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The First Scientific Journal in
T-Consciousness Research



Experimental Evidence of T-Consciousness Field Effects on Biomimetic Systems

Mohammad Ali Taheri
Originator of T-Consciousness Theory

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Editorial

Experimental Evidence of T-Consciousness Field Effects on Biomimetic Systems

Mohammad Ali Taheri
Founder of T-Consciousness Theory



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Many efforts have been made in various fields of science to understand the place and function of consciousness. This subject still remains one of the major challenges. The studies in this issue focus on investigating the theory of T-Consciousness Fields. In this view, consciousness is the fundamental element of the Universe. In fact, consciousness not only was not created during evolution and the formation of the brain in advanced organisms, but it was the main factor in this formation, such that matter, energy, and information originate from it. As we know, one of the important requirements for theories proposed in scientific fields is the provision of practical and experimental evidence. However, many definitions related to consciousness or awareness concern the human brain and advanced animals that possess a brain, and from this perspective, consciousness is considered a subjective, first-person phenomenon. Since scientific studies and experiments deal with objective, third-person evidence, examining consciousness and conducting experiments on it is extremely difficult.

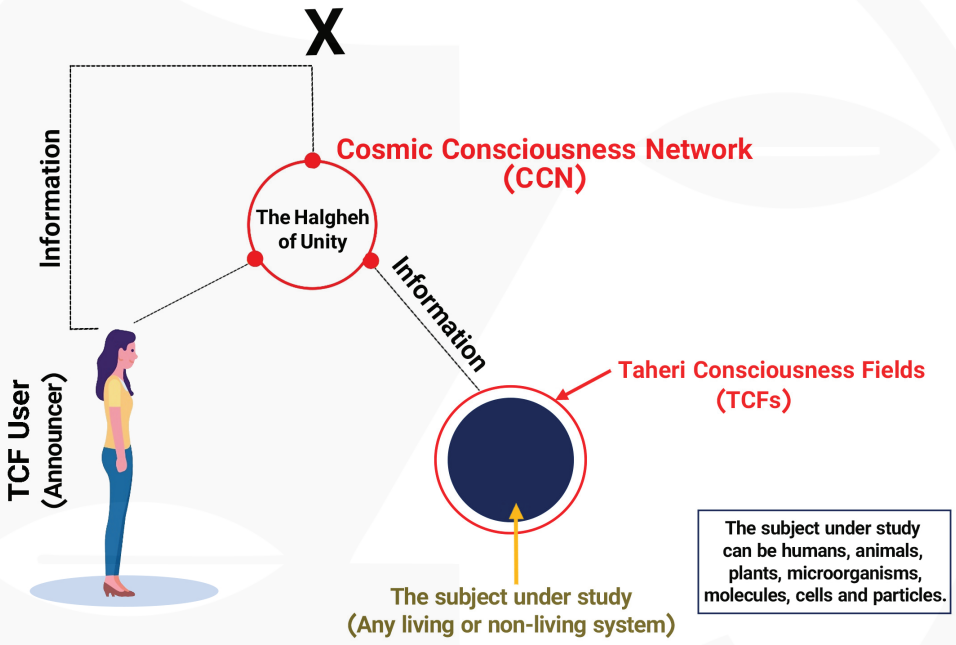
In this approach, various T-Consciousness Fields have been introduced, which are subsets of the Whole Consciousness or the Cosmic Consciousness Network. These fields do not have a frequency-based or physical nature. Therefore, they cannot be measured directly through quantitative instruments. The effects of the T-Consciousness Fields begin through the mind of an announcer, which is referred to as the *Faradarmangar* (a trained individual). It is hypothesized that the information transmitted from these non-frequency fields can make changes in the subject under study. Researchers in various scientific disciplines have examined this hypothesis by designing experiments and have recorded the effects of these fields in laboratory settings, with their evidence and results published in multiple issues of the *Journal of CosmoIntel.*

In the collection of studies presented in this issue, researchers, using biological enzymes and with an emphasis on biomimetic models of proteins, have recorded and reported the effects of the T-Consciousness Fields on their structure and function. Peroxidase activity in living systems has always played a remarkable role in eliminating the harmful effects of reactive oxygen species during the initiation of life, as well as in protecting cells against oxidative damage[1]. In the studies presented in this issue, the performance of the natural enzyme and its biomimetic nanozyme and micellar models under the influence of T-Consciousness Fields has been examined. In addition, using a model of lipid assemblies, the effect of T-Consciousness Fields on the repair of biological structures under

1 Juan, C. A., Pérez de la Lastra, J. M., Plou, F. J., & Pérez-Lebeña, E. (2021). The Chemistry of Reactive Oxygen Species (ROS) Revisited: Outlining Their Role in Biological Macromolecules (DNA, Lipids and Proteins) and Induced Pathologies. *International journal of molecular sciences,* 22(9), 4642. https://doi.org/10.3390/ijms22094642

ultraviolet radiation stress—which represents one of the harmful and life-disrupting factors—has been investigated.

The results of these experiments yield several outcomes. First, by recording the effects of these non-frequency fields, they indirectly provide evidence for their existence. Second, they put the hypothesis of information transmission through T-Consciousness Fields to practical testing. Third, by entering the domain of biomimetic studies and documenting the interactions of T-Consciousness Fields with biological systems and their biomimetic models, they provide evidence of the potential role of T-Consciousness and T-Consciousness Fields in the initiation and emergence of life, offering a foundation for future studies and further research in this field.



A schematic on applying T-Consciousness Fields (TCFs). The effect of TCFs begins with connecting to the Cosmic Consciousness Network (CCN) and through the Faradarmangar (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 analysis.

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Considerations of This Issue

1. Common Introduction

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

In the present century, the nature of Consciousness and its place in science has 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-energetic 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 T-Consciousness Fields 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 (non-material and non-energetic) 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 and assigned the T-Consciousness Fields). 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 Taheri's research methodology of T-Consciousness Fields

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 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.

1-4 Using T-Consciousness Fields

The samples under study were subjected to T-Consciousness Fields (TCF) 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 TCF 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 name 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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The Structure and Function of Horseradish Peroxidase (HRP) under the Influence of Faradarmani Consciousness Field

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Abstract

The study of biological enzymes, with their unique characteristics such as substrate interactions, structural changes, and catalytic rates, plays a key role in both basic and applied enzymology research. Horseradish peroxidase (HRP) is among the enzymes that have been repeatedly used to study the metabolism of biological systems. The Faradarmani Consciousness Field is non-frequency in nature, and its effect is initiated through the mind of an announcer, referred to as a Faradarmangar (a trained individual). In this study, the effect of this field on the structure and activity of HRP was examined in two forms: the commercially purchased sample and the sample extracted from the plant. This design allows us not only to record the effects of the Faradarmani Consciousness Field but also to replicate and examine changes in the maximum velocity and Michaelis constant under different conditions. The results showed that in the commercial sample, the Faradarmani Consciousness Field decreased the maximum velocity by 5% compared to the control and increased the Michaelis constant by 18%. In contrast, the plant-extracted samples showed increases of 6% and 40% in maximum velocity and Michaelis constant, respectively, compared to the control under the influence of the Faradarmani Consciousness Field. Changes in fluorescence emission intensity were also observed, suggesting structural alterations. Further studies are needed to clarify the interaction between this non-frequency field and biological enzymes.

Keywords: Faradarmani Consciousness Field (FCF); horseradish peroxidase; Michaelis constant; maximum velocity

Introduction

Oxidoreductases are a superfamily of peroxidases (POXs) (EC 1.11.1.7) capable of catalyzing the oxidation of a wide variety of organic and inorganic substrates using hydrogen peroxide (H_2O_2) (Conesa et al., 2002). HRP is a heme-containing enzyme obtained from horseradish roots, which is absent from most mammalian cells. Our understanding of the structure and function of HRP has been achieved by X-ray crystallography (Gajhede et al., 1997) and recombinant enzymes (Smith et al., 1990). HRP has been the subject of much research in the fields of medicine, life sciences, biotechnology, therapeutics, biosensor systems, etc. (Krainer et al., 2015). In plants, HRP isoenzymes contribute to indole-3-acetic acid metabolism, lignification, cross-linking of cell wall polymers, suberin formation, and resistance to infection (Veitch, 2004).

Reactive oxygen species (ROS) are typically produced as a product of cellular metabolism pathways, but their levels increase under environmental stresses. These free radicals destroy cellular structures and induce apoptosis, or programmed cell death. It has been found that enzymes play an important protective role against oxidative stress and in the prevention of apoptosis (Khavari-Nejad et al., 2015).

Additionally, POXs have been shown to increase in activity upon pathogen infection, such as fungi (Harrison et al., 1995). There are many recorded reports demonstrating that the increased levels of antioxidant enzyme activity in plants result in stronger resistance against environmental stresses (Demiral and Turkan, 2005). On the other hand, endogenous ROS such as H_2O_2 have been regarded as a messenger molecule, which contributes to various vital processes including proliferation, differentiation, tissue repair, inflammation, aging, etc. (Sies, 2014).

The Michaelis constant (Km) and the maximum velocity (Vmax), which are the building blocks of the Michaelis-Menten (MM) equation, are considered the functional constants of enzymes. These constants, along with other kinetic parameters derived from their ratios—such as the turnover number (kcat) and the specificity constant (kcat/Km)—reflect the catalytic efficiency of enzymes at defined substrate and enzyme concentrations. The MM equation has been used in studies to investigate the structure and function of various enzymes under different environmental conditions, such as temperature and buffer types (Bisswanger, 1994), various concentrations of inhibitors and inducers (Lopina, 2017), and comparisons of the kinetic properties of wild-type and mutant enzymes (Humer and Spadiut, 2019).

One of the topics of interest during the 1970s and 1980s was examining the values of these constants and their changes during the evolution of enzymes. Some studies have shown decreases and increases in Km in parallel with kcat and Vmax during evolution (Fersht, 1974), as well as their heritable changes due to adaptation (Crowley, 1975). It has been reported that in many organisms, kinetic mechanisms have evolved to aid survival in response to changing environmental factors (Ulusu, 2015).

All the aforementioned studies in the field of enzyme kinetics have focused on the effects of various physicochemical and environmental factors on enzymatic constants. However, to date, no study has investigated the potential impact of mind–body methods or consciousness-related interactions on enzymatic activity and function.

According to Taheri's theories, there are various T-Consciousness Fields, which are subsets of the Cosmic Consciousness Network. These fields do not have a frequency-based or physical nature. Therefore, they cannot be measured directly using quantitative instruments. However, it is possible to record the effects of these fields in the laboratory by applying them to different subjects, including biological samples or inanimate materials (Taheri, 2013).

The effects of the T-Consciousness Fields are initiated through the mind of an announcer, referred to as a Faradarmangar (a trained individual), and are initiated with a brief and instantaneous attention to the subject under study. This characteristic has motivated researchers to design various experiments in this regard and report the resulting findings. In previous studies on wheat, we observed that

the Faradarmani Consciousness Field reduced the harmful effects of salt stress on wheat by inducing the activity of antioxidant enzymes (Torabi et al., 2020). The effects of this field have also been reported on the electrical activity of Faradarmangar brains (Taheri et al., 2020), the MCF7 cancer cell line (Taheri et al., 2020a), *in vitro* and *in vivo* models of Alzheimer's disease (Taheri et al., 2021b, Taheri et al., 2021c), and microorganisms (Taheri et al., 2021d, Taheri et al., 2022). The aim of the present study was to investigate the effects of the Faradarmani Consciousness Field on the activity and structure of HRP enzyme in both commercially obtained and plant-extracted samples.

Materials and Methods

In this study, we used HRP obtained from two sources. The first is the commercial HRP, manufactured and sold under the brand [Sigma], and the second is HRP extracted from the plant (horseradish).

This diversity in the sources gives us the possibility of reproducibility of the FCF treatment at multiple times and stages. For example, the Faradarmani Consciousness Field was applied during the extraction, afterward during the enzymatic kinetic assay, or at both stages. Respective Materials and Methods sections for each source are provided separately.

Application of Faradarmani Consciousness Field

The Faradarmani Consciousness Field was applied to the samples according to the protocol established by the Cosmointel Research Center1[1]. Further details are provided in the general considerations of this issue.

Commercial HRP Materials

HRP (donor: HRP, oxidoreductase, EC 1.11.1.7) and 3,3',5,5'-Tetramethylbenzidine (TMB) were purchased from Sigma Co. Ltd. Other reagents and chemicals were of analytical reagent grade. Double-distilled water was used throughout the experiments.

Methods for commerical HRP

The UV/Vis spectra were recorded on a Varian Cary Bio 100 spectrophotometer. Intrinsic fluorescence spectra of the protein were measured at 25°C using a Varian Cary Eclipse fluorescence spectrophotometer with excitation and emission slit widths of five nm. Fluorescence emission from Trp was measured using excitation at 295 nm to avoid the contribution of tyrosine. In intrinsic fluorescence studies, the protein concentration was 90.4 µM in 0.2 M potassium phosphate buffer, pH 7.0.

