Influence of Faradarmani Consciousness Field on Antibiotics Resistance in Bacteria

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ABSTRACT

The development of antibiotics resistance arising from antibiotic over-treatment is the major challenge in eliminating harmful bacteria and is associated with grave financial and human consequences worldwide. The contraction of resistant bacteria from hospitals is a key concern and many scientific research fields are aiming to develop strategies that prevent bacterial resistance to antibiotics. Taheri Consciousness Fields, as novel Fields, were found-ed and introduced by Mohammad Ali Taheri. These Fields are neither matter nor energy, therefore cannot be measured directly. But it is possible to study their effects on objects through controlled experiments. After investigating the effect of Faradarmani Consciousness Field on bacterial populations in a previous study, we aimed to investigate the effect of Faradarmani CF on antibiotic resistance of bacteria in identified hospital strains. As confirmed by disk diffusion and MIC methods, we found that resistance in the bacteri-al populations was altered. Specifically, *P.aeruginosa*, *E.coli*, *B.subtilis*, *K.pneumoniae*, *A.bummani*, and *S.aureus* strains showed a decrease in antibiotics resistance while *S.aureus* and *P.aeruginosa* strains showed a decrease in antibiotics resist-ance while *S.aureus* and *P.aeruginosa* strains showed an increase in resistance to antibiotics. Based on the results, Faradarmani CF has the ability to affect antibiotics resistance response in resistant populations. We suggest this observation requires further attention. In the event the obser-vations can be replicated by other researchers, Faradarmani CF could be considered an effective solution to this global issue.

Keywords: Antibiotics resistance, Taheri Consciousness Field, Disk diffusion method, Faradarmani, MIC method

INTRODUCTION

Antimicrobials have been used since ancient times. A variety of agents in the environment have been common to eliminate harmful bacteria. These substances include herbs, honey, garlic, ginger, echinacea, goldenseal, clove, and oregano (Torrence and Isaacson, 2003). John Parkinson (1567-1650) was the first person who documented the treatment of infections by use of 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 that has saved the lives of millions of people worldwide (Ligon, 2004). Nevertheless, infectious diseases are the underlying causes of death each year with lower respiratory infections ranked as the 4th 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 threat to human health and presents a major financial burden. Since overuse of antimicrobial drugs promotes resistance in bacteria, antibiotics stewardship strategies are increasingly implemented in efforts to protect patients from harm caused by unnecessary antibiotics use and combat antibiotics resistance (CDC, 2021). In an effectiveness study from China's antimicrobial stewardship team at Shanghai hospital, the relationship between antibiotics use and gram-negative bacteria resistance was evaluated from 2008 to 2013. It was found that a reduction in antibiotics frequency and dosage had limited effects on the reversal of bacteria 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 high natural resistance against antibiotics (Nakae, 1995). Acquired resistance can occur by changes in bacterial genome obtained through horizontal transfer of resistance genes from strains and species (for review, see Bockstael and Van Aerschot 2009, Todar, 2011). It has been reported that the horizontal transfer of plasmids plays a vital role in the adaptation of bacteria in various environments (Heuer and Smalla 2012; Sobecky and Coombs, 2009).

One of the major classical mechanisms for antibiotics inactivation is the chemical modification of antibiotics by enzymes like penicillinase (β-lactamase) (Abraham and Chain, 1940). β-lactams are a large class of antibiotics, such as penicillin, cephalosporins, carbapenems, and monobactams (De Pascale and Wright, 2010). In order to overcome β-lactamase-mediated resistance, β-lactamase inhibitors have been suggested, including clavulanate, sulbactam, and tazobactam (Drawz, and Bonomo, 2010). For instance, β-lactam antibiotics are ineffective against Mycobacterium tuberculosis. However, it has been reported that using meropenem combined with the β-lactam inhibitor clavulanate led to 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 been introduced as another approach to combat antibiotic-resistant bacteria

(Kortright et al., 2019). Phages are highly specific for a bacterial strain and are nontoxic to the patients, but synthetic antibiotics are usually associated with undesired kidney or liver damage (Saha and Mukherjee, 2019). However, data regarding the use of bacteriophages to treat bacterial disease in humans are insufficient and further studies are needed (Principi et al., 2019).

