

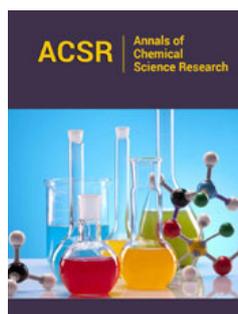
Evaluation of the Impact of Consciousness Energy Healing Treatment on the Isotopic Abundance Ratio of L-Cysteine Using LC-MS Spectrometry

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Abstract

L-cysteine is a semi-essential and unique amino acid containing the thiol group in its structure may be essential for newborns, the elderly, and individuals with certain metabolic disease or malabsorption syndromes. This current study was designed to investigate the impact of The Trivedi Effect®-Biofield Energy Healing Treatment on the structural properties and the isotopic abundance ratio of L-cysteine using LC-MS spectroscopy. L-cysteine sample was divided into two parts, one part of L-cysteine was considered as the control sample (no Biofield Energy Treatment was provided), while the second part was treated with The Trivedi Effect®-Consciousness Energy Healing Treatment remotely by a renowned Biofield Energy Healer, Alice Branton and termed as the treated sample. The LC-MS spectra of both the control and treated samples at retention time (R_t) 1.96 minutes exhibited the mass of the molecular ion peak adduct with hydrogen ion at 122 (calcd for C₃H₈NO₂S⁺, 122.03) along with low molecular fragmented mass peaks at *m/z* 105, 102, 87, 76, and 59 for C₃H₅O₂S⁺, C₃H₂O₂S⁺, C₃H₅NO₂²⁺ or C₃H₅NS⁺, C₂H₆NO₂⁺, and C₂H₃O₂⁺, respectively were also observed. The isotopic abundance ratios of P_{M+1}/P_M (²H/¹H or ¹³C/¹²C or ¹⁵N/¹⁴N or ¹⁷O/¹⁶O or ³³S/³²S) and P_{M+2}/P_M (³⁴S/³²S) in the treated L-cysteine was significantly increased by 25% and 17.39%, respectively compared with the control sample. Hence, the ¹³C, ²H, ¹⁵N, ¹⁷O, ³³S and ³⁴S contributions from C₃H₈NO₂S⁺ to *m/z* 123 and 124 in the treated L-cysteine was significantly increased compared to the control sample. It can be assumed that the changes in isotopic abundance and mass peak intensities due to changes in nuclei possibly through the interference of neutrino particles *via* The Trivedi Effect®- Consciousness Energy Healing Treatment.

The treated L-cysteine with increased stable isotopic abundance ratio might have changed the physicochemical properties with higher force constant within the molecule. The new form of treated L-cysteine would be a better and more stable precursor in the food, cosmetics, pharmaceuticals, personal-care industries, additives to cigarettes (act as an expectorant), preventative or antidote for some of the negative effects of alcohol, acetaminophen overdose, clinically used ranging from baldness to psoriasis, excellent for the treatment of asthmatics by enabling them to stop theophylline and other medications, enhances the effect of topically applied silver, tin and zinc salts for preventing dental cavities. In the near future, this Biofield Energy Treated L-cysteine may play a better role in the treatment of diabetes, psychosis, cancer, and seizures.

Keywords: L-cysteine; The Trivedi effect®; Biofield energy; Consciousness energy healing treatment; LC-MS.

Introduction

Cysteine [HO₂CCH(NH₂)CH₂SH] is a semi-essential sulfur-containing proteinogenic amino acid mainly found in nails, skin, and hair in the body. It is unique amongst the twenty natural amino acids as it contains a thiol group, available as a chiral molecule with dextrorotation (D) and levorotation (L) enantiomer [1]. Cysteine classified as non-essential amino acid but may be essential for newborns, the elderly, and individuals with specific metabolic disease

or malabsorption syndromes. The dietary sources for cysteine are meat, egg, milk, red peppers, garlic, onions, oats, broccoli, brussels sprout, wheat germ, sprouted lentils, etc. Industrially it is also prepared from animal feathers, hair, and even from chemical synthesis [1-3].

