuvant-containing vaccine was greater than that of the alum adjuvant-containing group. Freund's complete adjuvant is an oily adjuvant containing the Mycobacterium, but alum (aluminum hydroxide) adjuvant is a mineral adjuvant. According to this observation, it seems that Faradarmani CF may have a greater impact on organic-based adjuvants or those containing organic components. Furthermore, ELISA results indicated a significant increase in antibody titer in groups affected by Faradarmani CF compared to those without Faradarmani CF.

To evaluate the humoral immune response of rats against inactive target antigens in control groups, at least two injections should be administered. However, in groups under Faradarmani CF, this protective effect was complete by the second injection. Furthermore, the immunogenicity of the complete antigen of the killed FMD serotype O virus with Freund's and alum adjuvants was much higher than that of the VP1 protein. Similar to the ELISA results, the serum neutralization test results with the complete adjuvant Freund and the incomplete composition showed higher antibody levels in the Faradarmani CF group than in the control and alum groups. It seems that using Faradarmani CF as a complementary factor in immunization and vaccination can lead to a stronger immune response and improved safety in livestock.

Previous studies have explored the influence of TCFs across diverse biological and physiological contexts, including their impact on the MCF7 breast cancer cell line (Taheri et al., 2020a), spatial memory and avoidance behavior in an Alzheimer's disease rat model (Taheri et al., 2021a), wheat plants (Torabi et al., 2020), bacterial population (Taheri et al., 2021b), and alterations in brain electrical activity observed during Faradarmani Connection among Faradarmangars (Taheri et al., 2020b).

As mentioned in the introduction section, since TCFs are neither matter nor energy, they cannot

be measured directly; however, their effects can be investigated indirectly through various experiments. We suggest that further research be conducted to clarify the effect of Faradarmani CF on various vaccines.

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Conflicts of Interest

The authors declare no conflict of interest.

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Ms. Laleh Amani was a prominent, compassionate, and enthusiastic researcher at Cosmointel who passed away in 2021.

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T-Consciousness Fields and Their Application in Microbiology

According to Taheri's theory, T-Consciousness is a fundamental component of the cosmos and the source of matter, energy, and information. Moreover, various T-Consciousness Fields exist that have a non-frequency-based nature. Although these fields cannot be measured with quantitative instruments, their effects can be recorded through scientifically designed experiments, allowing researchers to study T-Consciousness as a primary element of the universe. In this issue, the researchers examine the behavior of microorganisms under the influence of T-Consciousness Fields.

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