There is an urgent need to find an effective strategy to combat antibiotic resistance. The nature of consciousness and its place in science have received much attention in the current century. Many philosophical and scientific theories have been proposed in this area. In the1980s, Mohammad Ali Taheri introduced novel fields with a non-material/non-energetic nature named Taheri Consciousness Fields (TCFs). In this perspective, T-Consciousness is one of the three existing elements of the universe apart from matter and energy. According to this theory, there are various TCFs with different functions, which are the subcategories of a networked universal internet called the Cosmic Consciousness Network (CCN). The major difference between the theory of TCFs and other theoretical concepts about consciousness is related to the practical application of the TCFs. These fields can be applied to all living and non-living creatures, including plants, animals, microorganisms, materials, etc.

Mohammad Ali Taheri, the founder of Erfan Keyhani Halqeh, a school of thought, introduced a new science in 2020 as a branch of this school. He coined the term Sciencefact for this new science because it utilizes scientific investigations to prove the existence of T-Consciousness as an irrefutable phenomenon and a fact. Although science focuses solely on the study of matter and energy and Sciencefact, by contrast, explores the effects of the [non-material/non-energetic] TCFs, Sciencefact has provided a common ground between the two by conducting reproducible laboratory experiments in various scientific fields, and it has used the scientific approach in proving TCFs.

The influence of the TCFs begins with the Connection between CCN as the Whole Taheri Consciousness of the universe and the subjects of study as a part. This Connection called “Ettesal” is established by a Faradarmangar’s mind (a certified and trained individual who has been entrusted with the TCFs). The human mind has an intermediary role (Announcer) which plays a part by fleeting attention to the subject of study and then the main achievement obtained as a result of the effects of the TCFs. These fields cannot be directly measured by science, but it is possible to investigate their effects on various subjects through reproducible laboratory experiments (Taheri 2013).

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.

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

Phase-0 studies aim to prove the existence

of TCFs by observing their effects. The nature of T-Consciousness and what it is will not be addressed in this phase. Phase-1 explores the varied effects of different TCFs. Phase-2 examines the reason behind the varied effects of these fields. Phase-3 investigates the mechanism of TCFs effects on matter and energy. Finally, Phase-4 draws significant conclusions, particularly with regard to the *mind and memory of matter* and their relation to the T-Consciousness, etc.

In the previous study of the authors of the present study, the effects of Faradarmani CF on bacterial population growth have been studied (Taheri et al., 2021). The aim of this study was to investigate the effects of Faradarmani CF on bacterial antibiotics resistance characteristics of hospital strains.

MATERIALS AND METHODS

Faradarmani CF Application

TCFs were applied to the subjects of this study according to the protocols mentioned on the website of the TCFs research center (www.cosmointel.com). Obtaining an announcement (Connection to the CCN) is free of charge (in the "Assign An-nouncement" section). In order to study at any time and place, the researchers are asked to

in-troduce the test specifications including the nu m-ber of samples and their assigned names to the guidance center. It should be noted that this study was conducted in a double-blinded way, meaning that the experts were completely unfamiliar with TCFs theory. Also, the person who established the T-Consciousness Connection was unfamiliar with the details of this study.

Disk diffusion methodology

In this study, we investigate the effect of Faradarmani CF treatment on antibiotics resistance in hospital-resistant bacteria isolates, including gram-negative (*Pseudomonas aeruginosa, Kleb-siella pneumoniae*) and gram-positive bacteria (*Staphylococcus aureus*). The zones of inhibition were measured based on CLSI tables (https://clsi.org). In this test, we used antibiotics discs from PADTAN TEB Co. (Tehran, Iran) with concentra-tions listed in Table 1.

Table1. Antibiotics disks and related concentrations used in disk diffusion test.