The sulfhydryl group of cysteine is nucleophilic in nature, which gets easily oxidized. Due to its high reactivity, the sulfhydryl group of cysteine has numerous biological functions, i.e., precursor to the antioxidant glutathione and iron-sulfur clusters, metal cofactors in enzymes (such as zinc fingers, alcohol dehydrogenase, blue copper proteins, cytochrome P450, [NiFe]-hydrogenases, heavy metals, etc.), detoxification, diverse metabolic functions, protein synthesis, translation of messenger RNA molecules to produce polypeptides (it is coded for by the UGU and UGC codons), collagen production, [1-6]. L-cysteine also a precursor in the food, cosmetics, pharmaceuticals, personal-care industries, additives to cigarettes (act as an expectorant), preventative or antidote for some of the harmful effects of alcohol (i.e., liver damage and hangover), acetaminophen overdose, production of more wool from sheep, clinically used ranging from baldness to psoriasis, excellent for the treatment of asthmatics by enabling them to stop theophylline and other medications, enhances the effect of topically applied silver, tin and zinc salts for preventing dental cavities [1,6-9]. Many research works going on L-cysteine, so in the near future, cysteine may play a role in the treatment of diabetes, psychosis, cancer, and seizures [10]. Stability of L-cysteine have an issue in neutral or slightly alkaline aqueous solutions, which is oxidized to cystine by air, and on decomposition it emits very toxic fumes of sulphur oxides and nitrogen oxides [6].

The physicochemical properties of L-cysteine are very important for the food, cosmetic, pharmaceutical/ nutraceutical, and other industries. Improvement of the physicochemical properties of a substance is a challenging task. In this scenario, The Trivedi Effect®-Consciousness Energy Healing Treatment have the extraordinary abilities to transform the properties of many living and non-living object(s) [11-15]. The Trivedi Effect® is a natural and only scientifically proven phenomenon in which a person can harness this inherently intelligent energy and transmit it anywhere on the planet through the possible mediation of neutrinos [16]. Every living organism possesses a unique infinite, para-dimensional electromagnetic energy field surrounding the body known as Biofield Energy. The Biofield Energy Healers has the ability to harness the energy from the "Universal Energy Field" and can transmit into any living or non-living object(s). Further, the object(s) respond to the useful way is known as the Biofield Energy Healing Treatment. There are several Biofield based Energy Healing Therapies that are used nowadays against various disease conditions [17-19]. Biofield Energy Healing therapy has been recognized worldwide as a Complementary and Alternative Medicine (CAM) health care approach by National Center of Complementary and Integrative Health (NCCIH) with other therapies, medicines and practices such as Ayurvedic medicine, traditional Chinese herbs and medicines, homeopathy, yoga, chiropractic/osteopathic manipulation, Qi

Gong, Tai Chi, aromatherapy, meditation, acupressure, acupuncture, healing touch, hypnotherapy, movement therapy, naturopathy, Reiki, cranial sacral therapy, etc. [20]. These therapies have been adopted by most of the U.S.A. population with several advantages [21]. The Trivedi Effect®- Consciousness Energy Healing Treatment also been reported with significant revolution in the physicochemical properties of metals, chemicals, ceramics and polymers [22-25], transformed antimicrobial characteristics of microbes [26,27], improved skin health [28,29], cancer cell line [30], bone health [31,32], improved agricultural crop yield, productivity, and quality [11,12,33], and altered the isotopic abundance ratio [34,35], improved bioavailability of pharmaceutical and nutraceutical compounds [36,37].

