

# Impact of Consciousness Energy Healing Treatment on the Isotopic Abundance Ratio of Folic Acid



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## Abstract

Folic acid (Vitamin B<sub>9</sub>) is the water-soluble vitamin mainly found in the foods and supplements, which is involved in the synthesis and repair of DNA and RNA, aiding rapid cell division and growth, enhancing the overall brain health, etc. in the body. In this study, the impact of the Trivedi Effect®-Consciousness Energy Healing Treatment on the structural properties and the isotopic abundance ratio of folic acid was investigated using LC-MS spectroscopy. The test sample folic acid was divided into control and treated parts. Only the treated part received the Trivedi Effect®-Consciousness Energy Healing Treatment remotely by a renowned Biofield Energy Healer, Dahryn Trivedi. The chromatographic spectra of both the samples exhibited the same retention time at 1.8 minutes and mass of the molecular ion peak at 441.92 (calcd for C<sub>19</sub>H<sub>20</sub>N<sub>7</sub>O<sub>6</sub><sup>+</sup>, 442.15) along with low molecular fragmented mass peaks at *m/z* 295.08, 267, 250.17, and 207.92 for C<sub>14</sub>H<sub>11</sub>N<sub>6</sub>O<sub>2</sub><sup>+</sup>, C<sub>12</sub>H<sub>15</sub>N<sub>2</sub>O<sub>5</sub><sup>+</sup>, C<sub>12</sub>H<sub>12</sub>NO<sub>5</sub><sup>+</sup>, and C<sub>11</sub>H<sub>14</sub>NO<sub>3</sub><sup>+</sup>, respectively were also observed. The peak area of the treated folic acid (6029494.3) was increased by 1.12% compared to the control sample (5963001.45).

The isotopic abundance ratio of P<sub>M+1</sub>/P<sub>M</sub> (<sup>2</sup>H/<sup>1</sup>H or <sup>13</sup>C/<sup>12</sup>C or <sup>15</sup>N/<sup>14</sup>N or <sup>17</sup>O/<sup>16</sup>O) in the treated folic acid was significantly increased by 81.37% compared with the control sample. Hence, the <sup>13</sup>C, <sup>2</sup>H, <sup>15</sup>N, and <sup>17</sup>O contributions from C<sub>19</sub>H<sub>20</sub>N<sub>7</sub>O<sub>6</sub><sup>+</sup> to *m/z* 442.92 in the treated sample were significantly increased compared with the control sample. The changes in isotopic abundance and mass peak intensities might occur due to the changes in nuclei possibly through the interference of neutrino particles *via* the Trivedi Effect®-Consciousness Energy Healing Treatment. The increased isotopic abundance ratio and peak area of the treated folic acid may increase the chemical bond strength, increase its stability, improve solubility, and bioavailability in the body. The new form of Biofield Energy Treated folic acid could be used for designing novel pharmaceutical formulations that might offer better therapeutic response against embryonic defects, clinical depression, megaloblastic anemia, altered memory, and brain function, leuco- and thrombocytopenia, malignancies, neural tube defects, depression, allergic diseases, cardiovascular disease, and lower bone density, etc.

**Keyword:** Folic acid; The Trivedi effect®; Biofield energy; Consciousness energy healing treatment; LC-MS

## Introduction

Folic acid (Vitamin B<sub>9</sub>) is the water-soluble vitamin mainly found in the foods and supplements [1]. Daily recommended folate for adults is 400 micrograms (mcg) and for women in pregnancy is 400 to 800 mcg of folic acid a day [2]. The folate is highly rich in the food items, i.e., dark green leafy vegetables, fruits, avocado, nuts, chickpeas, soybeans, beetroot, spinach, liver, asparagus, yeast, kale, dairy products, Brussels sprouts, poultry

and meat, eggs, seafood, grains, and some beers [3-6]. Folic acid plays many physiological functions in the body, i.e., various intracellular reactions, enzymatic reactions included in vitamin metabolism and amino acid synthesis. It is majorly involved in the synthesis and repair of DNA and RNA, aiding rapid cell division and growth, enhancing the overall brain health, and in age-related hearing loss [7]. Along with this, folic acid also plays

important role in normal blood formation, normal metabolism of the immune system, normal amino acid synthesis, homocysteine levels, cell division, control various psychological functions, maintain normal maternal tissue growth during pregnancy, reduction of tiredness and fatigue. The deficiency of folic acid might result from inadequate intake, defective absorption (*i.e.*, Crohn's disease or celiac disease), abnormal metabolism or increased requirements during pregnancy or breastfeeding, some genetic disorders, certain medicines (*i.e.*, phenytoin, sulfasalazine, etc.), alcohol consumption, etc. Its deficiency may cause glossitis, diarrhoea, depression, confusion, anemia, grey hair, mouth sores, poor growth, congenital deformities, swollen tongue, embryonic defects, altered memory and brain function, cardiovascular disease, leuco- and thrombocytopenia, particular neural tube defects, and malignancies, long-term risk of lower bone density, higher risk of potentially developing allergic diseases, etc. [8-10].