Antibiotics	*Concentration (µg/Disc)*
Doxycycline (DOX)	30
Streptomycin (STR)	10
Colistin (COL)	10
Ceftriaxone (CTR)	30
Cotrimoxazole (SXT)	25
Ciprofloxacin (CIP)	5
Clindamycin (CLN)	2
Erythromycin (ERI)	15

MIC method

To confirm the effects of Faradarmani CF on antibiotics resistance, we used three hospital bacteria *Pseudomonas aeruginosa, Acinetobacter baumannii,* and *Staphylococcus aureus* as well as one laboratory bacterium Bacillus subtilis. Responses were measured from both systems under Faradarmani CF treatment and non-Faradarmani CF controls.

The antibiotics used for this study include six groups obtained from MAST (UK): Amoxicillin (AMX), Ciprofloxacin (CIP), Ceftazidime (CAZ), Meropenem (MEM), Gentamicin (GEN) and Tetracycline (TE), which were administered by Broth Microdilution at 16 concentrations (From 256 / g / ml to 0.5-256µg/ml). All experiments were performed two times.

RESULTS

The results of the present study are categorized into two sections according to the methodology used to assess microbial resistance and sensitivity.

Disk methodology

The effect of Faradarmani CF on resistant hospital isolates was measured by disk method, as shown in Table 2.

As shown in Table 2, changes in halo size (decrease or increase in antibiotics resistance) range from -0.58% to 12.5%. The Faradarmani CF treatment in 8 cases (4 sensitive and 4 resistant cases to antibiotics) caused a decrease in the halo (increase in resistance). On the other hand, Faradarmani CF treatment in 15 cases (6 sensitive cases to antibiotics and 9 resistant), caused an increase in the diameter of the halos (decrease in resistance). Moreover, in 17 cases (12 cases were resistant to antibiotics and 5 cases were sensitive), there was no change in the diameter of the halo as a result of Faradarmani CF treatment.

Minimum Inhibitory Concentration MIC assay methodology

In order to complete the results of the previous method and increase their accuracy, the effect of Faradarmani CF was measured on resistant hospital isolates measured by MIC as shown in Table 2. This effect was defined as the difference between Faradarmani CF treated responses as compared with non-Faradarmani CF treated controls.

According to the obtained results shown in Table 2, the effect of Faradarmani CF treatment re-

Table 2. Changes (in comparison with control, the decrease is denoted by [-] and increase is denoted by [+]) in halo size as a result of antibiotics treat-ment

	Type	Bactericide				Bacteriostatic			
		COL	CTR	SXT	STR	CIP	ERI	CLN	DOX
p.aeruginosia (1)	Pathogen	0	+4%	+2.3%	-7.10%	-3.7%	+4.7%	+3.7%	+3.2%
p.aeruginosia (2)	Pathogen	+3.48%	-4.5%	+1.5%	+5.55%	+6.6%	0	+4.3%	+4.37%
S.aureus (1)	Human coexist-ence	0	+12.5%	0	-3.6%	0	0	-2.9%	-1.5%
S.aureus (2)	Human coexist-ence	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.

Table 3. The MIC of antibiotics in control samples as compared with test strains: MIC of Control- MIC of treatment (% of success: [-] denotes increase in resistance, [+] denotes decrease in 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.

sults in a decrease in resistance in both gram-negative and gram-positive bacteria. The only instance where we report an increase in resistance as a result of Faradarmani CF treatment is in the case of *S.aureus* strain.

The Faradarmani CF did not have any effect on bacteria under the treatment of ciprofloxacin antibiotics, amoxicillin, and azithromycin. However, the greatest effect of Faradarmani CF was observed in Tetracyclin, Meropenem, Cefixime, and (3 cases) antibiotics treatments.

DISCUSSION

In this study, we examine the influence of Faradarmani CF treatment on different antibiotics resistant bacteria and aim to decipher the mechanisms of drug resistance in different antibiotics (bactericides and bacteriostatic) with two known methods (disk diffusion and MIC). Our results showed both a decrease and an increase in antibiotics resistance characteristics of different bacterial species.

With the MIC analysis, increasing the number of serial dilutions increases the accuracy of measurement in detecting the Faradarmani CF influence on antibiotics resistance. This observation is consistent with the results obtained from disk diffusion analysis. However, we observed different resistance responses in different bacterial populations when using different antibiotics.