Study of the natural stable isotope ratio analysis gained the importance with many applications in different field of sciences to understand the isotope effects resulting from the alterations of the isotopic composition [38-40]. Gas chromatography-mass spectrometry (GC-MS) and liquid chromatography-mass spectrometry (LC-MS) are the widely used sophisticated analytical techniques for the analysis of isotope ratio with sufficient precision [39]. The Trivedi Effect®-Consciousness Energy Healing Treatment (Biofield Energy Healing Treatment) could be an economical approach to obtain a better desirable L-cysteine with improved physicochemical properties for the food, cosmetic, pharmaceutical/ nutraceutical, and other industries. Therefore, this study was designed and evaluated the LC-MS based structural characterization and the isotopic abundance ratios of P_{M+1}/P_M ($^2\text{H}/^1\text{H}$ or $^{13}\text{C}/^{12}\text{C}$ or $^{15}\text{N}/^{14}\text{N}$ or $^{17}\text{O}/^{16}\text{O}$ or $^{33}\text{S}/^{32}\text{S}$) and P_{M+2}/P_M ($^{34}\text{S}/^{32}\text{S}$) in The Trivedi Effect® - Consciousness Energy Healing Treated L-cysteine compared to the control sample.

Material and Methods

Chemicals and reagents

L-cysteine (>98%) was purchased from Alfa Aesar, India. All other chemicals used during the experiments were of analytical grade available in India.

Consciousness energy healing treatment strategies

The L-cysteine powder sample was the test sample divided into two parts. One part of L-cysteine powder sample was considered as a control sample (no Biofield Energy Treatment was provided). However, the other part of L-cysteine was exposed to The Trivedi Effect®-Consciousness Energy Healing Treatment remotely under standard laboratory conditions for 3 minutes and known as The Trivedi Effect® Treated (Biofield Energy Treated) L-cysteine. The Biofield Energy Treatment was provided through the healer's unique energy transmission process by the renowned Biofield Energy Healer, Alice Branton, USA, to the test sample. Further, the control sample was treated with "sham" healer for the comparison purpose. The sham healer did not have any knowledge about the Biofield Energy Treatment. After that, the Biofield Energy Treated and untreated L-cysteine samples were kept in sealed conditions and characterized using LC-MS analytical techniques.

Characterization

Liquid chromatography-mass spectrometry (LC-MS) analysis and Calculation of Isotopic Abundance Ratio: The liquid chromatography-mass spectrometric analysis of the control and Biofield Energy Treated L-cysteine was carried out with the help of LC-MS Thermo Fisher Scientific, USA equipped with an ion trap detector connected with a triple-stage quadrupole mass spectrometer. The column used here was a reversed phase Thermo Scientific Synchronis C18 (Length-250mm × ID 4.6mm × 5micron), maintained at 25 °C. The diluent used for the sample preparation was methanol. The L-cysteine solution injection volume was 20µL and the analyte was eluted using acetonitrile (92%) +0.1% ammonium acetate (8%) pumped at a constant flow rate of 0.8mL/min. Chromatographic separation was achieved using gradient condition and the total run time was 10min.

Peaks were monitored at 210nm using the PDA detector. Mass spectrometric analysis was performed under ESI +ve ion mode. The total ion chromatogram, peak area% and mass spectrum of the individual peak which was appeared in LC along with the full scan (m/z 50-200) were recorded. The total ion chromatogram and

mass spectrum of the individual peak (appeared in LC-MS) were recorded. The natural abundance of each isotope (C,H,N,O, and S) can be predicted from the comparison of the height of the isotope peak with respect to the base peak. The values of the natural isotopic abundance of the common elements are obtained from the literature [40-43]. The LC-MS based isotopic abundance ratios (P_{M+1}/P_M and P_{M+2}/P_M) for the control and Biofield Energy Treated L-cysteine ($C_3H_8NO_2S^+$) was calculated.

$$\text{Percentage (\%)} \text{ change in isotopic abundance ratio} = [(IAR_{\text{Treated}} - IAR_{\text{Control}}) / IAR_{\text{Control}}] \times 100$$

Where IAR_{Treated} = isotopic abundance ratio in the treated sample and IAR_{Control} = isotopic abundance ratio in the control sample.