The solubility of folic acid is very poor (1.6 mg/L in water). It is heat sensitive and decompose rapidly in the presence of light [11]. Thus, the physicochemical properties of folic acid are very important while preparing the nutraceutical and pharmaceutical formulations in the pharmaceutical industries. Some of the recent scientific experiments proved that the Trivedi Effect®-Consciousness Energy Healing Treatment has improved the physicochemical properties, isotopic abundance, and bioavailability of many pharmaceutical/nutraceutical compounds [12-14]. The Trivedi Effect® is a natural and only scientifically proven phenomenon in which an individual can harness this energy from the "Universe" and transmit it anywhere on the planet *via* the possible mediation of neutrinos [15]. Every living being possesses a unique infinite and para-dimensional electromagnetic energy field surrounding the body known as "Biofield". Energy Therapies accepted worldwide nowadays against various disease conditions and for better health and wellness [16-18]. Biofield Energy Healing therapy is recognized as a Complementary and Alternative Medicine (CAM) by the National Center of Complementary and Integrative Health (NCCIH) with other therapies, medicines, and practices such as traditional Chinese herbs and medicines, Ayurvedic medicine, aromatherapy, homeopathy, yoga, Tai Chi, Qi Gong, chiropractic/osteopathic manipulation, meditation, acupressure, acupuncture, hypnotherapy, Reiki, healing touch, movement therapy, naturopathy, cranial sacral therapy, etc. [19]. These CAM therapies have been adopted by most of the U.S.A. population [20]. The Trivedi Effect®-Consciousness Energy Healing Treatment also has the significant impact on the transformation of metals, ceramics, and polymer [21-23], organic compounds [24], microorganisms [25,26] the productivity of crops [27,28] and cancer cells [29,30].

To understand the isotope effects resulting from the alterations of the isotopic composition, the study on the natural stable isotope ratio analysis has many applications in the different field of sciences [31-33]. The sophisticated techniques like gas chromatography–mass spectrometry (GC-MS) and liquid

chromatography–mass spectrometry (LC-MS), are widely used for the analysis of isotope ratio with sufficient precision [32]. Therefore, the LC-MS based structural characterization and the isotopic abundance ratio of  $P_{M+1}/P_M$  ( $^2\text{H}/^1\text{H}$  or  $^{13}\text{C}/^{12}\text{C}$  or  $^{17}\text{O}/^{16}\text{O}$ ) in the Trivedi Effect®-Consciousness Energy Healing Treated folic acid was performed compared to the control sample.

## Materials and Methods

### Chemicals and reagents

The test sample folic acid was purchased from Alfa Aesar, India. Similarly, other chemicals and solvents used in the experiments also purchased in India.

### Consciousness energy healing treatment strategies

The test sample folic acid powder sample was divided into control and treated parts. The control sample did not receive the Biofield Energy Treatment. But the control sample was treated with a "sham" healer who did not have any knowledge about the Biofield Energy and its treatment. However, the treated part of folic acid has received the Trivedi Effect®-Consciousness Energy Healing Treatment remotely for 3 minutes under standard laboratory conditions by a well-known Biofield Energy Healer, Dahryn Trivedi, USA. Finally, both the 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 LC-MS analysis of both the samples of folic acid 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. Thermo Scientific Synchronis C18 (Length-250mm X ID 4.6mm X 5 micron) reversed phase column was used, which maintained at 25°C. The methanol and water (1:1) were used as a diluent for sample preparation. The injection volume was 10µL and the analyte was eluted using acetonitrile +10mM ammonium acetate (85:15) pumped at a constant flow rate of 1mL/min (total run time was 10min). Peaks were monitored at 220nm using the PDA detector. The mass spectrometric analysis was performed under ESI +ve ion mode. The natural abundance of each isotope (H, C, N, and O) 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 [33-36]. The LC-MS based isotopic abundance ratio ( $P_{M+1}/P_M$ ) for the control and treated folic acid was calculated. The change in the isotopic abundance ratio was calculated using the following equation.

$$(\%) \text{ Change in isotopic abundance ratio} = \left[ \frac{(\text{IAR}_{\text{Treated}} - \text{IAR}_{\text{Control}})}{\text{IAR}_{\text{Control}}} \times 100 \right]$$

Where  $\text{IAR}_{\text{Treated}}$  and  $\text{IAR}_{\text{Control}}$  were the isotopic abundance ratio in the treated and control folic acid.

