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Effect of T-Consciousness Fields on the Optical Absorbance of Materials in Different Solvents

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Abstract

The definition of Consciousness and its role in the universe has always been one of the most challenging issues in science. Although many theories have been proposed about this elusive phenomenon, there is no common point of view among scientists. Mohammad Ali Taheri introduced Consciousness as a fundamental element of the universe, from which matter, information, and energy originate. To distinguish this novel approach from various theories, it has been coined as T-Consciousness. In this perspective, in addition to the constant Consciousness, which is the basic constituent of this physical world, there are various variable T-Consciousness Fields (TCFs) with different functions. The aim of the present study was to determine whether TCFs, specifically four types of them, affect the interaction between matter and light. To achieve this, the effects of TCF-treated water on the absorbance of the model DPPH free radical in two solvents, water and methanol, were recorded. Additionally, we examined changes in the absorbance of the nucleobase adenine and the amino acid phenylalanine in the ultraviolet region. The results showed that under this treatment, the absorption values significantly increased for DPPH (p-value < 0.0001) and decreased for the methanol solvent (p-value < 0.0001). Similarly, in the water solvent, the molar absorption coefficient increased significantly (p-value < 0.05) for the maximum concentration of this radical. Moreover, statistically significant changes in the absorbance of adenine and phenylalanine were observed at various concentrations. In conclusion, these data provide evidence of the effects of TCFs on the optical absorbance of materials. Given the importance of the interaction between light, particularly ultraviolet spectra, and materials for understanding the development of life on early Earth, we suggest that more experiments be designed to elucidate the possible roles of these fields in this process.

Keywords: DPPH, Adenine, Phenylalanine, Solvent, Methanol, Water, T-Consciousness Fields

Introduction

Light-matter interaction is one of the best features to investigate the physical property of a material. Spectroscopic techniques have been utilized based on these interactions, allowing for obtaining detailed information about the electronic transitions in molecules and identifying compounds based on their absorption spectra (Lin and Tan, 2023; Othman, 2022). Furthermore, monitoring changes in absorption spectra can provide insights into the progress of chemical reactions (Olivo et al., 2017). For example, alterations in material behaviors can be detected under the influence of external factors like temperature, pressure, chemical environment, etc. (Hintz et al., 2011; Vogt et al., 2023; Lange and Balny, 2002).

Molar absorption coefficient is a key parameter in spectroscopic studies, presenting the ability of the chemical species to absorb light at a given wavelength. This coefficient is quantified through Beer-Lambert law as follows:

$$A = \varepsilon Lc$$

Where A is the absorbance, c is the concentration of the absorbing species in $mol \cdot L^{-1}$, and L shows the path length of the light through the solution in centimeters (cm). Accordingly, the molar absorption coefficient (ε) is calculated as:

$$\varepsilon = A/Lc$$

This property can be affected by several factors, including pH, temperature and the effects of solvent due to solvent-solute interactions (Pace et al., 2012; Eyer et al., 2003; Bohman et al., 2017).

When it comes to a model of light absorption, 2,2-Diphenyl-1-picrylhydrazyl (DPPH•) is a stable free radical commonly used in various scientific studies, particularly in the field of antioxidant research. Its stability and distinctive purple color make it an excellent reagent for measuring the antioxidant capacity of compounds (Marano et al., 2021; Shojaee et al., 2022). In its radical form, DPPH• is a deep violet or purple color, with an absorption maximum at approximately 517 nm. The extent of the decrease in absorbance, typically characterized by a yellow color, is proportional to the antioxidant capacity of the sample (Hidayat et al., 2018).

There are various theories about consciousness presented by scientists in fields ranging from neuroscience to psychology and physics. Although numerous perspectives and definitions of this elusive phenomenon have emerged, particularly in the recent century, there is no commonly accepted viewpoint among scientists. In the 1980s, Mohammad Ali Taheri proposed that matter, energy, and information arise from consciousness, coining the term T-Consciousness to distinguish his theory from others. According to Taheri's theory, there are various T-Consciousness Fields (TCFs) with non-physical entities that have specific functions. These TCFs can be applied to a wide variety of subjects, including living organisms and inanimate materials. This unique feature motivated us to design experiments with the aim of evaluating their interaction with matter and energy (Taheri et al., 2013).