Results and Discussion

Liquid chromatography-mass spectrometry (LC-MS)

The LC-SM of the control and Biofield Energy Treated L-cysteine showed the single major peak at retention time (R_t) of 1.96 minutes in both the chromatograms (Figure 1). These results indicated that the polarity of both the samples was similar to each other.

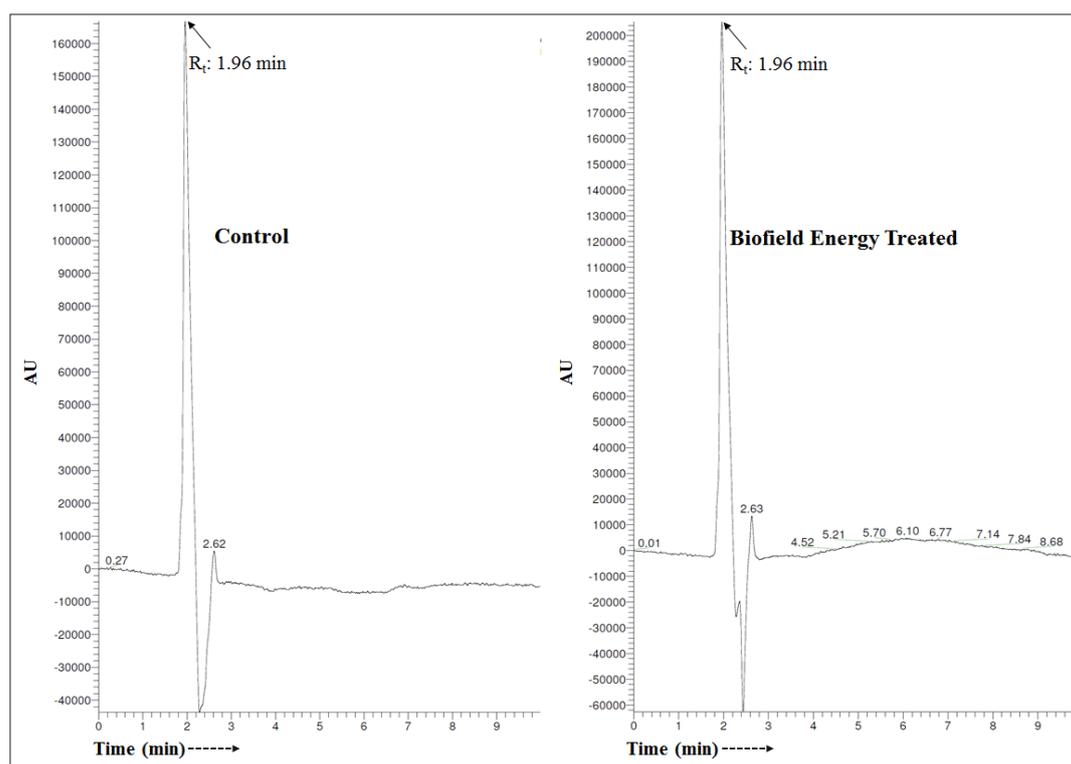


Figure 1: Liquid chromatograms of the control and biofield energy treated L-cysteine.

The mass spectra of both the control and Biofield Energy Treated samples of the L-cysteine are shown in Figure 2. The mass spectra of both the samples at R_t of 1.96 minutes exhibited the presence of the molecular ion of L-cysteine adduct with hydrogen ion (Figure 2) at m/z 122 (calcd for $C_3H_8NO_2S^+$, 122.03). Along with the molecular ion peak, low molecular fragmented mass peaks at

m/z 105, 102, 87, 76, and 59 for $C_3H_5O_2S^+$, $C_3H_2O_2S^+$, $C_3H_5NO_2^{2+}$ or $C_3H_5NS^+$, $C_2H_6NO_2^+$, and $C_2H_3O_2^+$ were observed both in control and Biofield Energy Treated L-cysteine (Figure 2 & Figure 3). The experimental data was well supported by the published literature data [44].