Enzyme Assay

Freshly prepared enzyme solutions were used throughout the experiments. The enzyme stock solution was prepared by dissolving HRP (1.5 mg) in PBS (3 mL, 0.01 M, pH 7) and kept on ice. The stock solution of H_2O_2 (0.1 M) was prepared by diluting H_2O_2 (0.5 mL, 30 wt%) to 50 mL in PBS (0.01 M, pH 7). The HRP enzymatic reactions were carried out in PBS (0.01 M, pH 7) at 20°C. All enzymatic reactions were conducted in conventional quartz UV-visible cuvettes in sets of three replicates. The total volume of the reaction mixture was 1.5 mL. Experiments were carried out in the presence of a constant concentration of HRP (50 µL) and H_2O_2 (10 µL) with different concentrations of TMB (1.23, 1.85, 3.7, 7.4, 11.1, and 14.8 mM). The colorimetric changes were determined by recording the absorbance at 652 nm.

Kinetic Parameters

The kinetic constants Vmax and Km were calculated by fitting the reaction velocity values and substrate concentrations to the Michaelis–Menten equation as follows:

$$V = (Vmax \times [S]) / (Km + [S])$$

Where V is the initial reaction velocity, Vmax is the maximal reaction rate observed at saturating substrate concentrations, [S] is the substrate concentration, and Km is the Michaelis constant. In all steps, two containers were used as the blank and the sample, each with different labels.

1.www.cosmointel.com

Extracted HRP Materials

3,3',5,5'-Tetramethylbenzidine (TMB) was purchased from Sigma Co. Ltd. Horseradish roots were obtained from local markets. Other reagents and chemicals were of analytical reagent grade. Double-distilled water was used throughout the experiments.

Methods

Enzyme extraction from horseradish roots

About 100 g of horseradish was thoroughly washed with water, cut into small pieces, and homogenized in a blender with 500 mL of distilled water. The mixture was centrifuged at 10,000 rpm for 5 min at 4°C. The filtrate was heated in a water bath at 65°C for three minutes to inactivate catalases and then cooled quickly in ice water. The enzyme was precipitated with ammonium sulfate for partial purification. Solid ammonium sulfate was added to 100 mL of peroxidase at a concentration of 30% (w/v). The suspension was stirred for half an hour at 4°C. After sufficient mixing, the precipitates were collected by centrifugation at 10,000 rpm for 30 min. Enzyme activity was determined for each concentration, and the precipitates were collected for further purification.

Dialysis

Before the dialysis procedure, the dialysis bag was boiled in 0.1 M sodium carbonate solution for 1 hour and then left overnight. This procedure allows the dialysis bag to open properly. The precipitates obtained by ammonium sulfate precipitation were dialyzed in a dialysis bag against 0.2 M phosphate buffer (pH 6.5) with constant stirring on a magnetic stirrer for 2 hours. The dialyzed sample was then subjected to enzyme assay and protein estimation.

Protein estimation

Proteins were estimated according to the method of Lowry (1957). Solution A was prepared by dissolving sodium carbonate in distilled water and adjusting the volume to 500 mL. Solution B consisted of 0.38 g $CuSO_4 \cdot 5H_2O$ and 0.6 g potassium–sodium tartrate dissolved in distilled water to a final volume of 500 mL. Solution C was the Folin reagent without dilution. Solution D consisted of 1 N NaOH.

Spectrophotometric Procedures

The UV/Vis spectra were recorded on a Varian Cary Bio 100 spectrophotometer. Intrinsic fluorescence spectra of the protein were measured at 25˚C using a Varian Cary Eclipse fluorescence spectrophotometer with the excitation and emission slit widths of 5 nm. Fluorescence emission from Trp was measured using excitation at 295 nm to avoid the contribution of tyrosine. In intrinsic fluorescence studies, the concentration of protein was 45.2 μM in 0.2 M potassium phosphate buffer, pH 7.0.

The sections related to enzyme assay, and the calculation of kinetic parameters were performed in the same manner as described in the previous section.

Statistical Analysis

In this study, each sample had three replicates, and no data were excluded. Comparisons between the test and control samples were analyzed using the t-test in SPSS software, version 17, and a confidence level of 95% was considered statistically significant.

Results

Figure 1 shows the changes in the Lineweaver–Burk plots for samples with and without the Faradarmani Consciousness Field (control) for commercial HRP. The kinetic parameters of the HRP are presented in Table 1 based on the data from Figure 1. As observed, the Faradarmani Consciousness Field caused a 4.8% decrease in Vmax and an 18.2% increase in Km of the commercial HRP during the kinetic assay. In addition, the catalytic efficiency and the turnover and specificity constant of the HRP under the influence of this field decreased by approximately 5% and 19%, respectively.

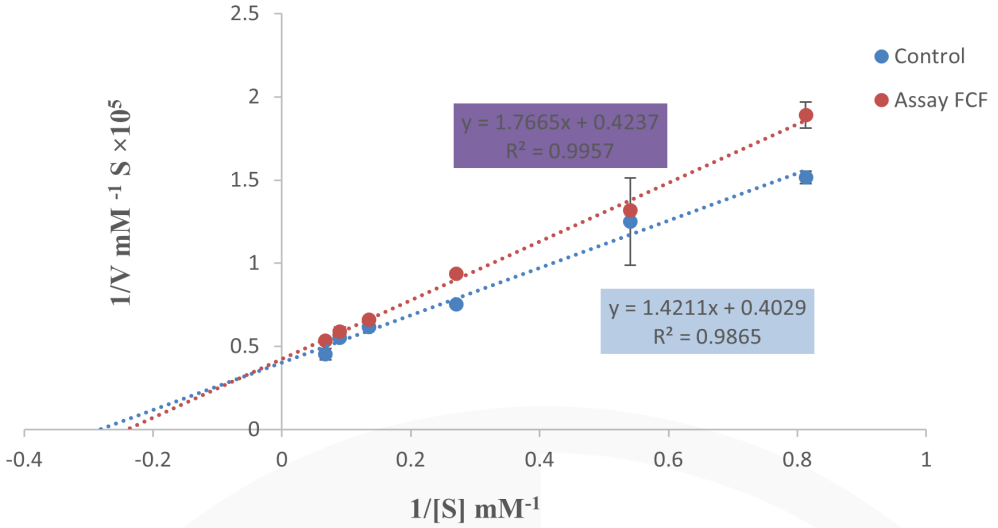


Figure 1. Changes in the Lineweaver–Burk plot of commercial HRP enzyme in samples with the Faradarmani Consciousness Field (FCF) and control.

Table 1. Calculated kinetic constants for the commercial HRP sample in the control and under the influence of the Faradarmani Consciousness Field (FCF).

	Vmax (mM/s) × 10^{-5}	Km (mM)	kcat (s^{-1})	kcat/Km ($M^{-1}s^{-1}$)	% Δ Vmax	% Δ Km	% Δ kcat	% Δ kcat/ Km
Control	2.48	3.52	0.0620	17.6	-	-	-	-
FCF	2.36	4.16	0.0589	14.2	-4.8%	18.2%	-5.0%	-19.3%

Figure 2 shows the changes in the fluorescence emission of commercial HRP in the control samples and those under the Faradarmani Consciousness Field. As observed, the field caused a 4% decrease in fluorescence emission.

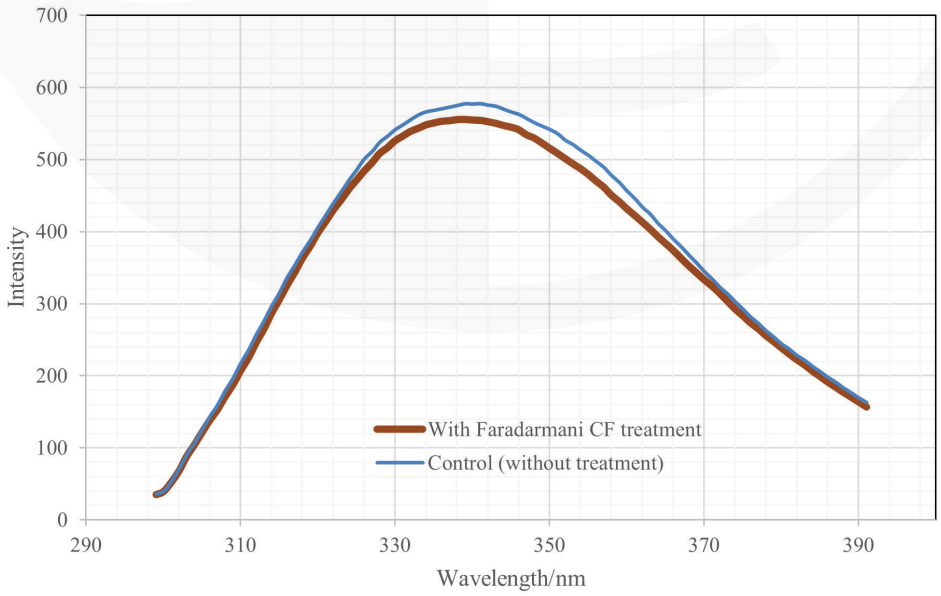


Figure 2. Fluorescence emission of the commercial HRP sample under Faradarmani Consciousness Field treatment compared to the control.

Results of the Extracted Plant HRP Analysis

Since the Faradarmani Consciousness Field was applied at three stages—during extraction, kinetic measurement, or at both stages—as shown in Table 2, four types of data presentation were provided considering the control samples (without the field effect), and the values of maximum velocity (Vmax) and Michaelis constant (Km) were reported. These values were determined using the Lineweaver–Burk plot (Figure 3).

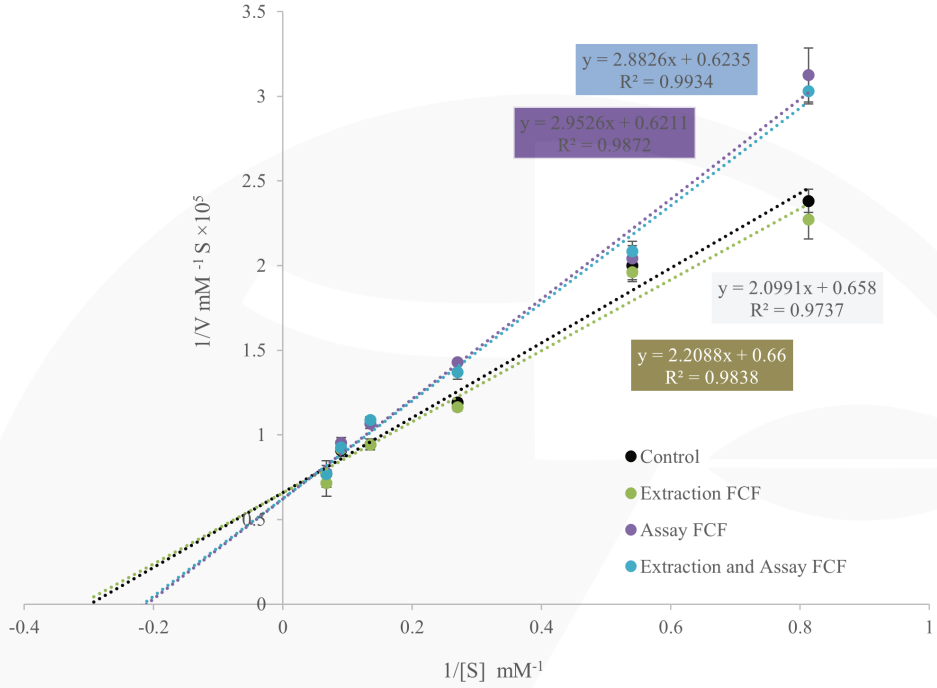


Figure 3. Changes in the Lineweaver–Burk plot of plant-extracted HRP enzyme in control samples and in samples exposed to the Faradarmani Consciousness Field at different stages, including extraction, kinetic assay, or both stages.

As shown in Table 2, when the Faradarmani Consciousness Field was applied only during the extraction stage, Vmax and Kcat increased slightly by approximately 0.7% and 0.5%, respectively, while Km decreased by about 4.5%. When the field was applied only during the kinetic assay, greater increases in Vmax and Kcat were observed, approximately 6.6% and 6.9%, respectively. However, Faradarmani treatment led to a significant 42.5% increase in Km, resulting in an approximately 25.2% decrease in the Kcat/Km ratio. The data for both extraction and assay stages were similar to those observed for the assay stage alone.

Table 2. Kinetic constants for plant-extracted HRP samples based on Lineweaver–Burk analysis in the control and at different stages of Faradarmani Consciousness Field (FCF) application.

Test No.	FCF Treatment	Vmax (mM/s) × 10^{-5}	Km (mM)	kcat	kcat/Km	% Δ Vmax	% Δ Km	% Δ kcat	% Δ kcat/Km
1	Control	1.51	3.34	0.0377	11.3	-	-	-	-
2	Extraction + FCF	1.52	3.19	0.0379	11.9	0.7%	-4.5%	0.5%	5.3%
3	Assay + FCF	1.61	4.76	0.0403	8.45	6.6%	42.5%	6.9%	-25.2%
4	Extraction & Assay + FCF	1.60	4.62	0.0400	8.65	6.0%	38.3%	6.1%	-23.5%

Figure 4 shows the fluorescence intensity of the extracted enzyme under Faradarmani Consciousness Field treatment compared to the control (extracted enzyme without treatment), with a 7% increase in fluorescence emission observed.