In our previous experiments, we observed that TCFs can alter the behavior of subjects under study. Generally, to examine the energy changes at the atomic level, dosimeters are used as a versatile tool to record the interaction of radiation with material (Yang et al., 2024). In this context, TCFs were applied on thermoluminescent dosimeters (TLDs), and it was found that TCFs treatment reduced the response of GR-200 chips, which was associated with an alteration of entropy (Taheri et al., 2023).

Additionally, the effects of TCFs on the physicochemical properties of water were investigated. It was found that the pH and electrical conductivity of TCFs-treated water were significantly reduced compared to untreated samples (Taheri et al., 2022; Taheri et al., 2024). The aim of the present study was to investigate whether TCFs-treated water can alter the interaction between radiation and

matter. To achieve this, the nucleobase adenine and the aromatic amino acid phenylalanine were studied alongside DPPH•, which was used as a free radical model, in various solvents such as methanol and water. The absorption spectra of these components, as well as the solvents, were recorded using the UV-Vis spectrophotometry technique.

Material and methods

T-Consciousness Fields Application

TCFs were applied to the samples according to protocols regulated by the COSMOintel Research Center (www.COSMOintel.com). More details are explained in the general consideration of this issue. Here, different types of TCFs, named TCF1, 2 and 3 were evaluated separately and simultaneously. Moreover, in the final section of this study, in addition to the previously mentioned, T-Consciousness Charge Field (TCCF) as another type of TCFs was examined.

Materials

In this study, the materials include doubled distilled and deionized water, phosphate-buffered saline to make phosphate buffer with a pH of 7.2, methanol, DPPH, adenine (stock 100 mg/ml) and phenylalanine (stock 5 mg/ml). UV-Vis spectroscopy was performed using Perkin Elmer spectrophotometer (USA) with the accuracy of absorption reading up to three decimal places.

Methods

Determination of Light Absorption in the Visible Region

Absorbance of DPPH in Methanol and Water Solvents

First, a DPPH solution with an initial concentration of 78.86 micrograms per milliliter was prepared in methanol solvent. Then, 200 µL of the primary solution and 50 µL of the samples (either TCF-treated or untreated water) were added to 96-well plates. The plates were covered with aluminum foil and placed on a shaker in an incubator for 30 minutes. It is important to note that a control plate without DPPH radical was also prepared. After incubation, the plates were placed in an ELISA reader device, and the absorbance was recorded at 517 nm with four repetitions for each sample. To obtain the specific absorption of the radical, the absorption of the solution containing the radical should be subtracted from the absorption of the solvent and the sample (without the radical) (Baliyan et al., 2022; Shimamura et al., 2014).

After this stage, to reduce the interaction between the solvent and solute, we used water instead of methanol as solvent. Different concentrations of DPPH were dissolved in water, and the simultaneous effects of three types of TCFs (1, 2, and 3) were evaluated compared to the untreated controls.

Determination of Light Absorption in the Ultraviolet Region

In this stage, we used the nucleobase adenine and the amino acid phenylalanine to investigate the effects of TCFs on the UV absorption spectrum. Aqueous solutions were prepared in phosphate buffer (pH=7.2) at different concentrations. There were five concentrations for adenine, namely 3, 6, 9, 12, and 15 µg/ml, and four concentrations for phenylalanine, specifically 0.2, 0.4, 0.6, and 0.8 mg/ml. The water's solvent of treatment groups received four types of TCFs, including TCF1, 2, 3 and TCCF (T-Consciousness Charge Field).

Statistical Analysis

Each experiment was repeated four times. Data were statistically analyzed using analysis of variance one-way (ANOVA) with GraphPad software (version 9). The values were presented as mean± standard deviation and a p-value< 0.05 was considered as statistically significant.

Results and Discussion

The absorption of the solvent (methanol) and TCFs-treated water is presented in Table 1, and the specific absorption of the DPPH radical is illustrated in Table 2. As shown in Figure 1, TCFs treatment affected the absorption of the solvent and the DPPH radical in different ways. As a result of this treatment, the absorption values significantly increased for DPPH (p-value< 0.0001) and decreased for the methanol solvent (p-value< 0.0001).