Isotopic abundance ratio analysis

The control and Biofield Energy Treated L-cysteine samples showed the mass of a molecular ion at m/z 122 (calcd for $C_3H_8NO_2S^+$, 122.03) with 100% relative abundance in the spectra. The theoretical calculation of isotopic peak P_{M+1} for the protonated L-cysteine presented as below:

$$P(^{13}C) = [(3 \times 1.1\%) \times 100\% \text{ (the actual size of the } M+ \text{ peak)}] / 100\% = 3.3\%$$

$$P(^2H) = [(8 \times 0.015\%) \times 100\%] / 100\% = 0.12\%$$

$$P(^{15}N) = [(1 \times 0.4\%) \times 100\%] / 100\% = 0.4\%$$

$$P(^{17}O) = [(2 \times 0.04\%) \times 100\%] / 100\% = 0.08\%$$

$$P(^{33}S) = [(1 \times 0.08\%) \times 100\%] / 100\% = 0.08\%$$

P_{M+1} i.e. ^{13}C , 2H , ^{15}N , ^{17}O , and ^{33}S contributions from $C_3H_8NO_2S^+$ to m/z 123 = 3.98%

Similarly, the theoretical calculation of P_{M+2} for L-cysteine was presented as below:

$$P(^{34}S) = [(1 \times 4.21\%) \times 100\%] / 100\% = 4.21\%$$

P_{M+2} , i.e. ^{34}S contributions from $C_3H_8NO_2S^+$ to m/z 124 = 4.21%

The calculated isotopic abundance of P_{M+1} and P_{M+2} values 3.98% and 4.21% was very close to the experimental values (Table 1). From the above calculation, it has been found that ^{13}C , ^{15}N , and ^{34}S have the major contribution to m/z 123 and 124. The LC-MS based isotopic abundance ratio analysis P_M , P_{M+1} , and P_{M+2} for L-cysteine near m/z 122, 123, and 124, respectively of the control and Biofield Energy Treated samples, which were obtained from the observed relative peak intensities of $[M^+]$, $[(M+1)^+]$, and $[(M+2)^+]$ peaks, respectively in the mass spectra (Table 1). The isotopic abundance ratio of P_{M+1}/P_M ($^2H/^1H$ or $^{13}C/^{12}C$ or $^{15}N/^{14}N$ or $^{17}O/^{16}O$ or $^{33}S/^{32}S$) and P_{M+2}/P_M ($^{34}S/^{32}S$) in Consciousness Energy Healing Treated L-cysteine was significantly increased by 25% and 17.39% compared to the control sample (Table 1). Thus, the ^{13}C , 2H , ^{15}N , ^{17}O , ^{33}S and ^{34}S contributions from $C_3H_8NO_2S^+$ to m/z 123 and 124 in the Biofield Energy Treated sample was significantly increased compared to the control sample. LC-MS study confirmed the structure of the sample as L-cysteine. The isotopic abundance ratios of P_{M+1}/P_M ($^2H/^1H$ or $^{13}C/^{12}C$ or $^{15}N/^{14}N$ or $^{17}O/^{16}O$ or $^{33}S/^{32}S$) and P_{M+2}/P_M ($^{34}S/^{32}S$) in the Biofield Energy Treated L-cysteine were significantly increased compared to the control sample.

Table 1: LC-MS based isotopic abundance analysis results in Biofield Energy Treated L-cysteine compared to the control sample.