## Results and Discussion

### Liquid Chromatography-Mass Spectrometry (LC-MS)

The LC-MS chromatograms of both the folic acid samples showed the major peak at retention time ( $R_t$ ) of 1.8 minutes (Figure 1). The peak area near  $R_t$  1.8 minutes of the Biofield Energy Treated folic acid (6029494.3) was increased by 1.12% compared to the control sample (5963001.45). The increased peak area of the Biofield Energy Treated folic acid indicated that the solubility of folic acid was increased after the Trivedi Effect®-Consciousness Energy Healing Treatment. The solubility of folic acid is very poor

and a major problem. Thus, the Biofield Energy Treated folic acid would be more soluble, bioavailable, and more efficacious nutraceutical and pharmaceutical formulations. The mass spectra of the control and Biofield Energy Treated samples corresponding to the  $R_t$  1.8 minutes exhibited the existence of the molecular ion of folic acid ( $C_{19}H_{20}N_7O_6^+$ ) adduct with hydrogen ion (Figure 2) at  $m/z$  441.92 (calcd for  $C_{19}H_{20}N_7O_6^+$ , 442.15) along with the fragmented mass peaks at  $m/z$  295.08, 267, 250.17, and 207.92 for  $C_{14}H_{11}N_6O_2^+$ ,  $C_{12}H_{15}N_2O_5^+$ ,  $C_{12}H_{12}NO_5^+$  and  $C_{11}H_{14}NO_3^+$  were observed in both the sample (Figures 2 & 3). The experimental data were well matched with the literature data [37].

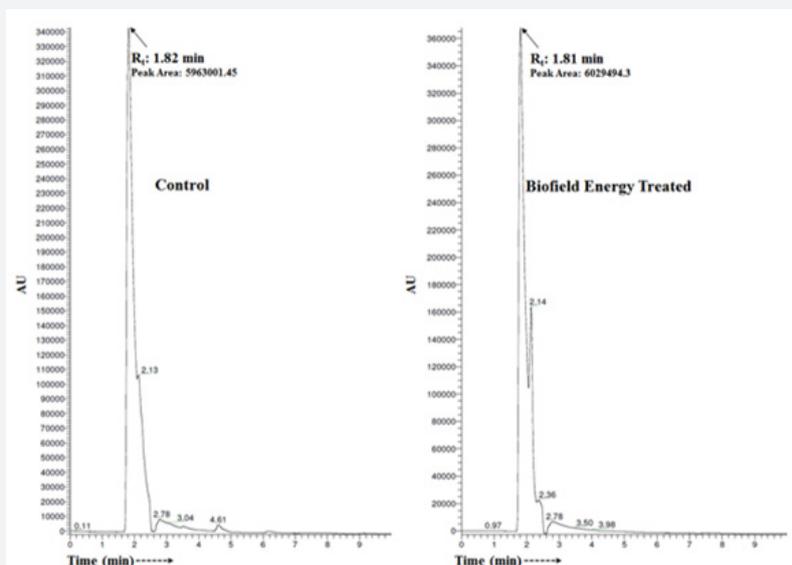


Figure 1: Liquid chromatograms of the control and Biofield Energy Treated folic acid.