Table 1. The absorption of methanol solvent under the influence of TCFs-treated water and control at 517 nm. The average values were obtained from four replicates and are presented as the Ave ± standard deviation.

Sample	Control	TCF1	TCF2	TCF3	TCFs
Abs. at 517 nm	0.440	0.042	0.047	0.043	0.043
	0.430	0.045	0.044	0.042	0.043
	0.440	0.042	0.047	0.043	0.048
	0.430	0.045	0.044	0.042	0.048
Ave±SD	0.435±0.006	0.044±0.002	0.046±0.002	0.043±0.001	0.046±0.003

Table 2. The specific absorption of the DPPH radical at 517 nm. The average values were obtained from four replicates and are presented as the Ave ± standard deviation.

Sample	Control	TCF1	TCF2	TCF3	TCFs
Abs. at 517 nm	0.810	1.252	1.269	1.230	1.221
	0.814	1.250	1.270	1.220	1.223
	0.812	1.246	1.264	1.254	1.209
	0.803	1.227	1.244	1.198	1.240
Ave±SD	0.810±0.005	1.243±0.011	1.261±0.012	1.225±0.023	1.223±0.013

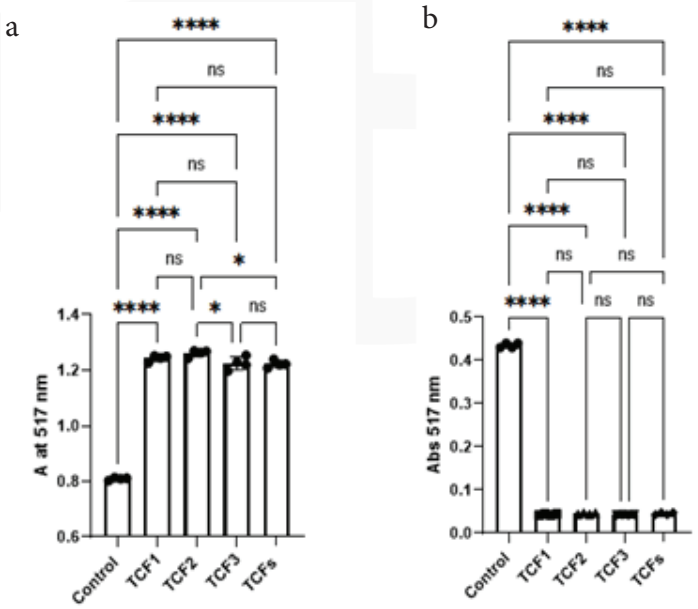

Figure 1. a) the absorption of the DPPH radical under the influence of TCFs-treated water, and b) the absorption of methanol solvent under the influence of TCFs-treated water at 517 nm. *: p-value< 0.05 and ****: p-value< 0.0001.

Based on the observed results, TCFs treatment altered the absorption of both the radical and the solvent. As described in the introduction, according to the Beer-Lambert law, there is a direct relationship between absorbance and the molar absorption coefficient. Given that the concentration of the radical and the path length of the light were constant across all experimental groups, it appears that TCFs treatment increased the molar absorption coefficient for the DPPH radical while decreasing it for the solvent.

Absorbance Changes of DPPH with Different Concentrations in Water Solvent

The effects of TCFs-treated water on the absorbance of different concentrations of DPPH radical (0.1, 0.05, 0.025, 0.015 mM) can be observed in Figure 2. The solutions were prepared with water, and similar to the previous section those samples without the influence of TCFs considered as control.