Parameter	Control Sample	Biofield Energy Treated Sample
P_M at m/z 122(%)	100	100
P_{M+1} at m/z 123(%)	4	5
P_{M+1}/P_M	0.04	0.05
% Change of isotopic abundance ratio (P_{M+1}/P_M) with respect to the control sample		25
P_{M+2} at m/z 124(%)	4.6	5.4
P_{M+2}/P_M	0.05	0.05
% Change of isotopic abundance ratio (P_{M+2}/P_M) with respect to the control sample		17.39

P_M : the relative peak intensity of the parent molecular ion $[M^+]$; P_{M+1} : The relative peak intensity of the isotopic molecular ion $[(M+1)^+]$, P_{M+2} : The relative peak intensity of the isotopic molecular ion $[(M+2)^+]$, M: mass of the parent molecule

A neutrino is an elementary particle that interacts only via the weak subatomic force and gravity. According to the modern physics, neutrinos have the properties to change identities which are only possible if the neutrinos possess mass and have the ability to interchange their phase from one phase to another internally. Therefore, the neutrinos have the ability to interact with protons and neutrons in the nucleus, which indicated a close relationship between neutrino and the isotope formation [39,40]. The altered isotopic composition in molecular level of The Trivedi Effect®-Consciousness Energy Healing Treated L-cysteine might have altered the neutron to proton ratio in the nucleus. It can be hypothesized that the changes in isotopic abundance could be due to changes in nuclei possibly through the interference of neutrino particles via The Trivedi Effect®-Consciousness Energy Healing Treatment

[16]. The Biofield Energy Treated L-cysteine with increased stable isotopic abundance ratio might have changed the physicochemical properties with higher force constant with the atoms of the molecules. The Biofield Energy Treated L-cysteine would be more desirable with improved physicochemical properties for the food, cosmetic, pharmaceutical/nutraceutical, and other industries.

Conclusion

The Trivedi Effect®-Consciousness Energy Healing Treatment (Biofield Energy Treatment) showed the significant impact on the isotopic abundance ratio of L-cysteine. The LC-MS spectra of both the control and Biofield Energy Treated samples at R_t 1.96 minutes exhibited the mass of the molecular ion peak adduct with hydrogen ion at 122 (calcd for $C_3H_8NO_2S^+$, 122.03) along with low

molecular fragmented mass peaks at m/z 105, 102, 87, 76, and 59 for $C_3H_5O_2S^+$, $C_3H_2O_2S^{2+}$, $C_3H_5NO_2^{2+}$ or $C_3H_5NS^+$, $C_2H_6NO_2^+$, and $C_2H_3O_2^+$, respectively were also observed. The isotopic abundance ratios of P_{M+1}/P_M ($^2H/^1H$ or $^{13}C/^12C$ or $^{15}N/^14N$ or $^{17}O/^16O$ or $^{33}S/^32S$) and P_{M+2}/P_M ($^{34}S/^32S$) in the Biofield Energy Treated L-cysteine was significantly increased by 25% and 17.39%, respectively compared with the control sample. Hence, the ^{13}C , 2H , ^{15}N , ^{17}O , ^{33}S and ^{34}S contributions from $C_3H_8NO_2S^+$ to m/z 123 and 124 in the Biofield Energy Treated L-cysteine was significantly increased compared to the control sample. It can be assumed that the changes in isotopic abundance and mass peak intensities due to changes in nuclei possibly through the interference of neutrino particles *via* The Trivedi Effect®-Consciousness Energy Healing Treatment.

The Biofield Energy Treated L-cysteine with increased stable isotopic abundance ratio might have changed the physicochemical properties with higher force constant among the atoms in the molecule. The new form of Biofield Energy Treated L-cysteine would be a better and more stable precursor in the food, cosmetics, pharmaceuticals, personal-care industries, additives to cigarettes (act as an expectorant), preventative or antidote for some of the negative effects of alcohol (liver damage and hangover), acetaminophen overdose, production of more wool from sheep, clinically used ranging from baldness to psoriasis, excellent for the treatment of asthmatics by enabling them to stop theophylline and other medications, enhances the effect of topically applied silver, tin and zinc salts for preventing dental cavities. In the near future, this Biofield Energy Treated L-cysteine may play a better role in the treatment of diabetes, psychosis, cancer, and seizures.

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