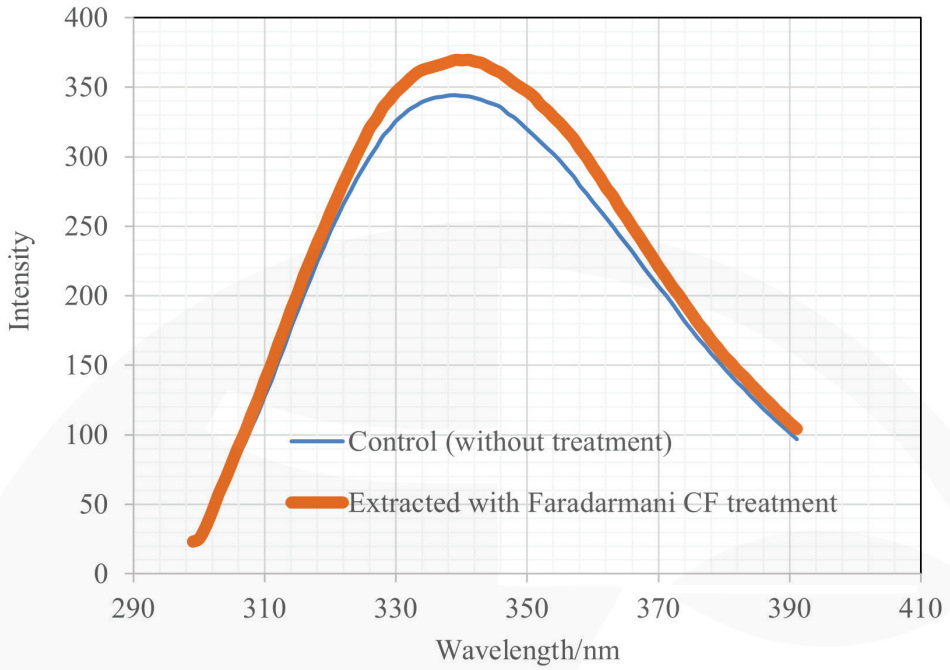


Figure 4. Fluorescence emission of plant-extracted HRP under the influence of the Faradarmani Consciousness Field compared to the control.

Discussion

In this study, the effect of the Faradarmani Consciousness Field on the structure and function of HRP was investigated in two forms: pure laboratory or commercial HRP and plant-extracted HRP. The observed changes, given that all conditions were identical between the samples exposed to the field and the controls (without field), provide evidence of the effect of this non-frequency Consciousness Field. In the commercial HRP sample, Faradarmani treatment led to an increase in Km, indicating a reduced binding affinity between the enzyme and its substrate (Bar-Even et al., 2011). In other words, a greater amount of substrate is required to reach half of Vmax. This observation is consistent with the decrease in fluorescence intensity. It is possible that changes occurred in the microenvironment or the structure of the active site, leading to a reduction in catalytic rate. Since no shift in the fluorescence peak was observed under the influence of the Faradarmani Consciousness field, this indicates that the field did not cause significant changes in the protein structure; in other words, denaturation did not occur. It is noteworthy that, in the case of the plant-extracted enzyme, the Faradarmani Consciousness Field, unlike the commercial sample, led to a 7% increase in fluorescence emission. This difference suggests that the plant-extracted enzyme, which has a different microenvironment, such as around the tryptophan residues (Gui et al., 2006), is affected by the Faradarmani differently compared to the commercial enzyme with higher purity.

Evolutionary studies have reported that over long-time scales, enzymes exhibit coordinated changes in Km and Kcat, reflecting modified metabolic roles (Pettersson, 1989). In contrast, kinetic constants measured under identical laboratory conditions usually vary only within the range of experimental error. The relatively large change observed here—particularly the increase in Km—suggests that the Faradarmani Consciousness Field may affect the functional or structural state of HRP. This increase in Km for the commercial enzyme was similarly observed in the plant-extracted enzyme when the

field was applied during the assay stage or during both extraction and kinetic assay, indicating the reproducibility of the field's effect.

As mentioned in the introduction section, the effects of T-Consciousness Fields are initiated without physical intervention and through the mind of the announcer. According to Taheri's theory, consciousness is a fundamental element of the universe, and not only beings with a brain, but every particle possesses a level of consciousness. This does not imply self-awareness or cognitive traits in advanced organisms such as humans. To better understand, the physical structure can be compared to computer hardware, which requires specific software and information to function. Although this software component is invisible, it plays a fundamental role in the computer's outputs and performance. Conventional science, and biology in particular, focuses on functions at the hardware level (matter and energy). Taheri's theory proposes that, in addition to matter and energy, there exists a third component called consciousness, which has no frequency or physical nature but influences their function. In this study, by examining the effects of the Faradarmani Consciousness Field, we provided evidence of its influence on enzymatic activity and structure. To better understand the mechanisms and mode of action of consciousness fields, further studies in biological, physical, and chemical contexts are needed.

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Investigating the Effects of Taheri Consciousness Field 1 on the Enzyme-Like Behavior of Gold Nanozyme

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Abstract

The study of chemical structures with bio-molecular activity that mimic the behavior of biological molecules has always been of interest to researchers in the field of early life as well as in technology and industry. Among these compounds, a type of nanomaterial with enzyme-like activity, called Nanozyme, has comparable performance with endogenous cellular compounds and holds great potential in replacing natural enzymes. T-Consciousness Fields (TCFs) have a non-frequency and non-physical nature, which distinguishes them from known physical fields. The effects of these fields are initiated through the mind of the announcer. It is hypothesized that the information transmitted by these fields may lead to the optimization of the system under study. In this study, we investigated the effects of a type of T–Consciousness Field (TCF1) on the physicochemical structure and function of gold nano-chemical models. Using electron microscopy, dynamic light scattering, and kinetic assays, we observed significant changes in the nanoparticle size distribution (about 20%) and its kinetic constants (about 4%) under the influence of the TCF. The results of this study, in accordance with previous experiments, provide evidence of the effects of these non-physical fields. We suggest that the effects of TCFs on various biomimetic molecules be further investigated to better understand the mechanism of TCFs.

Keywords: Au-Nanozyme, Biomimetic, T–Consciousness Fields, enzyme-like activity

Introduction

Natural enzymes are ubiquitous biocatalysts with high substrate specificity (Nelson et al., 2008) that have attracted enormous attention because of their application and utilization in pharmaceutical processes (Chapman et al., 2018), agrochemical production (Barber, 2009), bio-sensing (Leca-Bouvier et al., 2010), and industry (Araújo et al., 2008; Yushkova et al., 2019). Natural enzymes accelerate the rate of chemical reactions up to 10^{19} times for a specific substrate (Lin et al., 2014). However, these enzymes have several intrinsic drawbacks, which limit their utilization in practical applications. For instance, natural enzymes are proteins or ribonucleic acids, which inevitably require strict physiological conditions for performing their catalytic functions. Other limitations include ease of denaturation and the high cost of synthesis, isolation, and purification (Singh, 2019; Wang et al., 2016). To tackle these drawbacks, tremendous efforts have been made to develop biomimetic catalysts. Over the past two decades, along with advances in nanotechnology, nanozymes have been designed with better catalytic activities under various conditions such as changing temperature, pH, substrate availability, and specificity. Such relatively easy synthesis has attracted considerable attention (Yadav and Singh, 2021).

In 2007, it was reported for the first time that magnetite nanoparticles (Fe_3O_4) possess intrinsic enzyme-mimetic activity similar to natural peroxidases (Gao et al., 2007). Since then, more than 300 types of nanomaterials have been discovered to mimic the intrinsic enzyme-like activities of peroxidase, oxidase, haloperoxidase, catalase, superoxide dismutase, glutathione reductase, and others (Wang et al., 2020). Enzymatic activities partly depend on the function of scavenging free radicals. Nanozyme functions have been divided into two categories, antioxidants and pro-oxidants, depending on the generation of free radicals (Singh, 2019). Gao et al. (2007) found that Fe_3O_4 magnetic nanoparticles exhibited peroxidase activity over a large pH range with improved temperature tolerance compared to natural horseradish peroxidase (HRP). Due to the unique physicochemical properties of nanomaterials, nanozymes have demonstrated a wide range of applications, from in vitro detection to the replacement of specific enzymes in living systems. With the advent of the new branch of "Nanozymology," nanozymes have become a new field of study and application at the interface of nanotechnology and biological science.

Consciousness is one of the most complex topics discussed in science. Although various theories have been proposed regarding it, a single definition cannot be established. In particular, conducting practical experiments and providing laboratory evidence remains one of the major challenges in this field of research. According to Taheri's theory, consciousness is a fundamental component of the universe, from which matter, energy, and information arise (Taheri, 2013). In this framework, various T-Consciousness Fields (TCFs) are also introduced as subsets of the Cosmic Consciousness Network. These fields have no physical or frequency-based nature, and their effects are initiated through the mind of the announcer, referred to as the Faradarmangar (a trained individual). It is possible to record the effects of these fields in the laboratory through carefully designed experiments. For example, numerous studies have reported the effects of these fields on various subjects, ranging from materials and microorganisms to plants and cell lines (Torabi et al., 2020, Taheri et al., 2020, Taheri et al., 2021a, Taheri et al., 2021b). The present study was conducted to investigate the enzymatic behaviors of gold nanoparticles and to analyze their structural and functional status under the influence of a type of T-Consciousness Fields, called T-Consciousness Field 1 (TCF1), using optical spectroscopy, electron microscopy, and dynamic light scattering (DLS) techniques.

Materials and Methods

Application of T-Consciousness Field 1

The TCF1 was applied to the samples according to the protocol established by the Cosmointel Research Center[1]. Further details are provided in the general considerations section of this issue. In this study, the TCF1 was applied at three stages: during sample

1 www.cosmointel.com

preparation (nanoparticle synthesis), during the kinetic activity assay, or at both stages.

Materials

$HAuCl_4 \cdot 3H_2O$, 30% H_2O_2, and 3,3',5,5'-Tetramethylbenzidine (TMB) were purchased from Sigma Co. Ltd, UK. All reagents and chemicals were of at least analytical reagent grade. Double-distilled water was used throughout the experiments.

Instrumentation

The UV/Vis spectra of gold nanoparticles were recorded using a Varian Cary Bio 100 spectrophotometer. Images of AuNPs were obtained with a transmission electron microscope (TEM) (JEOL, Tokyo, Japan) operating at 80 keV. The particles were characterized by dynamic light scattering (DLS) using a 90 Plus PALS (Brookhaven Instruments Corp., USA) and PALS zeta-potential analyzer software.

Preparation of Gold Nanoparticles

Gold nanoparticles were synthesized by the reduction of $HAuCl_4$ with $NaBH_4$ as the sole reducing agent. Briefly, $HAuCl_4$ solution (500 mL, 1%) was diluted in water (39.5 mL), while $NaBH_4$ solution (1 mL, 1%) was injected under vigorous stirring over approximately 5 minutes. An immediate color change from pale yellow to wine red was observed, indicating the formation of gold nanoparticles. The gold nanoparticles remained stable against aggregation in aqueous solution when stored at 4°C in a refrigerator for at least two months.

Peroxidase-Mimetic Activity of Au Nanoparticles

The assays were carried out in 1.5-mL tubes containing AuNPs (5 µg), reaction buffer (0.2 M NaAc, pH 3.5), different concentrations of TMB (0.094, 0.122, 0.188, 0.241, 0.31, and 0.38 mM), and 1 M H_2O_2. The colorimetric changes were determined by recording the absorbance at 652 nm.

Kinetics Parameters

We calculated the kinetic constants Vmax and Km by fitting the reaction velocity values and substrate concentrations to the Michaelis–Menten equation as follows:

$$V = (Vmax \times [S]) / (Km + [S])$$

Where V is the initial reaction velocity, Vmax is the maximal reaction rate observed at saturating substrate concentrations, [S] is the substrate concentration, and Km is the Michaelis constant. In all steps, two containers were used: one as a blank and the other as a sample, each with different labels.

Statistical Analysis

In this study, each sample had three replicates, and no data were excluded. Comparisons between the test and control samples were analyzed using the t-test in SPSS software, version 17, and a confidence level of 95% was considered statistically significant.

Results

Investigation of Gold Nanozyme Structure

The graphs in Figure 1 show the electron microscopy images of the structures synthesized in this study. As observed in the electron microscopy images, the size distribution of the synthesized nanozymes differs under the influence of T-Consciousness Field 1 (a) and without it (b). The differences between untreated structures and those treated with TCF1 were measured using dynamic light scattering (DLS), which is explained in the following section.

Figure 2 shows the DLS graphs of the control and treated samples. The gold nanozymes synthesized under the influence of TCF1 have an average effective diameter approximately 20% smaller than the control and are more uniform in particle size (Figure 2, Table 1).