Specifically, using both MIC and disk diffusion methodologies, the *P.aeruginosa* strain showed an increase in resistance while *P.aeruginosa, E.coli, B.subtilis, K.pneumoniae, A.bummani*, and *S.aureus* strains showed a decrease in resistance when treated with different antibiotics. These observations point toward variations in resistance response with different strains under different antibiotics treatments. According to Taheri's theory, although Faradarmani CF is neither matter nor energy, and therefore we cannot measure it quantitatively, but it is possible to investigate its effects indirectly through various experiments. In this way, the Faradarmani CF was applied through the mind of the person who *announced* Faradarmani CF to the CCN.

In this study, we observed a change in resistance responses from various bacterial strains with different antibiotics pressures under the influence of Faradarmani CF as compared with non-Faradarmani CF controls. In other words, the behavior of bacteria changed under the influence of Faradarmani and both reduction and increase in antibiotics resistance responses was observed.

This result is independent of the efficacy of antibiotics in the clinic and merely points to the differential response of bacteria in various population strains under Faradarmani CF treatment. The differences in bacterial response in this study confirm the previous investigations and suggest that Faradarmani CF has different functions in various complex systems (Taheri et al., 2021).

The delineation of molecular machinery responsible for such responses is essential to understanding the role of Faradarmani CF in biological systems. In previous studies, the effects of the TCFs on MCF7 cancer cell line (Taheri et al., 2020a), Alzheimer's disease rat models (Taheri et al., 2021), spatial memory and avoidance behavior of a rat model of Alzheimer's disease (Taheri et al.,

2021), Wheat plant under salinity stress (Torabi et al., 2021), Viral growth (Taheri et al., 2020), and the electrical activity of the brain during Faradarmani in the Faradarmangars population (Taheri et al., 2020b) have been investigated. More research needs to be done in identifying the effects of TCFs on different biological systems. The reproducibility of the current experiment is key in understanding the effects of Faradarmani CF on bacterial resistance responses.

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REFERENCES

Abraham, E. P., & Chain, E. (1940). An enzyme from bacteria able to destroy penicillin. *Nature*, 146(3713), 837-837.

Barber, M., & Rozwadowska-Dowzenko, M. (1948). Infection by Penicillin-Resistant Staphyloeoeci. *Lancet*, 641-4.

Bassett, E. J., Keith, M. S., Armelagos, G. J., Martin, D. L., & Villanueva, A. R. (1980). Tetracycline-labeled human bone from ancient Sudanese Nubia (A.D. 350). *Science (New York, N.Y.)*, 209(4464), 1532–1534. https://doi.org/10.1126/science.7001623

Bockstael, K., & Van Aerschot, A. (2009). Antimicrobial resistance in bacteria. *Central European Journal of Medicine*, 4(2), 141-155.

Clinical & Laboratory Standards Institute: CLSI Guidelines: https://clsi.org

De Pascale, G., & Wright, G. D. (2010). Antibiotic resistance by enzyme inactivation: from mechanisms to solutions. *Chembiochem*, 11(10), 1325-1334.

Drawz, S. M., & Bonomo, R. A. (2010). Three decades of β-lactamase inhibitors. *Clinical microbiology reviews*, 23(1), 160-201.

Fleming A. (1929). On the Antibacterial Action of Cultures of a Penicillium, with Special Reference to their Use in the Isolation of B. influenzæ. *British Journal of Experimental Pathology*, 10(3), 226–236.

Gould, K. (2016). Antibiotics: from prehistory to the present day. *Journal of Antimicrobial Chemotherapy*, 71(3), 572-575.

Guo, W., He, Q., Wang, Z., Wei, M., Yang, Z., Du, Y., ... & He, J. (2015). Influence of antimicrobial consumption on gram-negative bacteria in inpatients receiving antimicrobial resistance therapy from 2008-2013 at a tertiary hospital in Shanghai, China. *American journal of infection control*, 43(4), 358-364.

Heuer, H., & Smalla, K. (2012). Plasmids foster diversification and adaptation of bacterial populations in soil. *FEMS microbiology reviews,* 36(6), 1083-1104.

Centers for Disease Control and Prevention. (2019). Antibiotic resistance threats in the United States, 2019. US Department of Health and Human Services, Centres for Disease Control and Prevention.