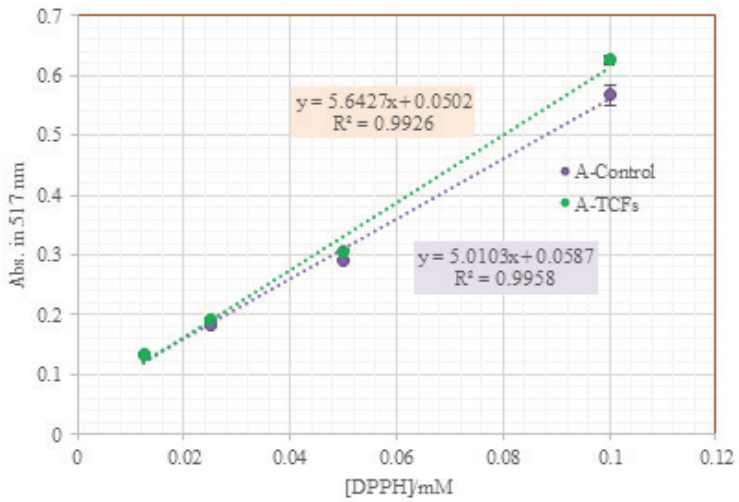

Figure 2. The absorbance of different concentrations of DPPH under the influence of TCFs-treated water (A-TCFs) and without TCFs treatment as control. The difference between values was evaluated using a t-test, and it was found to be statistically significant at the maximum concentration (p-value<0.05).

In the previous stage, the obtained results suggested the possible effects of TCFs on the molar absorption coefficient. Therefore, in this section, the mentioned values were determined for DPPH radical under the influence of TCFs-treated water. This way, the changes in absorbance at 517 nm with the increase in concentration were recorded, and by using the slope of the graph, the molar absorption coefficient can be obtained (Hardesty and Attili, 2010).

As presented in Figure 2, the molar absorption coefficient under the influence of TCFs increased by about 13% at maximum concentration compared to the control (p-value<0.05). This result was in consistent with previous data explained above.

The Changes in Light Absorption in the Ultraviolet Region

To examine the influence of TCFs on light absorption in the ultraviolet region, nucleobase adenine and amino acid phenylalanine were selected. According to several studies, these components have a key role at the start of life (Shapiro, 1995; Roy et al., 2007; Michaelian, 2021; Frenkel-Pinter et al., 2020). Tables 3 and 4 indicate the absorption of alanine and phenylalanine in both control and TCFs-treated samples, respectively. Table 5 shows the values of the molar absorption coefficient in both components and the percentage changes of TCF-treated samples compared to the control.

Table 3. The absorption of adenine in different concentrations. Comparison between TCF-treated samples and control was done using non-parametric t-test for each concentration. *: p-value<0.05, **: p-value<0.001, ***: p-value<0.0001.

Concentration (µg.ml-1)	Control	SD	TCF1	SD	TCF2	SD	TCF3	SD	TCCF	SD
3	0.1583	0.0077	0.1776	0.0032	0.1849*	0.0031	0.1828*	0.0006	0.1870**	0.0015
6	0.3278	0.0014	0.3305	0.0021	0.3318	0.0032	0.3450	0.0068	0.3455	0.0156
9	0.4873	0.0027	0.4782*	0.0127	0.4919	0.0019	0.5075	0.0134	0.5116	0.0133
12	0.6333	0.0042	0.6788*	0.0097	0.6805**	0.0071	0.6812*	0.0121	0.6814	0.0247
15	0.8232	0.0028	0.8324	0.0060	0.8502*	0.0081	0.8452*	0.0073	0.8107***	0.0075

Table 4. The absorption of phenylalanine in different concentrations. Comparison between TCF-treated samples and control was done using non-parametric t-test for each concentration. *: p-value<0.05, **: p-value<0.001, ***: p-value<0.0001.

Concentration (mg.ml-1)	Control	SD	TCF1	SD	TCF2	SD	TCF3	SD	TCCF	SD
0.2	0.2089	0.0091	0.2297*	0.0016	0.2077	0.0007	0.1984*	0.0014	0.1999	0.0049
0.4	0.4115	0.0031	0.42045	0.0020	0.4105	0.0004	0.4129	0.0008	0.4048	0.0033
0.6	0.6034	0.0061	0.6222*	0.0021	0.6093	0.0006	0.6072	0.0057	0.6115	0.0006
0.8	0.8004	0.0027	0.8274***	0.0073	0.8175	0.0172	0.8140**	0.0007	0.8057	0.0073

Table 5. The molar absorption coefficient (the slope of fitted linear curve), and the percentage of change in TCF-treated samples and control.