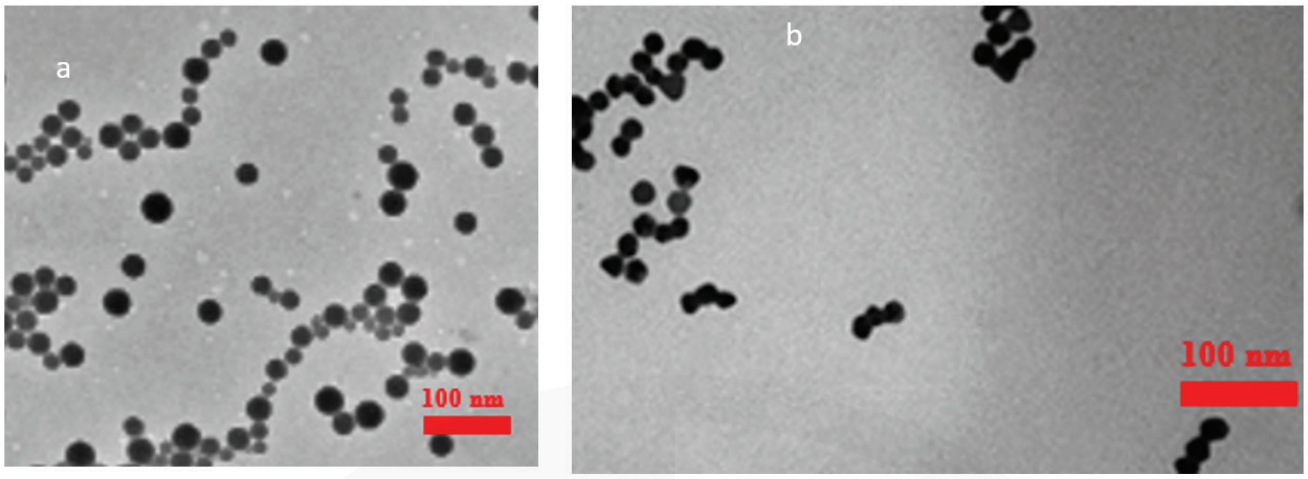


Figure 1. Gold nanozymes synthesized (a) with and (b) without treatment by the T-Consciousness Field1.

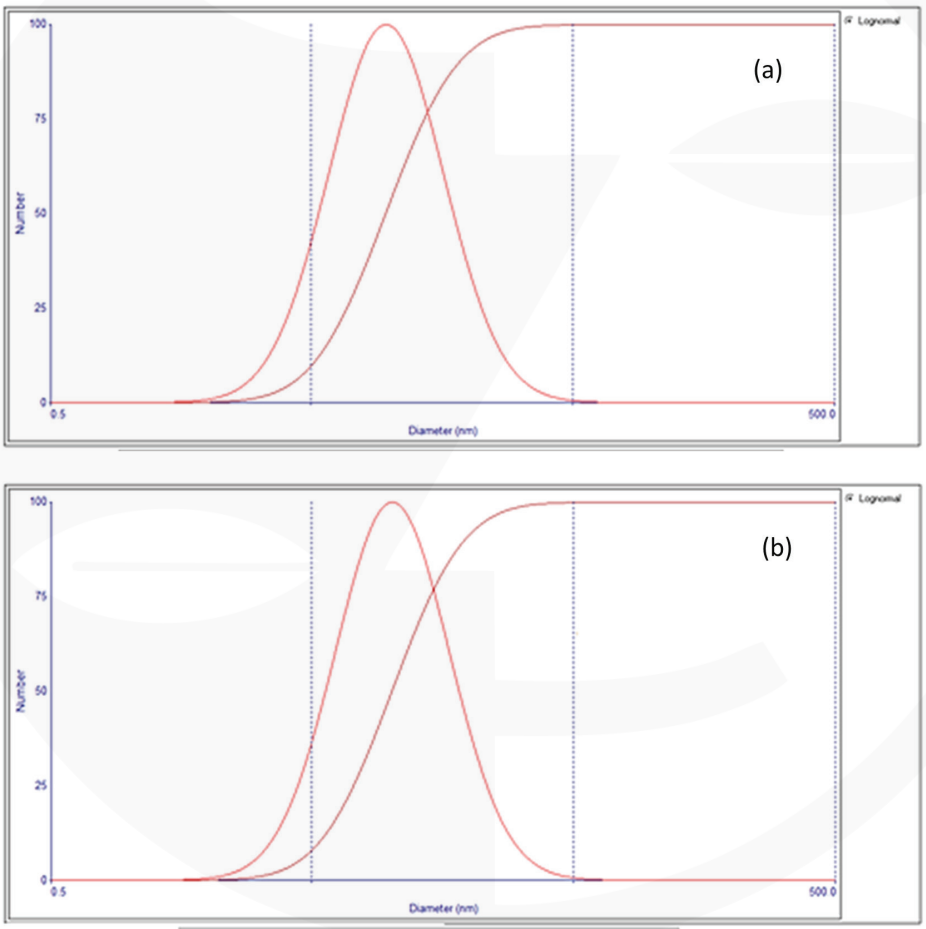


Figure 2. Particle size distribution of gold nanoparticles in the control (a) and treated sample (b).

Table 1. Particle size distribution of synthesized nanozymes under the influence of the T-Consciousness Field 1 (TCF1) compared with the control.

Nanozyme	Effective diameter (nm)	STD	Polydispersity	STD
Control	49.7	6.7	0.309	0.003
Preparation + TCF1	40.1	0.2	0.306	0.002

Analysis of Gold Nanoparticle Function

The catalytic activity of the Au nanozymes under the influence of this field was assessed in comparison with the control (without the field) and plotted using the Lineweaver–Burk graph, as shown in Figure 3. In addition, the calculated kinetic constants are presented in Table 2.

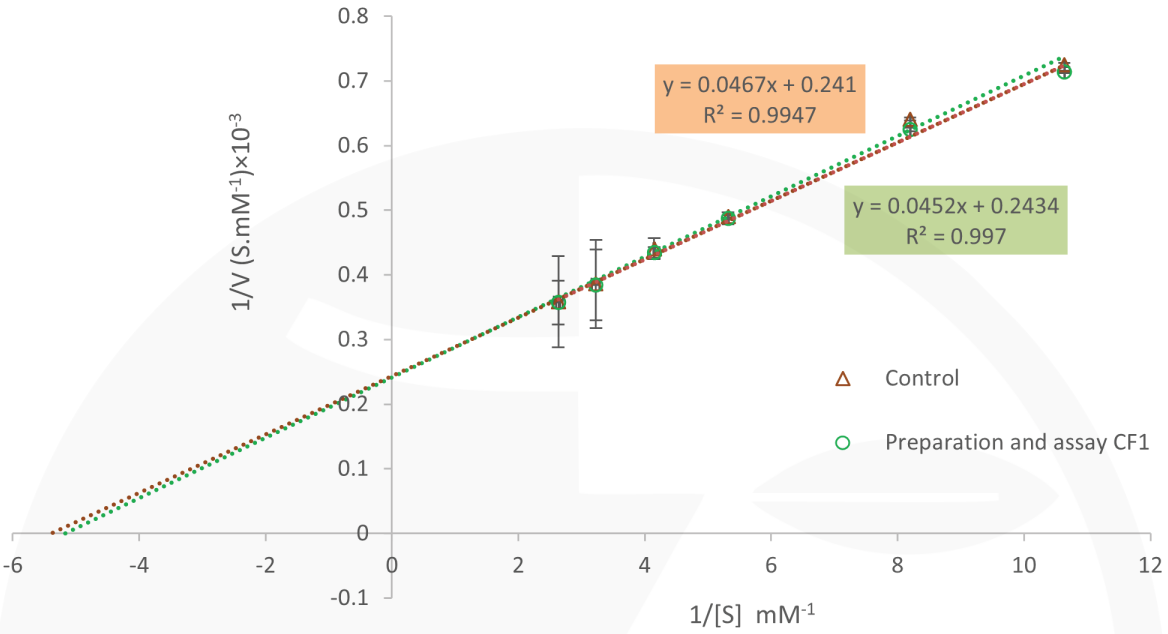


Figure 3. Changes in the Lineweaver–Burk plot of gold nanozyme activity in the sample treated with the T-Consciousness Field 1 (the sample was exposed to the field during both preparation and activity assay) and the control (without field).

Table 2. Comparison of the kinetic constants of samples treated with the T–Consciousness Field 1 and the control (without field) in the present study.

Test No.	Nanozyme	Vmax (mM/s)×10^{-3}	Km (mM)	Rate (s^{-1})	% Δ Vmax	% Δ Km	% Δ Rate
1	Control (none)	4.14	0.193	490.01	-	-	-
2	Preparation + TCF1	4.16	0.193	471.25	0.5	0	-3.8
3	Assay + TCF1	4.14	0.192	488.78	0	-0.5	-0.2
4	Preparation and assay + TCF1	4.10	0.185	486.80	-0.9	-4.1	-0.6

As observed from the comparison of the data in Table 2, applying TCF1 during nanozyme preparation (Test 2), compared to no TCF1 application during the kinetic assay, resulted in an approximate 4% decrease in the catalytic rate of gold nanoparticles. On the other hand, TCF1 treatment during the kinetic assay of the same sample (Test 4) led to a 4% increase in substrate affinity (decrease in Km) without a significant change in the reaction rate compared with the control. Interestingly, in Test 4, the reduction in reaction rate observed in Test 2 did not occur. Other changes listed in Table 2 are negligible.

Discussion

Studying the biological behaviors of chemical systems is an important and fundamental step in understanding the origin of life. According to Mohammad Ali Taheri's theory of Consciousness Fields, these fields have been studied in various disciplines, including physics, biology, and medical sciences, and their results have been previously reported, some of which are mentioned in the Introduction of the present study. Considering the definition of T-Consciousness as the fundamental element of the Universe, and the introduction of TCFs with a non-frequency nature (Taheri, 2013), investigating their effects is of great importance, as it can shed light on the possible role of Consciousness in the emergence of life and help to understand the mechanisms contributing to this process.

In the previous study on horseradish peroxidase (HRP) presented in this issue, it was found that the application of the Consciousness Field under physiological conditions led to increases in Km and Vmax by approximately 40% and 6%, respectively, compared to the control.(Taheri et al., 2022).

In the present study, the changes in these parameters were observed under the influence of the TCF1, consistent with the previous findings. According to the theory of TCFs, the behavior observed in a system treated with TCFs arises from the transfer of data and information from these fields to the system under study, aiming to optimize its function. It is noteworthy that in an experiment on wheat under salinity stress, the TCF led to increased activity of antioxidant enzymes compared to the control group without field exposure (Torabi et al., 2020). Further studies are needed to better understand how non-frequency Consciousness interacts with the matter and energy component with frequency properties and to clarify the potential role of this component in evolution and the emergence of life. It has been reported that during evolution, fluctuations in Km values are often observed in biological enzymes (Pettersson, 1989).

In summary, two optimizations induced by the TCF1 were observed: (1) the formation of more homogeneous nanoparticle sizes, and (2) a decrease in Km values, indicating increased substrate specificity. Overall, this study suggests the influence of TCFs on the biomimetic behavior of gold nanozymes, considering parameters such as particle size, homogeneity, and substrate selectivity. Based on these findings, we propose that other biomimetic models be investigated under the influence of TCFs to better explain the behaviors of these chemical systems that serve as precursors to vital processes.

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Investigating the effect of Taheri Consciousness Field A on the Behavior of Biomimetic Micellar Supramolecular Models

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Abstract

Supramolecular biomimetic models are assemblies of chemical components capable of mimicking the functions of biological molecules. Biomimetic models have numerous applications in industry and various research fields. In basic biology, biomimetic models can help investigate vital behaviors and the origins of life. T-Consciousness Fields (TCFs) have been introduced as non-frequency-based phenomena, with their effects initiated through the mind of the announcer. It is possible to study the effects of these fields through carefully designed experiments. The effects of TCFs on various subjects, including living systems and materials such as metallic elements, have been investigated prior to this study. In the present study, the effect of one type of TCFs, called T-Consciousness Field A (TCF1), on the structure and function of micellar supramolecular biomimetic models designed to mimic enzymatic behaviors was investigated. To mimic the behavior of heme-containing proteins, such as horseradish peroxidase, this model was designed to contain assemblies of sodium dodecyl sulfate micelles with heme-histidine at their core. The results showed that TCF1 did not alter the intrinsic chemical structure of the biomimetic models. However, the dominant population in the treated model, unlike the control group without field exposure, exhibited a smaller average particle size. Furthermore, the catalytic activity of the biomimetic model showed an 8% increase in efficiency, better mimicking the function of the natural enzyme compared to the control. Additionally, the zeta potential, electrical conductivity, and mobility of the treated model were altered by 40–45% relative to the control. These findings suggest that the TCF1 enhances the stability of the micellar supramolecular biomimetic model and increases its similarity to the structure and function of colloidal solutions of biological molecules in living organisms.