World Health Organization. (2021). Available online: https://www. who. int/news-room/fact-sheets/detail/the-top-10-causes-of-death.

Hugonnet, J. E., Tremblay, L. W., Boshoff, H. I., Barry, C. E., & Blanchard, J. S. (2009). Meropenem-clavulanate is effective against extensively drug-resistant Mycobacterium tuberculosis. *Science*, 323(5918), 1215-1218.

Kortright, K. E., Chan, B. K., Koff, J. L., & Turner, P. E. (2019). Phage therapy: a renewed approach to combat antibiotic-resistant bacteria. *Cell host & microbe*, 25(2), 219-232.

Ligon B. L. (2004). Penicillin: its discovery and early development. *Seminars in pediatric infectious diseases*, 15(1), 52–57. https://doi.org/10.1053/j.spid.2004.02.001

Ligon, B. L. (2004, January). Sir Alexander Fleming: Scottish researcher who discovered penicillin. In *Seminars in pediatric infectious diseases* (Vol. 15, No. 1, pp. 58-64). WB Saunders.

Nakae, T. (1995). Role of membrane permeability in determining antibiotic resistance in Pseudomonas aeruginosa. *Microbiology and immunology,* 39(4), 221-229.

Principi, N., Silvestri, E., & Esposito, S. (2019). Advantages and limitations of bacteriophages for the treatment of bacterial infections. *Frontiers in pharmacology*, 10, 513.

Saha, D., & Mukherjee, R. (2019). Ameliorating the antimicrobial resistance crisis: phage therapy. *IUBMB life*, 71(7), 781-790.

Salmond, G. P., & Fineran, P. C. (2015). A century of the phage: past, present and future. *Nature Reviews Microbiology,* 13(12), 777-786.

Sobecky, P. A., & Coombs, J. M. (2009). Horizontal gene transfer in metal and radionuclide contaminated soils. *Horizontal Gene Transfer*, 455-472.

Taheri, M. A., Etemadi, M. R., Torabi, S., Nabavi, N., & Semsarha, F. (2021). Evaluation of the Influence of Faradarmani Consciousness Field on Viral Growth.

Taheri, M. A., Semsarha, F., & Modarresi-Asem, F. (2020). An Investigation on the Electrical Activity of the Brain during Fara-Darmani Connection in the Fara-Therapist Population.

Taheri, M. A., Semsarha, F., Mahdavi, M., Afsartala, Z., & Amani, L. (2020). The Influence of the Faradarmani Consciousness Field on the Survival and Death of MCF-7 Breast Cancer Cells: An Optimization Perspective. *Available at SSRN 3705537*.

Taheri, M. A., Torabi, S., Nabavi, N., & Semsarha, F. (2021). Faradarmani Consciousness Field Suppresses Alzheimer's Disease Development in Both in Vitro and in Vivo Models of The Disease.

Taheri, M. A., Torabi, S., Nabavi, N., & Semsarha, F. (2021). Influence of Faradarmani Consciousness Field (FCF) on Spatial Memory and Passive Avoidance Behavior of Scopolamine Model of Alzheimer Disease in Male Wistar Rats. *Available at SSRN 3761188*.

Taheri, M. A., Zarrini, G., Torabi, S., Nabavi, N., & Semsarha, F. (2021). Influence of Fara-darmani Consciousness Field on Bacterial Population Growth. *bioRxiv* .

Taheri, M.A (2013) *Human from another outlook Interuniversal Press*; 2nd Edition *ISBN-13: 978-1939507006, ISBN- 10: 1939507006*.

Todar, K. (2011). Bacterial resistance to antibiotics (page 3). *Todar's online textbook of bacteriology*, 4.

Torabi, S., Taheri, M. A., & Semsarha, F. (2020). Alleviative effects of Faradarmani Consciousness Field on Triticum aestivum L. under salinity stress. F1000Research, 9(1089), 1089.

Torrence, M. E, & Isaacson, R. E. (2003). Microbial Food Safety in Animal Agriculture: Current Topics. Hoboken *New] ersey: Blackwell Publ.*

antimicrobial resistance due to non-human use.