Sample	Adenine		Phenyl Alanine	
	ε (cm-1M-1)	%Change	ε (cm-1M-1)	%Change
Control	0.0545	-	0.9832	-
TCF1	0.0553	1.4	0.9973	1.4
TCF2	0.0560	2.7	1.0142	3.6
TCF3	0.0554	1.6	1.021	3.8
TCCF	0.05549	1.8	1.0120	2.9

As can be seen in Tables 3 and 4, four types of TCFs influenced adenine more than phenylalanine. Indeed, a significant difference under TCFs can be observed in most of the concentrations for adenine. While TCCF led to a greater alteration in absorbance for adenine, there was no significant effect under the influence of this field for phenylalanine. The same behavior was found for TCF2. It seems that these non-physical fields have specific interactions with each component, leading to relevant changes in absorbance. According to Taheri, the alteration observed is due to the information transmitted from TCFs to the subjects under study. It is evident that processing information requires a form of mind. Therefore, from this perspective, even matter and energy possess a basic level of mind (Taheri et al., 2022b).

When it comes to the molar absorption coefficient (Table 5), the slope of the curve increased under the influence of these fields for both components. This enhancement was about 1-3% for adenine, with the most significant influence from TCF2, and 1-4% for

phenylalanine, with the highest values observed under TCF2 and TCF3. In other words, by evaluating the fitted line, more changes were observed for phenylalanine.

Based on the definition, there is a definite link between the molar absorption coefficient and the probability of electronic transitions within a molecule. The higher the value of this coefficient, the greater the probability of light absorption and electronic transitions (Abraha et al., 2016). As described above, this value for the solute increased when exposed to TCFs-treated water, suggesting an enhancement of probability of electronic transition.

Our previous experiment at the atomic level was in agreement with this observation. To illustrate, a material absorbs energy when it is exposed to ionizing radiation, causing electrons to be excited and move to higher energy states. As these electrons return to their ground state, they release the stored energy in the form of light called thermoluminescence (Bos, 2006). It was observed that TCFs-treated chips had lower electric charge, suggesting an alteration in the function of their atomic energy levels (Taheri et al., 2023). These changes clearly require energy provided by TCFs. Unlike physical energy, which has wave-like properties and frequency-based characteristics, the energy associated with these fields does not have a physical entity. Therefore, it is named as the Waveless Hidden Energy (WHE) by Taheri (Taheri et al., 2024a).

Similarly, in the current study, increasing the probability of interaction between matter and light offers rising energy for solutes under the influence of TCFs. Thermodynamically speaking, this increase in internal energy includes two components, namely the useful energy required to do work in the system and the internal heat (Struchtrup, 2024). In any case, it provides an opportunity for molecules to become more active, and interact with their environment.

TCF-treated water reduced the solvent absorbance. Understanding the exact mechanism of the impact of TCFs on the solvent and DPPH radical requires more experiments. Regarding water absorbance, a study has shown that changes in pH can affect the light absorption of lakes. At higher pH levels, dissolved organic matter expands, allowing better exposure to light and greater light absorption (Pace et al., 2012). Moreover, experiments on antioxidant compounds have demonstrated that maximum antioxidant activity can be achieved at higher pH rather than under acidic conditions (Kumamoto et al., 2001; Ozcelik et al., 2003; Pękal and Pyrzynska, 2015).

In this experiment, we examined the effects of water treated with TCFs on the DPPH radical in different solvents. Since our previous studies revealed that the physicochemical properties of water are affected by TCFs (Taheri et al., 2022; Taheri et al., 2024; Taheri et al., 2024a), we suggest designing further tests under a wide range of pH levels in different surrounding mediums.

In conclusion, this study provides evidence of the effects of TCFs on the interaction between light and matter using treated water. TCF treatment had an opposite influence on the absorbance of the DPPH radical and the solvents, including water and methanol. While TCFs increased the absorbance of the DPPH radical, a reduction occurred for the methanol solvent. It is well-known that researching the interaction between UV spectra and materials is vital for constructing a comprehensive picture of how life might have originated and evolved on early Earth. The alteration of absorbance of the nucleobase adenine and the amino acid phenylalanine under the influence of TCFs suggests a possible role of TCFs in this process. These observations encourage us to conduct more experiments in biological systems to shed more light on the mechanisms contributing to the interaction between these fields and materials.