Keywords: Biomimetic, Supramolecular Structure, Peroxidase, Micelle, T-Consciousness Fields

Introduction

Supramolecular models of bio-mimicry are assemblies of components that have the ability to function similarly to biological molecules. Various functions arise from these supramolecular architectures, including micelles for drug delivery, catalysis, molecular recognition, and transport processes (Lehn, 1990; Ortega Lorenzo et al., 2000; Kataoka et al., 2012). The assembly of supramolecular structures, as well as their diversity and functionality, relies on the set of building blocks and subunits. Attractive and repulsive forces—such as hydrogen bonding, ionic interactions, van der Waals forces, or hydrophobic interactions—within and between these molecules lead to non-covalent bonding (Philp and Stoddart, 1996; Zhang, 2003).

Various surfactant-like oligopeptides have been designed to generate supramolecular structures. These molecules typically have two parts: a hydrophobic tail (composed of hydrophobic amino acids such as Gly, Ala, and Leu) and a hydrophilic head (composed of hydrophilic amino acids such as Arg, Lys, and His) (von Maltzahn et al., 2003). Surfactant molecules with dual characteristics exhibit two key features: adsorption at interfaces and self-assembly in bulk solution. Structure-function relationships, as well as the solvent properties of these molecules, have been investigated for various surfactant types in diverse applications (Li, 2017). These studies can provide a model system that mimics the heme environment (Mazumdar et al., 1988; Simplicio et al., 1972). Moosavi-Movahedi et al. (2008) reported that the micelle cavity of sodium dodecyl sulfate (SDS) protects hematin in the presence of histidine and provides a model system for heme enzymes such as HRP. They showed that the triple-component solution of His–hematin–SDS exhibited a unique absorption band in the UV–Vis spectra, suggesting the distinct structure of a hemoprotein-like biomimetic catalyst.

In the models of the present study, we aimed to mimic the behavior of biological enzymes using SDS surfactant with its dual inherent properties. On one hand, the aqueous medium facilitates the formation of spherical micelles, resembling the spherical body of enzymes, with both hydrophilic and hydrophobic surface regions. On the other hand, we positioned the prosthetic group of hematin at the center of the micellar structures, along with coordinated histidine amino acids at the active site of the supramolecular model. This structure closely resembles catalases or peroxidases in the laboratory in terms of both function and structure.

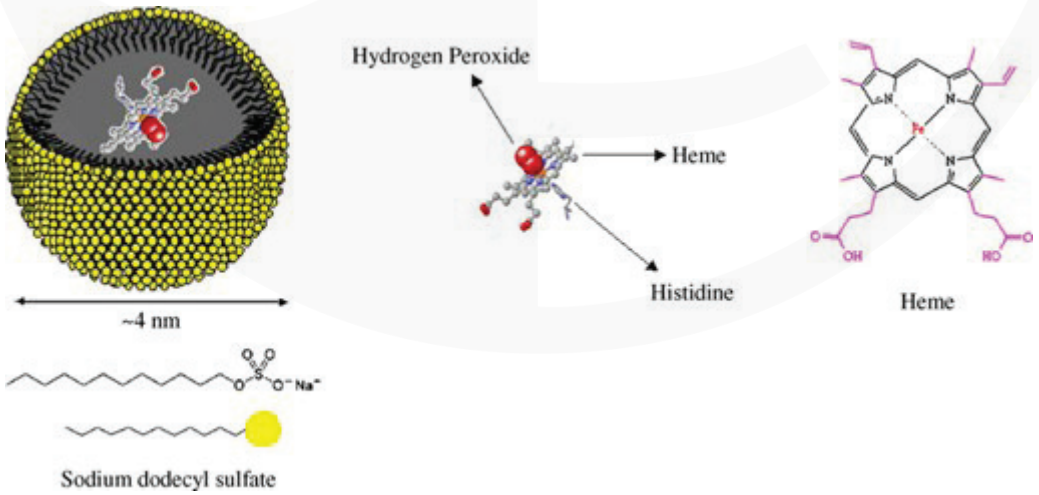


Figure 1. Micellar histidinate hematin as an enzymatic biomimetic system previously reported (Moosavi et al., 2008). The authors have obtained permission to use this figure in the present article.

Humans have always been curious to understand the world around them. Numerous efforts have been made to discover and explain various physical laws. For example, gravity, electromagnetic fields, electric fields, and so on. The concept of a field is often used in physical theories. Mohammad Ali Taheri has introduced diverse T-Consciousness Fields (TCFs) with a non-frequency nature, which are considered a subset of the Cosmic Consciousness network (Taheri, 2013). The effects of these fields are initiated through the mind of the announcer, called the Faradarmangar (a trained individual). It is hypothesized that information transmitted through these fields can induce changes in the subjects under study. To investigate these effects, multiple experiments have been conducted on materials (Taheri et al., 2021a), cancer cell lines (Taheri et al., 2020), microorganisms (Taheri et al., 2021b), and plants (Torabi et al., 2020).

A model system that mimics the function of biological molecules under *in vitro* and non-cellular conditions can be useful for studying the influence of TCFs on the formation of biological behaviors. Prior to this experiment, the effect of TCF 1 on the behavior of gold nanozyme biomimetic models had been demonstrated (Taheri et al., 2021c). The aim of the present study was to investigate the effect of this TCF1 on the behavior of micellar supramolecular biomimetic models.

Material and Methods

Porcine hematin, sodium dodecyl sulfate, and histidine were obtained from Sigma Ltd., UK. Other analytical grade chemicals were from Merck Ltd., India, and were used without further purification. Doubly distilled water was used as the solvent for all experiments. Hematin solutions were prepared daily, and guaiacol solutions were refreshed every 2 h. All solutions were stored in an ice bath during the experiments.

Application of T-Consciousness Field 1

T-Consciousness Field was applied to the samples according to the protocol established at the Cosmointel Research Center[1]. Further details are provided in the General Considerations section of this issue.

Structural analysis

Absorption spectra were collected with a Model Varian Cary Bio 100 spectrophotometer using 1-cm path-length cells. Additionally, the particles were characterized by dynamic light scattering (DLS) using a 90 Plus PALS (Brookhaven Instruments Corp., USA) and PALS zeta-potential analyzer software.

Kinetic assay

Steady-state kinetics of guaiacol oxidation by hydrogen peroxide, catalyzed by model catalysts, were obtained at 470 nm (colored product of the reaction) (Beck et al., 1992) in 50 mM phosphate buffer solution, pH 7.4 (PBS). Progress curves of the reactions were measured at various guaiacol concentrations (0.1–2 mM), and the initial rates were used to construct the Michaelis–Menten graphs. The concentration of H_2O_2 was kept constant at 1.2 mM to ensure pseudo-first-order kinetics. During a period of 120 seconds, in which the progress curves were recorded, guaiacol (0.2–10 mM) and hydrogen peroxide (0.25 mM) were added to the reaction vessel. The initial rate of the reaction was calculated from the 45th second, when the curve was still linear. To reach the steady-state condition, a lag time of 7 seconds was applied. H_2O_2 stock solutions were prepared by appropriate dilutions of 30% (v/v) H_2O_2 in deionized water. The concentrations of hydrogen peroxide were measured by recording its absorbance at 240 nm using $\varepsilon 240 = 43.6\ cm^{-1}\ M^{-1}$ (George, 1953). All diluted solutions were freshly prepared.

Preparation of biomimetic supramolecular models

The Critical Micelle Concentration (CMC) was reached using SDS surfactant at a concentration of 8.5 mM in 50 mM phosphate buffer (Mousavi et al., 2008). To maintain the maximum and stable number of SDS micelles, a concentration of 90 mM (in 50 mM phosphate buffer, pH 7.4) was used. This

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concentration is 10 times higher than the reported CMC of SDS micelles.

The Micellar Hematin Model (MH model) refers to hematin when it is located in the core of a spherical SDS micelle. The MH model was obtained at a concentration higher than the CMC (90 mM) along with the hematin titer.

The Micellar Histidine Hematin Model (MHH model) refers to hematin when it binds to histidine amino acids at the center of the SDS micelles. This model was obtained by titrating histidine into the MH model.

Statistical Analysis

In this study, each sample had three replicates, and no data were excluded. Comparisons between the test and control samples were analyzed using the t-test in SPSS software, version 17, and a confidence level of 95% was considered statistically significant.

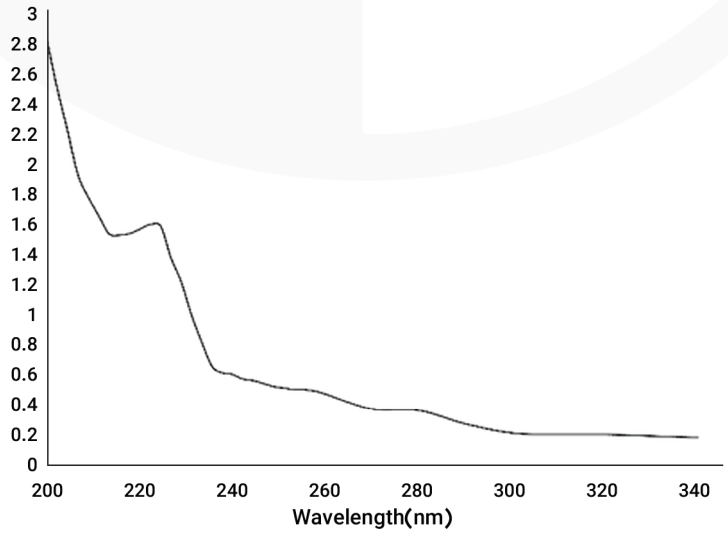
Results

Figure 1 presents the spectrophotometric spectra, which characterize the colloidal solutions of the synthesized supramolecular models. As shown in Figure 1a, a λmax at 220 nm indicates the formation of SDS micelles. A hematin concentration of 10 mM was optimal for producing the MH model in a 90 mM SDS solution (Figure 1b). Furthermore, at a histidine solution concentration of 80 mM (in 50 mM phosphate buffer, pH 7.4), the MHH models were formed (Figure 1c).

As shown in Figure 1c, the MHH supramolecular model exhibits distinct peaks at 430 and 535 nm. In fact, the Soret band of the previous MH model, upon the addition of histidine to the solution and the engagement of hematin at the center of SDS micelles, created a more hydrophobic environment, separating the aggregated hematins encapsulated within the micelles. This resulted in a bathochromic shift (from 400 to 430 nm) in the hematin peak bound to histidine. Furthermore, the 530 nm band, observed in both models, closely resembles the corresponding band in hemoglobin, confirming that the MHH model (the final model of this study) is similar to heme proteins of eukaryotic origin.

The steps for preparing the MH and MHH models (Figures 1a–c) were carried out in two separate test sets: (1) without the influence of TCF 1 (control) and (2) under the influence of TCF1 in the reactant solution (sample). The λmax and the intensity of the spectrophotometric spectra of both MH and MHH models (as presented in Figure 1) showed no differences between the field-exposed sample and the untreated control. In other words, the application of this consciousness field did not induce any changes in the fundamental structure of the prepared MH and MHH models.

(a)



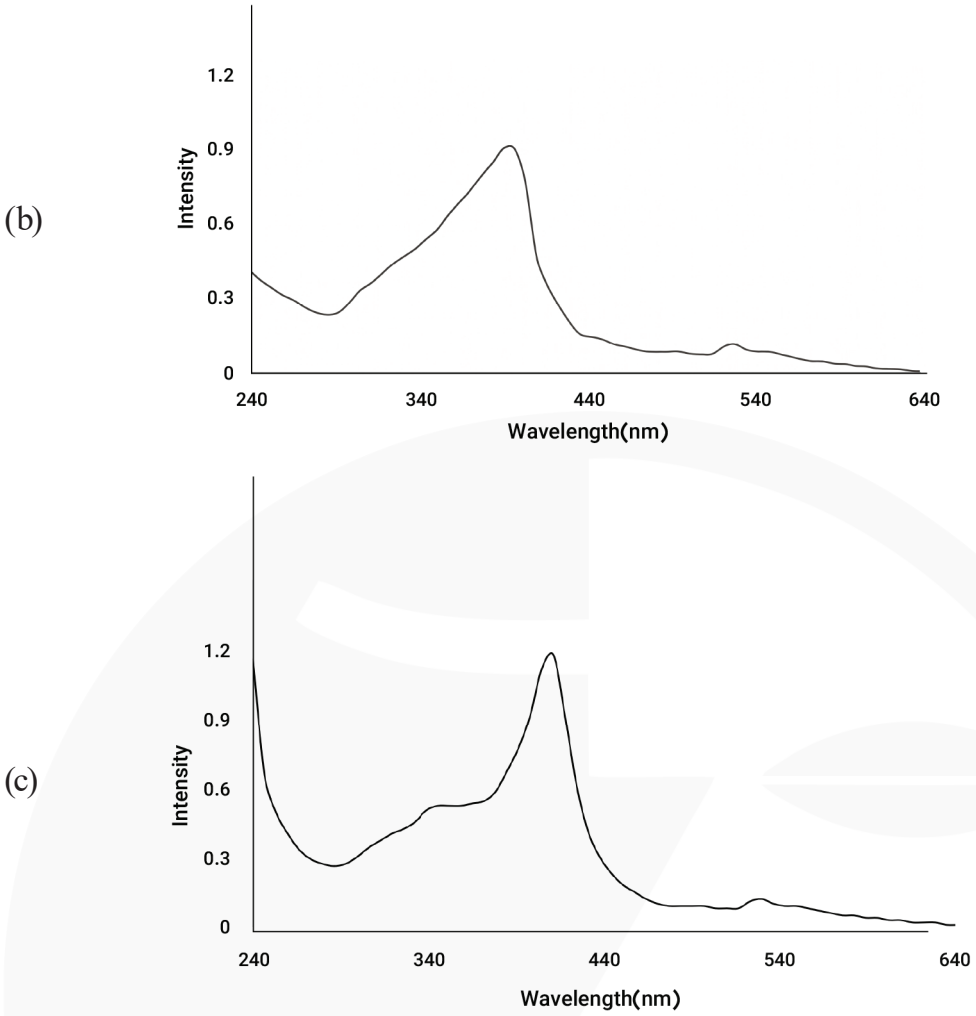


Figure 1. Spectrophotometry of the supramolecular models synthesized in the present study; (a) formation of spherical SDS micelles, (b) Micellar Hematin Model (MH) model and (c) Micellar Histidine Hematin model (MHH) Model.