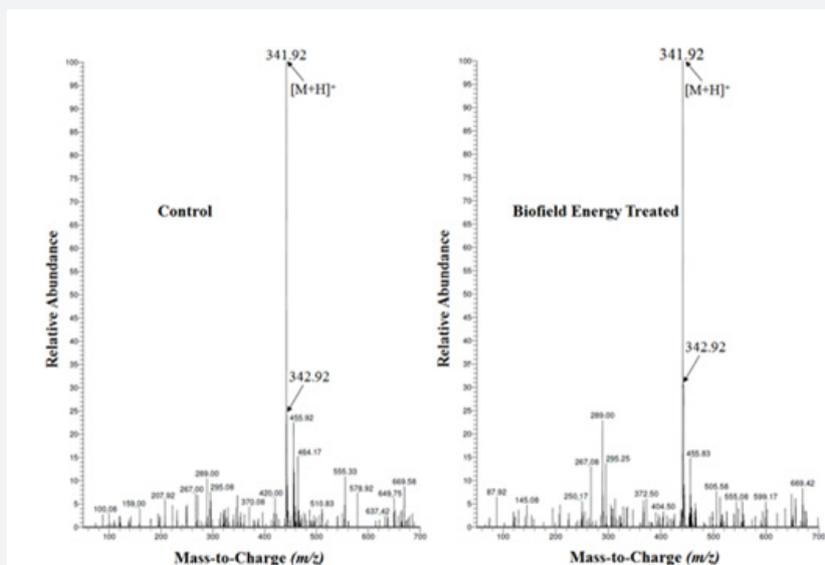


Figure 2: Mass spectra of the control and Biofield Energy Treated folic acid at  $R_t$  1.8 minutes.

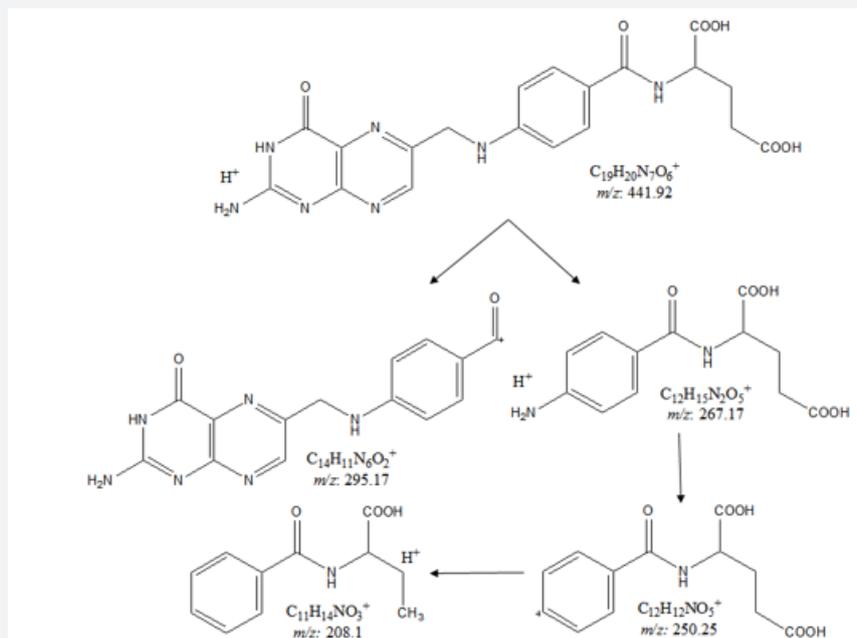


Figure 3: Proposed fragmentation pattern of folic acid.

### Isotopic abundance ratio analysis

Both the folic acid samples showed the mass of a molecular ion at  $m/z$  441.92 (calcd for  $C_{19}H_{20}N_7O_6^+$ , 442.15) with 100% relative abundance in the spectra. The theoretical calculation of isotopic peak  $P_{M+1}$  for the protonated folic acid presented as below:

$$P(^{13}C) = [(19 \times 1.1\%) \times 100\% \text{ (the actual size of the } M^+ \text{ peak)}] / 100\% = 20.9\%$$

$$P(^2H) = [(20 \times 0.015\%) \times 100\%] / 100\% = 0.3\%$$

$$P(^{15}N) = [(7 \times 0.4\%) \times 100\%] / 100\% = 2.8\%$$

$$P(^{17}O) = [(6 \times 0.04\%) \times 100\%] / 100\% = 0.24\%$$

$$P_{M+1} \text{ i.e. } ^{13}C, ^2H, ^{15}N, \text{ and } ^{17}O \text{ contributions from } C_{19}H_{20}N_7O_6^+ \text{ to}$$

$$m/z \text{ 442.92} = 24.24\%$$

The calculated isotopic abundance of  $P_{M+1}$  value 24.24% was higher to the experimental value (16.1%) (Table 1). From the above calculation, it has been found that  $^{13}C$  and  $^{15}N$  have the major contribution to  $m/z$  442.92. The LC-MS based isotopic abundance ratio analysis  $P_M$  and  $P_{M+1}$  for folic acid at  $m/z$  441.92 and 442.92, respectively of both the samples, which were obtained from the observed relative peak intensities of  $[M^+]$  and  $[(M+1)^+]$  peaks, respectively in the ESI-MS 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  $^{17}O/^{16}O$ ) in treated folic acid was significantly increased by 81.37% compared to the control sample (Table 1). Thus, the  $^{13}C$ ,  $^2H$ ,  $^{15}N$  and  $^{17}O$  contributions from  $C_{19}H_{20}N_7O_6^+$  to  $m/z$  442.92 in the treated folic acid was increased compared to the control sample.