References:

Abraha, A., Gholap, A. V., & Belay, A. (2016). Study self-association, optical transition properties and thermodynamic properties of neomycin sulfate using UV-Visible spectroscopy. Int. J. Biophys, 6, 16-20.

Baliyan, S., Mukherjee, R., Priyadarshini, A., Vibhuti, A., Gupta, A., Pandey, R. P., & Chang, C. M. (2022). Determination of Antioxidants by DPPH Radical Scavenging Activity and Quantitative Phytochemical Analysis of *Ficus religiosa. Molecules (Basel, Switzerland), 27*(4), 1326. https://doi.org/10.3390/molecules27041326

Bohman, A., & Arnold, M. A. (2017). Molar Absorptivity Measurements in Absorbing Solvents: Impact on Solvent Absorptivity Values. *Applied spectroscopy, 71*(3), 446–455. https://doi.org/10.1177/0003702816662883

Bos, A. J. (2006). Theory of thermoluminescence. Radiation measurements, 41, S45-S56.

Eyer, P., Worek, F., Kiderlen, D., Sinko, G., Stuglin, A., Simeon-Rudolf, V., & Reiner, E. (2003). Molar absorption coefficients for the reduced Ellman reagent: reassessment. *Analytical biochemistry, 312*(2), 224-227.

Frenkel-Pinter, M., Samanta, M., Ashkenasy, G., & Leman, L. J. (2020). Prebiotic peptides: Molecular hubs in the origin of life. *Chemical reviews, 120*(11), 4707-4765.

Hardesty, J. H., & Attili, B. (2010). Spectrophotometry and the Beer-Lambert Law: An important analytical technique in chemistry. Collin College, Department of Chemistry, 1-6.

Hidayat, M. A., Sari, P., & Kuswandi, B. (2018). Simple scanometric assay based on DPPH immobilized on pharmaceutical blister for determination of antioxidant capacity in the herbal extracts. *Marmara Pharm. J, 22*, 450-459.

Hintz, H., Egelhaaf, H. J., Lüer, L., Hauch, J., Peisert, H., & Chassé, T. (2011). Photodegradation of P3HT− a systematic study of environmental factors. *Chemistry of Materials, 23*(2), 145-154.

Kumamoto, M., SoNDA, T., Nagayama, K., & TABATA, M. (2001). Effects of pH and metal ions on antioxidative activities of catechins. Bioscience, biotechnology, and biochemistry, 65(1), 126-132.

Lange, R., & Balny, C. (2002). UV-visible derivative spectroscopy under high pressure. *Biochimica et Biophysica Acta (BBA)-Protein Structure and Molecular Enzymology, 1595*(1-2), 80-93.

Lin, M. L., & Tan, P. H. (2023). Optical spectroscopy study of two-dimensional materials. *In Modeling, Characterization, and Production of Nanomaterials* (pp. 305-335). Woodhead Publishing.

Marano, S., Minnelli, C., Ripani, L., Marcaccio, M., Laudadio, E., Mobbili, G., ... & Stipa, P. (2021). Insights into the antioxidant mechanism of newly synthesized benzoxazinic nitrones: in vitro and in silico studies with DPPH model radical. *Antioxidants, 10*(8), 1224.

Michaelian, K. (2021). The dissipative photochemical origin of life: UVC abiogenesis of adenine. Entropy, 23(2), 217.

Olivo, G., Barbieri, A., Dantignana, V., Sessa, F., Migliorati, V., Monte, M., ... & D'Angelo, P. (2017). Following a chemical reaction on the millisecond time scale by simultaneous X-ray and UV/Vis spectroscopy. *The journal of physical chemistry letters, 8*(13), 2958-2963.

Othman, N. (2022). IR spectroscopy in qualitative and quantitative analysis. In *Infrared Spectroscopy-Perspectives and Applications*. IntechOpen.

Ozcelik, B., Lee, J. H., & Min, D. B. (2003). Effects of light, oxygen, and pH on the absorbance of 2, 2-diphenyl-1-picrylhydrazyl. *Journal of Food Science, 68*(2), 487-490.