On the other hand, measurements of several colloidal parameters of the MHH model (the final model in the present study) using DLS revealed differences between the control samples and the samples exposed to the TCF1, as shown in Table 1. As indicated in this table, the zeta potential, mobility, and electrical conductivity of the MHH model increased by 41–45% under the influence of the consciousness field compared to the control groups.

Table 1. Comparison of structural parameters of the control supramolecular MHH model (Micellar Histidine Hematin) and the sample exposed to T-Consciousness Field 1 (sample) obtained using DLS (zeta measurement time: 30 seconds).

Parameter	Control	Sample	Diff. relation to control (%)
Zeta Potential	10.8 mv	15.2 mv	+40.7
Polarity	Negative	Negative	-
Mobility at 25°C	0.84u/s/V/cm	1.19u/s/V/cm	+41.6
Conductivity	721 uS/cm	1048 uS/cm	+45.3
Field Strength (Req/Act)	10 / 9.5 kV/m	10 / 9.3 kV/m	-2.1

Figure 2 shows the size distribution of the synthesized MHH model in both the sample and control. Furthermore, the data from Figure 2 were compared between the T-Consciousness Field 1–exposed sample and the control, as presented in Table 2. Approximately 86% of the MHH population in the control samples (PDI = 0.1751) consisted of spherical particles with a diameter of 2.34 µm, while a smaller fraction (about 15%) consisted of spherical particles with a diameter of 0.291 µm. On the other hand, the MHH model exposed to the consciousness field resulted in 66% of smaller particles with a diameter of 0.874 µm and 34% of larger particles with a diameter of 4.560 µm (PDI = 0.6231). The dominant population in the untreated control MHH model was three times higher than the dominant population in the field-exposed MHH model. Conversely, the smaller particle population in the field-exposed MHH model was 16 times greater than the same population in the control MHH model.

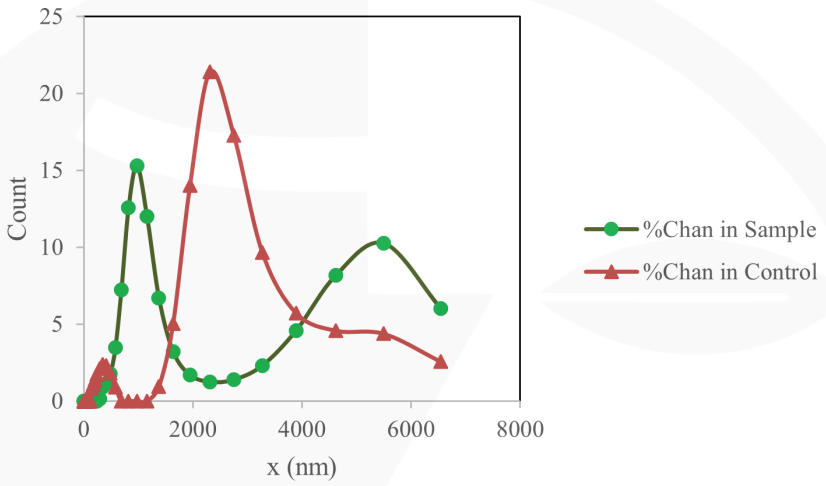


Figure 2.Size distribution of the control compared to the MHH biomimetic model (Micellar Histidine Hematin) under the influence of the T-Consciousness Field 1.

Table 2. Size distribution of the final supramolecular model in the control and the sample exposed to T-Consciousness Field 1.

	Diameter (nm)	Vol%	Width
Control	2340	85.5	1792
	291.4	14.5	240.6
Sample	4560	33.9	2215
	874	66.1	548

Activity of the supramolecular model

As shown in Table 3, under the influence of the T-Consciousness Field, the MHH model exhibited a small but significant increase of approximately 6–8% in both the maximum reaction rate and catalytic efficiency

Table 3. Kinetic constants of the Micellar Histidine Hematin (MHH) model.

	Km (µM)	STD	Vmax (μMs^{-1})	STD	kcat (s^{-1})	Catalytic efficiency ($\mu M^{-1}s^{-1}$)×10^{-3}
Control	3.42	0.03	1.153	0.04	0.0230	6.72
Sample	3.40	0.02	1.23	0.02	0.0246	7.23

Discussion

One of the characteristics that enables cells and living systems to proliferate early in life is hierarchical self-organization, and many chemical and biological molecules are known to possess this ability (Halley and Winkler 2006). Self-organization is a process in which components, through their mutual interactions, spontaneously arrange themselves to form higher-order structures (Kumar, 2006). Micelles are self-assembled aggregates of amphiphilic compounds—containing both apolar hydrophobic (lipophilic) and polar (hydrophilic) groups. In bioinorganic chemistry, interactions between micelles and other hydrophobic and hydrophilic components are used to create supramolecular structures capable of exhibiting biological behaviors (Owen and Butler 2011).

In the present study, we used the surfactant SDS because it has the ability to form spherical micelles similar to enzymes and globular proteins. In addition, placing hematin as a prosthetic group bound to histidine at the center of micellar structures generates a structure that, in the laboratory, more closely resembles natural enzymes and proteins such as catalase, peroxidase, and hemoglobin. These models were constructed in two conditions: under the influence of the TCF1 and without it. We then examined the structural and functional properties of the constructed models in colloidal solutions during substrate catalysis.

According to the theory of T-Consciousness Fields, it is possible to apply them to living organisms and materials, and to record and examine their effects. Theoretically, this influence is attributed to the information transmitted from these fields to the components of the system. Consequently, it may enable the repair and restoration of system components and the optimization of their behavior. In a previous experiment on the gold nanozyme, it was observed that this Consciousness Field led to uniform particle size and improved enzymatic catalytic performance (Taheri et al., 2021c).

In the present experiment, no change in the chemical structure of the synthesized models was observed under the influence of the TCF 1; however, the field caused changes in particle size distribution and catalytic strength, which is consistent with the previous study. Moreover, the TCF1 resulted in a significant increase in zeta potential (41%), electrical conductivity (45%), and mobility (42%) of the sample molecules compared to the control groups. These results indicate higher stability of the samples, an increase in charged particles on the surface of the biomimetic structures, and consequently greater mobility of these structures in the colloidal medium.

It has been shown that increased mobility and stability of biological structures such as proteins and ribonucleic acids are factors involved in the formation of biological systems (Tabaka et al., 2014; Ball, 2017). Based on the observations of this experiment, it appears that applying the TCF 1 may influence the behavior of biological models. To better understand the potential role of these fields in the emergence of life and the self-organization of molecules, further studies in this area are recommended.

Acknowledgments

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Evaluation of the Effect of Taheri Consciousness Field 1 on Nanostructured Lipid Carriers in the Treatment of UV-irradiated Human Hair Keratin

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Abstract

Nanostructured lipid carriers (NLCs) are self-assembled structures formed from nanoemulsions of mixed solid and liquid lipids and are used in drug delivery systems. Research on NLCs has shown that these carriers offer advantages over conventional carriers for drug therapy, including increased solubility, stability, improved permeability, and enhanced bioavailability of drugs. The process of self-organization has attracted considerable research interest due to its potential role in the origin of life. Furthermore, it has been shown that solar ultraviolet (UV) waves play two contradictory roles in the prebiotic and biological atmosphere during the process of life emergence: a constructive role in providing the initial energy for reactions effective in forming organic molecules, and a destructive role in breaking down biological molecules in the early ozone-free atmosphere, which was rich in disruptive radiation. Considering the importance of self-assembled structures in both the origin of life and drug delivery, as well as the significant effects of T-Consciousness Field 1 (TCF1) on the structure and function of enzymes, biomimetic molecules, and biological cells observed in previous studies, the present research was conducted to investigate the effect of TCF1 on human hair keratin exposed to ultraviolet radiation. Based on the obtained results, the diameter of the NLCs and the zeta potential of the sample treated with TCF1 increased by approximately 7% and 100%, respectively, compared to the control. The PDI (polydispersity index) of the sample also decreased by about 31% compared to the control. Moreover, the use of NLCs synthesized under treatment with TCF1 led to significant repair and improvement of keratin protein exposed to UV radiation. Further studies are needed to provide deeper insight into the potential effects of TCF1 on biological and self-assembly systems.

Keywords: Nanostructured lipid carriers, Ultraviolet radiation, Self-organization, T-Consciousness Field, Origin of life, Keratin

Introduction

Nowadays, the use of nanotechnology provides the opportunity to enhance treatments through targeted drug delivery. For example, this application can increase drug flux into and through the skin (Goyal et al., 2016). Nanoparticles are defined as tiny particles with dimensions between 1 and 100 nm (Khan et al., 2019). Solid lipid nanoparticles (SLNs) were conceptualized by Müller and Gasco as a potential delivery particle system in the early 1990s. These nanocarriers (50–1000 nm) offer a great number of advantages; for instance, they have been utilized in various drug deliveries (Yetisgin et al., 2020) and as biocompatible lipids (Lacatusu et al., 2011). Furthermore, minimal use of organic solvents in the formulation and high in vivo stability are other benefits of using SLNs (Uner et al., 2007). However, they have certain limitations, such as poor drug-loading capacity, unpredictable gelling tendency, and drug leakage (Mishra et al., 2018). Nanostructured lipid carriers (NLCs) have also been introduced after SLNs to overcome their possible shortcomings. NLCs are composed of physiological and biocompatible lipids, surfactants, and co-surfactants (Chauhan et al., 2020). They provide better stability and loading capacity, and they prevent drug expulsion during storage (Naseri et al., 2015).

The main characteristic feature of nanoparticles in a colloidal medium, which indicates their stability in an aqueous medium for a biomedical application, is the zeta potential (ζ [=] mV) of the particles (Gordillo-Galeano and Mora-Huertas, 2021). The zeta potential is often considered the effective charge on the particle (Hiemenz & Rajagopalan, 1997). Particles of the same charge with increasing absolute zeta potential will have less tendency to aggregate, and generally, suspensions with a zeta potential of $\zeta > |30|$ are considered suspensions with good colloidal stability (Freitas & Müller, 1998).

Self-organization is a phenomenon in which components of a system assemble through noncovalent forces such as in micelles (Förster et al., 2002). Not only does self-organization play a crucial role in building up complex structures, but it also provides a fundamental process in the emergence of life (Mann, 2012; Li, 2017; Mendes et al., 2013). The origin of life is one of the most important challenges in science. There have been many efforts to solve this problem for nearly 100 years (Oró et al., 1990). In most theories and experiments in this context, ultraviolet waves have played a key role in the formation of life (Miller & Urey, 1959; Oparin, 1965; Lazcano, 2010).

Undeniably, water molecules are considered an essential factor in the origins of life. They have been described by their ambivalent role. This means that, in addition to acting as a solvent and reactant, they also enhance hydrolysis, which is a powerful force in promoting self-organization in prebiotic chemistry (do Nascimento Vieira et al., 2020). Considering the destructive role of UV in breaking the primary bonds of organic molecules in early life, water has been suggested as a possible candidate to protect against these effects (Ranjan et al., 2016). It should be noted that, in addition to the biochemical study of life, we need to understand the physical processes and driving forces to know how the transition of matter occurred from the nonliving to the living state (Cronin and Walker, 2016; Goldenfeld and Woese, 2011). Life cannot be explained by our current laws of physics and requires new physics to probe the origins of life (Walker, 2019).

According to Taheri's theory, there are diverse T-Consciousness Fields (TCFs) with various functions that are subsets of the Cosmic Consciousness network. These fields are non-frequency in nature and cannot be measured with quantitative tools, but it is possible to record their effects in the laboratory. In general, from this perspective, T-Consciousness is considered a fundamental component of the universe, from which matter, energy, and information originate (Taheri, 2013). Therefore, this theory suggests that consciousness played a key role at the beginning of the emergence of life.

The use of TCFs allows us to investigate the potential interactions of consciousness with biomimetic models. These studies can serve as a foundation for future research in this area. Previously, the

effects of TCF1 on the structure and function of horseradish peroxidase, as well as gold nanozyme and supramolecular micellar biomimetic models, have been examined, and the results were published in this same issue. Moreover, several studies have reported the effects of TCFs on various subjects, including plant and animal models (Torabi et al., 2020; Taheri et al., 2021).

Keratin, as a structural protein, is rich in the amino acid cysteine, which is covalently linked via disulfide bonds with crosslinks between strands, making it one of the strongest non-mineralized tissues in nature (Zhang et al., 2013). In the present study, self-organized structured NLCs were utilized with two objectives: first, to investigate the role of TCF1 in repairing damage caused by ultraviolet radiation in the Earth's early atmosphere, and second, to explore its possible role in the optimal organization of early life forms. Additionally, the alleviative effect of TCF1 on UV-irradiated hair keratin was investigated.

Materials and Methods

Application of TCF1

TCF1 was applied to the samples according to the protocol established by Cosmointel Research Center[4]. Further details are provided in the general consideration of this issue.

NLCs were synthesized by emulsion and ultrasound homogenization. First, the oil phase (consisting of solid and liquid lipids) was heated in a water bath to 5 °C above the lipid melting point (75 °C). Then, the aqueous phase (containing the surfactant Tween 80 and deionized water) at 75 °C was added dropwise to the lipid phase using a syringe pump, under magnetic stirring at 1200 rpm. At this stage, a coarse oil-in-water emulsion, consisting of large droplets of solid and liquid lipids, was formed and then further refined into fine droplets using a magnetic stirrer (Fan Azma Gostar) at 1200 rpm. Finally, to reduce nanoparticle size, the synthesized formulation was transferred to a homogenizer (developed using Iranian ultrasonic technology) and homogenized for 15 min with cycles of 10 second of homogenization followed by 3 second of rest. The emulsion was then placed in an ice bath for 10 minutes to induce the formation of incomplete lipid nanostructured crystals. Due to the formation of a surfactant layer around each lipid nanostructure, creating a spatial barrier between them, stable dispersed nanostructured lipid carriers were obtained in the aqueous medium after cooling and crystal formation.

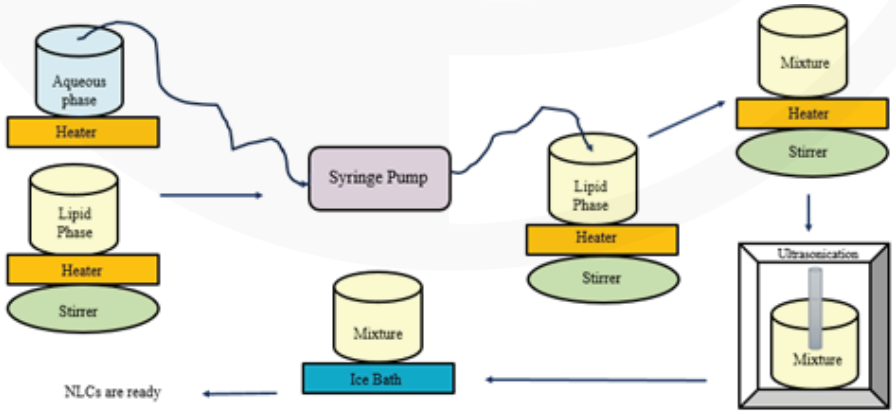


Figure 1. Synthesis process of NLC in the present study.

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Dynamic Light Scattering

The mean particle size, polydispersity index (PDI), and surface charge of the lipid nanostructures were measured using a dynamic light scattering device (Brookhaven/Plus Pals-90, USA). All samples were diluted with deionized water. Particle size and the scattering index were determined using the device in automatic measurement mode at a fixed angle of 90° and a temperature of 25 °C, while the surface charge (zeta potential) was calculated based on electrophoretic mobility.

Preparation and Treatment of Hair Samples

Before performing functional assays, all hair samples were washed with a non-ionic detergent (baby hair shampoo) and water (Shavandi et al., 2017). A 0.05 g portion of black natural human hair fiber was used as a control (intact and not subjected to TCF1), and the same amount was used as a sample (damaged by ultraviolet light and treated with NLCs prepared under the influence of TCF1). The procedures for inducing damage in hair keratin, protein extraction, and concentration assays are described as follows.

UV Irradiation of Human Hair

After treating the hair with the synthesized NLC solution under the influence of TCF1, the samples were irradiated for six hours using a modeled source of UVA and UVB (Osram) ultraviolet radiation. Following irradiation, the hair was washed again with a non-ionic shampoo (baby hair shampoo) and further dried before analysis (Prasertpol & Tiyaboonchai, 2020). Finally, external lipids and hair fiber contaminants were removed by immersing the hair in distilled water for one hour, followed by treatment with a 2:1 v/v chloroform: methanol (merc) solution for 24 hours (Shavandi et al., 2017).

Protein Extraction and Assay

Preparation of Buffer Solution

Tris-HCl (25 mM), thiourea (2.6 M), urea (5 M), and 2-mercaptoethanol (Merc) were used to prepare the buffer solution. To prepare 160 ml of buffer, 1.21 g of Tris powder was dissolved in 20 ml of deionized water, followed by the addition of 200 µl of HCl to adjust the solution to pH 8.5. The volume of this Tris-HCl solution was then brought to 40 ml. Separately, 7.9 g of thiourea was dissolved in 40 ml of deionized water, and 12 g of urea was added, bringing the volume of the final solution to 80 ml. A 5% mercaptoethanol solution was prepared by mixing 2 ml of mercaptoethanol with 38 ml of deionized water, and this was added to the solution containing Tris-HCl, thiourea, and urea. Finally, the resulting buffer solution was homogenized using a Vertex mixer (Shavandi et al., 2017; Nakamura et al., 2002; Cassoni et al., 2018).

Extraction of Keratin

Hair samples previously treated with chloroform/ methanol solution were washed with distilled water and then dried. The samples were cut into pieces 1–2 mm in length and immersed in 5 ml of the prepared buffer solution (described in the previous section). They were then incubated in a Binder incubator (Germany) at 48 °C for 48 hours. In the final step, the solution was filtered using a 0.2 µm filter (Sartorius, Germany) and centrifuged (Hitachi, Japan) at 16,000 × g for 15 min at room temperature. The resulting supernatant was collected and used as hair protein (keratin) (Cassoni et al., 2018).

Determination of Keratin Concentration by Bradford Protocol

The ingredients for this assay included a standard BSA solution (Sigma) with a concentration of 1 mg/ml, from which solutions with concentrations of 0.02, 0.04, 0.06, 0.08, and 0.1 mg/ml were prepared. The Bradford reagent was prepared as follows: first, 10 mg of Coomassie Brilliant Blue G-250 was dissolved in 10 ml of methanol; second, 10 ml of 85% H_3PO_4 and 50 ml of deionized water were added to the solution; third, the solution was filtered; and finally, the volume was brought to 100 ml. The Bradford solution was stored at 4 °C in the dark. The assay was performed as follows: 100 µl of each standard and unknown sample solution was pipetted into microplate wells, followed by 100 µl of Bradford reagent. The samples were gently mixed by shaking the microplate and incubated at room temperature for at least five minutes (Bradford,

1976). The absorption intensity of the blue dye was used to determine the protein content in the solution with a microplate reader (PowerWave XS2, BioTek, USA) at 595 nm. The concentration of keratin was calculated using a standard BSA curve in the concentration range of 20–100 µg/ml (Bradford, 1976).

Statistical Analysis

In this study, each sample had three replicates, and no data were excluded. Comparisons between the test and control samples were analyzed using the t-test in SPSS software, version 17, and a confidence level of 95% was considered statistically significant.

Results

Structural Analysis of the NLC Solution

The results of elastic light scattering for the sample and control in this study are presented in Table 1. The particle size distribution data for the sample and control, obtained using the DLS method, are shown in Figures 2 and 3. As indicated in Table 1, the diameter of the NLCs and the zeta potential of the sample increased by approximately 7% and 100%, respectively, compared to the control. Additionally, the PDI (polydispersity index) of the sample decreased by about 31% compared to the control.

Table 1. Data obtained from the measurement of colloidal properties of the sample treated with TCF1 (Sample) and the control using the DLS technique.

Name	Particle Size range/nm	Effective diameter/nm	Mean Diameter/ nm	Var.	Max Size/ nm	PDI (Polydispersity Index)	Zeta potential/ mV	Mobility
Control	74.01-106.83	350.0	84.1	0.1	81.13	0.32±0.01	-16.23±1.49	-1.27
Sample	70.07-106.11	432.9	89.69	0.5	80.46	0.22±0.02	-33.10±0.49	-2.59

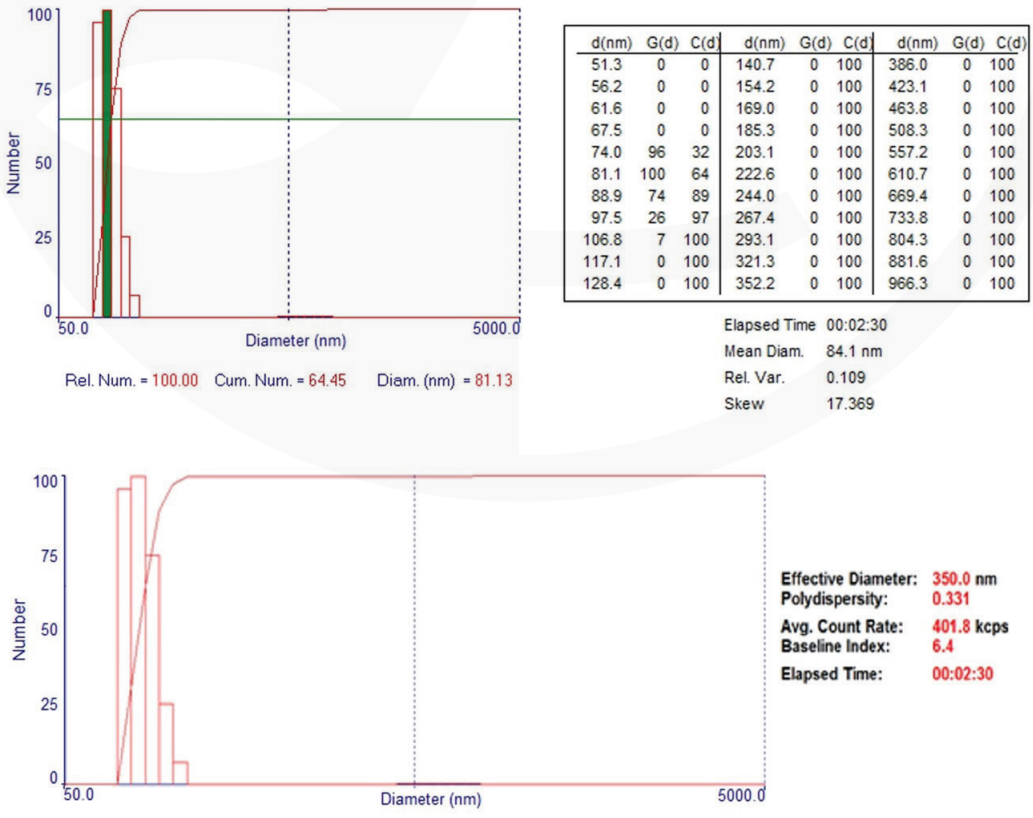
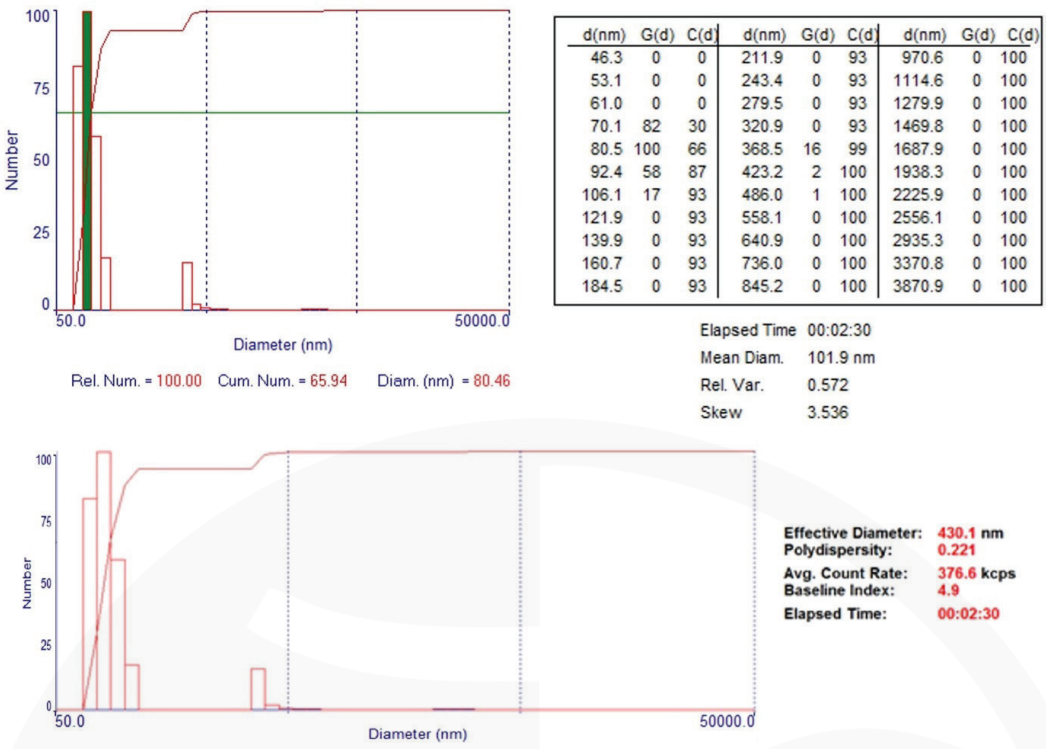