Pace, M. L., Reche, I., Cole, J. J., Fernández-Barbero, A., Mazuecos, I. P., & Prairie, Y. T. (2012). pH change induces shifts in the size and light absorption of dissolved organic matter. *Biogeochemistry, 108*, 109-118.

Pękal, A., & Pyrzynska, K. (2015). Effect of pH and metal ions on DPPH radical scavenging activity of tea. *International journal of food sciences and nutrition, 66*(1), 58-62.

Roy, D., Najafian, K., & von Ragué Schleyer, P. (2007). Chemical evolution: the mechanism of the formation of adenine under prebiotic conditions. *Proceedings of the National Academy of Sciences, 104*(44), 17272-17277.

Shapiro, R. (1995). The prebiotic role of adenine: a critical analysis. *Origins of Life and Evolution of the Biosphere, 25*(1), 83-98.

Shimamura, T., Sumikura, Y., Yamazaki, T., Tada, A., Kashiwagi, T., Ishikawa, H., Matsui, T., Sugimoto, N., Akiyama, H., & Ukeda, H. (2014). Applicability of the DPPH assay for evaluating the antioxidant capacity of food additives - inter-laboratory evaluation study -. *Analytical sciences : the international journal of the Japan Society for Analytical Chemistry, 30*(7), 717–721. https://doi.org/10.2116/analsci.30.717

Shojaee, M. S., Moeenfard, M., & Farhoosh, R. (2022). Kinetics and stoichiometry of gallic acid and methyl gallate in scavenging DPPH radical as affected by the reaction solvent. *Scientific Reports, 12*(1), 8765.

Struchtrup, H. (2024). The First Law of Thermodynamics. In *Thermodynamics and Energy Conversion: Second Edition* (pp. 39-64). Cham: Springer International Publishing.

Taheri MA. Human from another outlook. Interuniversal Press. 2nd Edition. 2013. ISBN-13: 978-1939507006, ISBN-10: 1939507006 2013.

Taheri, M. A., Moslehi, A., Payervand, F., Ahmadkhanlou, F., & Semsarha, F. (2023). Experimental Test on the Effect of Taheri Consciousness Fields on Thermoluminescence Phenomenon. *The Scientific Journal of Cosmointel, 2*(11), 14–18. https://doi.org/10.61450/joci.v2i11.156

Taheri, M. A., Payervand, F., Ahmadkhanlou, F., & Semsarha, F. (b2022). The Theory of the Existence of the "Mental Body in Matter" Based on the Experimental Laboratory Results and Taheri Consciousness Fields. *The Scientific Journal of Cosmointel, 1*(4), 40–51. https://doi.org/10.61450/joci.v1i4.32

Taheri, M. A., Payervand, F., Ahmadkhanlou, F., Torabi, S., & Semsarha, F. (2024). Investigation of Temperature, pH, and Electrical Conductivity of Normal Saline in the Presence of Taheri Consciousness Field 2. *The Scientific Journal of Cosmointel, 3*(13), 21–24. https://doi.org/10.61450/joci.v3i13.171

Taheri, M. A., Payervand, F., Ahmadkhanlou, F., Torabi, S., & Semsarha, F. (2022). Investigation of the Influence of Taheri Consciousness Fields on the pH of Pure Water in the Vicinity of Air. *The Scientific Journal of Cosmointel, 1*(9), 6–33. https://doi.org/10.61450/joci.v1i9.142

Taheri, M. A., Payervand, F., Ahmadkhanlou, F., Torabi, S., & Semsarha, F. (a2024). Analysis of Temperature, pH, and Electrical Conductivity of Water in Response to Taheri Consciousness Field 2. *The Scientific Journal of Cosmointel, 3*(13), 17–20. https://doi.org/10.61450/joci.v3i13.170

Vogt, C., Wondergem, C. S., & Weckhuysen, B. M. (2023). Ultraviolet-visible (UV-Vis) spectroscopy. *In Springer handbook of advanced catalyst characterization* (pp. 237-264). Cham: Springer International Publishing.

Yang, Z., Vrielinck, H., Jacobsohn, L. G., Smet, P. F., & Poelman, D. (2024). Passive Dosimeters for Radiation Dosimetry: Materials, Mechanisms, and Applications. *Advanced Functional Materials*, 2406186.