Figure 2. Particle size distribution of NLCs in the control.



d(nm)	G(d)	C(d)	d(nm)	G(d)	C(d)	d(nm)	G(d)	C(d)
46.3	0	0	211.9	0	93	970.6	0	100
53.1	0	0	243.4	0	93	1114.6	0	100
61.0	0	0	279.5	0	93	1279.9	0	100
70.1	82	30	320.9	0	93	1469.8	0	100
80.5	100	66	368.5	16	99	1687.9	0	100
92.4	58	87	423.2	2	100	1938.3	0	100
106.1	17	93	486.0	1	100	2225.9	0	100
121.9	0	93	558.1	0	100	2556.1	0	100
139.9	0	93	640.9	0	100	2935.3	0	100
160.7	0	93	736.0	0	100	3370.8	0	100
184.5	0	93	845.2	0	100	3870.9	0	100

Figure 3. Particle size distribution of NLCs in the sample treated with TCF1.

Functional Analysis of NLC Particles

The effects of TCF1 on hair exposed to ultraviolet radiation (via NLC particles treated with TCF1 during synthesis) were evaluated by measuring keratin protein absorption at a wavelength of 595 nm. The absorbance and keratin concentration in the sample and control are presented in Figure 4 and Table 2, respectively.

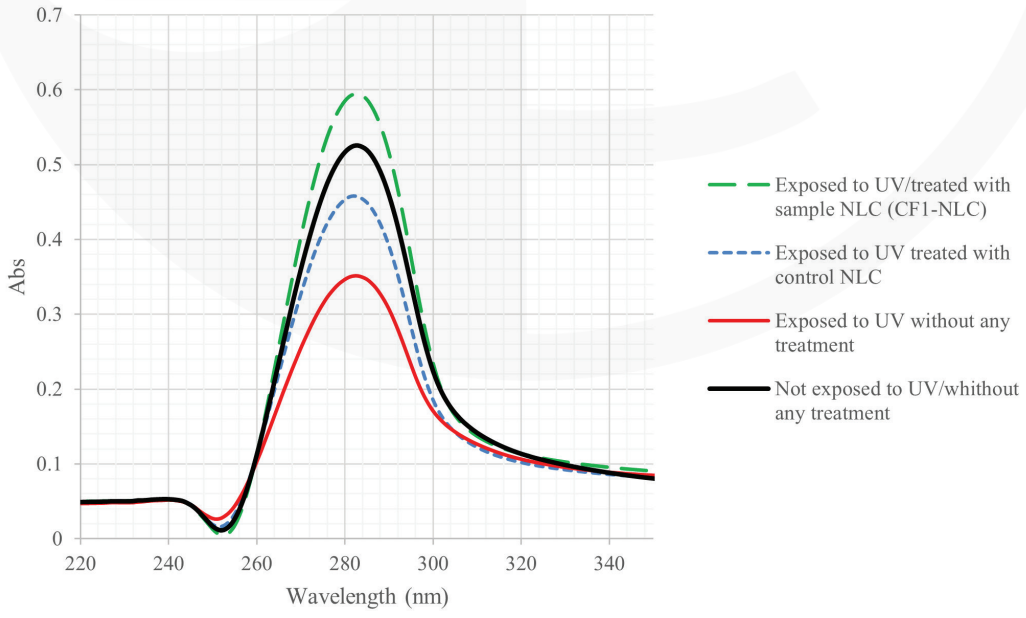


Figure 4. Keratin spectrophotometry in the sample treated with TCF1-NLC (CF1-NLC) and the control.

Table 2. λmax and calculated keratin concentration in the sample and control (obtained from the data in Figure 4).

Hair sample	$\lambda_{max/nm}$	Intensity	Keratin Concentration (µg/ml)	Change in comparison with natural hair (%)
Exposed to UV radiation-treated with sample NLC	283	0.594	69.7±0.2	**+16**
Not exposed to UV/without NLC treatment (natural healthy hair)	283	0.525	59.9±0.1	-
Exposed to UV radiation-treated with control NLC	282	0.457	50.8±0.3	**-15**
Exposed to UV/without NLC treatment	282	0.351	38.0±0.2	**-40**

As shown in Figure 4 and Table 2, hair samples exposed to ultraviolet radiation exhibited hyperchromism and a blue shift under the influence of NLC particles treated with TCF1. This indicates that, in addition to repairing UV-induced damage, the treatment resulted in an improved structure and an increased keratin protein concentration, even compared to the intact control sample.

Discussion

The application of NLCs as self-assembling drug carrier nanoparticles has received considerable attention. Since they are non-toxic or exhibit very low toxicity, they can prolong the drug's action through an extended half-life and controlled release (García-Pinel et al., 2019). These compounds are formed from surfactants and lipids in different phases within an aqueous environment (Bhaskar et al., 2009). Water molecules at the core of these structures can transport various hydrophilic drug compounds. This study utilized the self-assembling properties of these compounds and the important role of water in their formation and structure.

In the first stage of this study, the effect of TCF1 on the structure and aggregation of NLC particles in a colloidal medium was investigated using the DLS technique. The polydispersity index (PDI) is an important parameter that describes the particle size distribution and ranges from 0 to 1. A PDI below 0.1 indicates a monodisperse particle population, while values above 0.1 indicate a polydisperse size distribution. In addition to particle size, the zeta potential (ZP) is used as an indicator of an effective and stable nanoparticle system (L. Kiss et al., 2019). This parameter reflects the repulsion between charged particles in the dispersion. A high ZP indicates more highly charged particles, which prevents particle aggregation due to electrostatic repulsion. Conversely, if the ZP is low, van der Waals forces dominate over electrostatic repulsion, increasing the likelihood of mixture coagulation. A zeta potential value of ±30 mV is considered indicative of good particle distribution stability in nanoparticles (Pate and Safier, 2016).

Based on the results of this study, the polydispersity of the sample treated with TCF1 decreased by approximately 31% compared to the control, indicating a distribution closer to monodispersity. In addition, the zeta potential of the sample increased to more than twice that of the control, reflecting significant stability and approaching the optimal zeta potential value for nanoparticles. Interestingly, no significant change in particle size was observed in the sample compared to the control (approximately 6%). This result suggests that TCF1 altered system properties such as surface charge without affecting the overall dimensions of each particle.

In the second stage, it was observed that these structural changes in NLCs synthesized under the influence of TCF1 had a significant impact on their performance in treating keratin in hair exposed to UV radiation. The results showed that TCF1 not only repaired the damaged hair samples but also optimized the structure of the target protein, making it 16% healthier than the control not exposed to ultraviolet radiation.

According to the theory of T-Consciousness Fields, the influence of these non-physical fields occurs through the transmission of information from them to the subject under study, resulting in observable changes in the behavior of the subject. These results provide evidence of such effects. In this study, the overall aggregation of NLC particles and the water present at their core were effectively used as carriers of information transmitted from TCF1 to repair the system under investigation. As mentioned in the introduction, in this view, T-Consciousness is a fundamental component of the universe and the source of matter, energy, and information. Therefore, it has played a key role in the formation and evolution of life. Considering the self-assembling properties of NLCs and their significant resemblance to primitive membrane structures, which were exposed to destructive ultraviolet waves at the origin of life, this study preliminarily examined the enhancing effects of TCF1 and, using this model, explored the hypothesis regarding the role of consciousness and these non-frequency fields under early-life conditions.

In summary, this study provides evidence of the enhancing effect of TCF1 on UV-irradiated hair keratin protein and the resulting changes in the properties of particles influenced by this field. From Taheri's perspective, these changes are attributed to the transfer of information via T-Consciousness Fields. To gain a better understanding of the mechanisms and effects of these fields, as well as to explore their potential role in the origin of life, further studies are planned by the authors.

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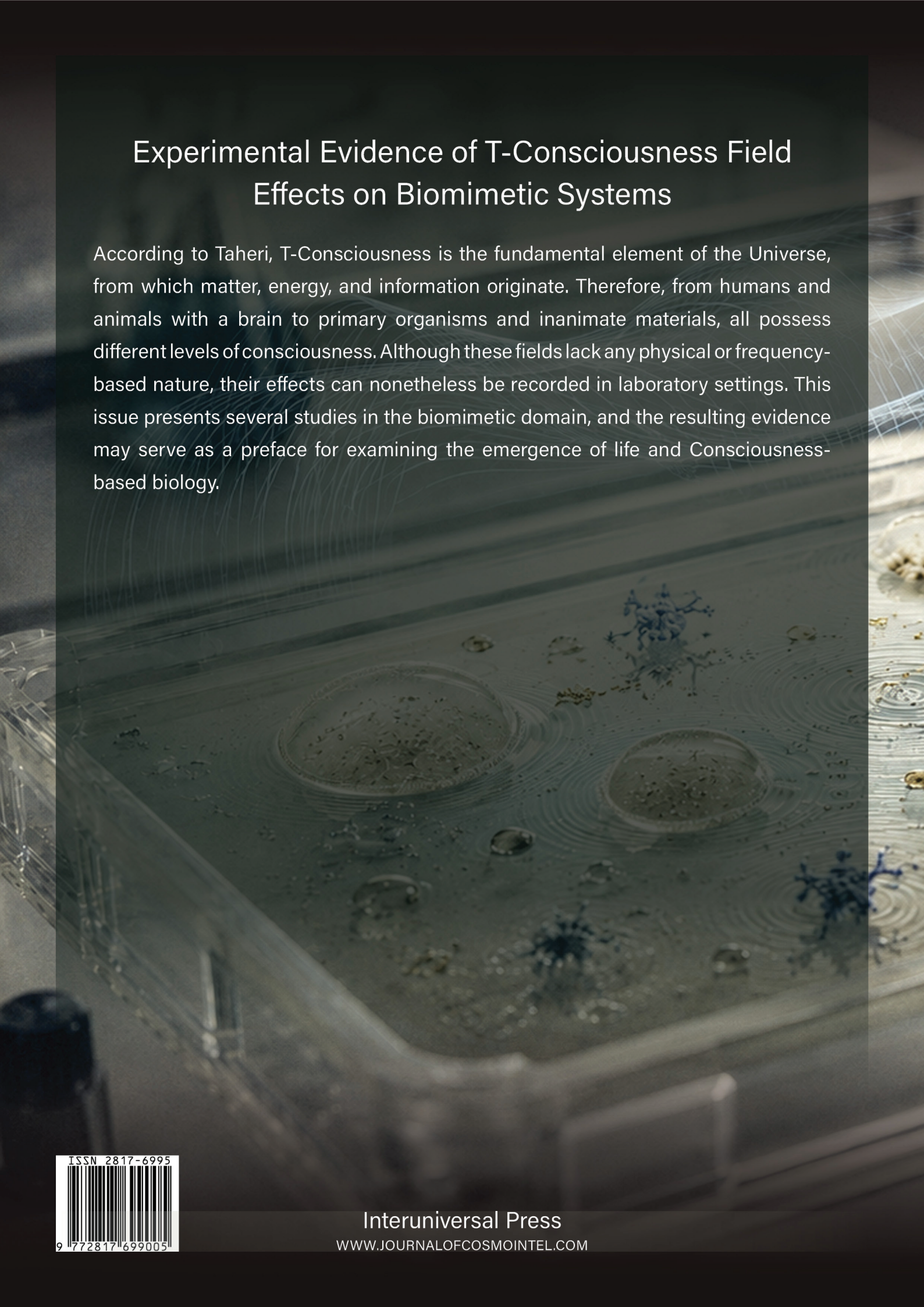
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Experimental Evidence of T-Consciousness Field Effects on Biomimetic Systems

According to Taheri, T-Consciousness is the fundamental element of the Universe, from which matter, energy, and information originate. Therefore, from humans and animals with a brain to primary organisms and inanimate materials, all possess different levels of consciousness. Although these fields lack any physical or frequency-based nature, their effects can nonetheless be recorded in laboratory settings. This issue presents several studies in the biomimetic domain, and the resulting evidence may serve as a preface for examining the emergence of life and Consciousness-based biology.

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