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

Parameter	Control Sample	Biofield Energy Treated Sample
$P_M$ at $m/z$ 441.92 (%)	100	100
$P_{M+1}$ at $m/z$ 442.92 (%)	16.1	29.2
$P_{M+1}/P_M$	0.16	0.29
% Change of isotopic abundance ratio ( $P_{M+1}/P_M$ ) with respect to the control sample		81.37

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

LC-MS study confirmed the structure of folic acid. The isotopic abundance ratio of  $P_{M+1}/P_M$  ( $^2H/^1H$  or  $^{13}C/^{12}C$  or  $^{17}O/^{16}O$ ) in the Biofield Energy Treated folic acid was significantly increased compared to the control sample. The altered isotopic composition

in the Consciousness Energy Healing Treated folic acid might have altered the neutron to proton ratio in the nucleus via the possible mediation of neutrino. Neutrinos have the properties to change identities which interchange from one phase to another

internally. 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 [15,32,33]. The isotopic abundance ratios  $^2\text{H}/^1\text{H}$  or  $^{13}\text{C}/^{12}\text{C}$  or  $^{17}\text{O}/^{16}\text{O}$  would highly influence the atomic bond vibration of treated folic acid [38]. The increased isotopic abundance ratio and peak area of the Consciousness Energy Healing Treated folic acid may increase the chemical bond strength, increase its stability, more soluble, and bioavailability in the body. The Biofield Energy Treated folic acid would be more efficacious for the prevention and treatment of various diseases such as embryonic defects, clinical depression, megaloblastic anemia, altered memory and brain function, leuco- and thrombocytopenia, malignancies, neural tube defects, depression, allergic diseases, cardiovascular disease, and lower bone density, etc.

## Conclusion

The Trivedi Effect<sup>®</sup>-Consciousness Energy Healing Treatment showed a significant impact on the isotopic abundance ratio of folic acid. The chromatographic spectra of both the samples at retention time 1.8 minutes exhibited the mass of the molecular ion peak at 441.92 (calcd for  $\text{C}_{19}\text{H}_{20}\text{N}_7\text{O}_6^+$ , 442.15) along with low molecular fragmented mass peaks at  $m/z$  295.08, 267, 250.17, and 207.92 for  $\text{C}_{14}\text{H}_{11}\text{N}_6\text{O}_2^+$ ,  $\text{C}_{12}\text{H}_{15}\text{N}_2\text{O}_5^+$ ,  $\text{C}_{12}\text{H}_{12}\text{NO}_5^+$ , and  $\text{C}_{11}\text{H}_{14}\text{NO}_3^+$ , respectively were also observed. The peak area of the Consciousness Energy Healing Treated folic acid was increased by 1.12% compared to the control sample. The isotopic abundance ratio 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  $^{17}\text{O}/^{16}\text{O}$ ) in the treated folic acid was significantly increased by 81.37% compared with the control sample. Hence, the  $^{13}\text{C}$ ,  $^2\text{H}$ ,  $^{15}\text{N}$  and  $^{17}\text{O}$  contributions from  $\text{C}^{19}\text{H}^{20}\text{N}^7\text{O}^{6+}$  to  $m/z$  442.92 in the treated sample were significantly increased compared with the control sample. The changes in isotopic abundance and mass peak intensities might be due to the changes in nuclei possibly through the interference of neutrino particles via the Trivedi Effect<sup>®</sup>-Consciousness Energy Healing Treatment. The increased isotopic abundance ratio and peak area of the treated folic acid may increase the chemical bond strength, increase its stability, improve solubility, and bioavailability in the body. The new form of Biofield Energy Treated folic acid could be used for better designing novel pharmaceutical formulations that might offer better therapeutic response against poor growth, diarrhea, confusion, glossitis, depression, anemia, gray hair, mouth sores, swollen tongue, congenital deformities, embryonic defects, altered memory and brain function, leuco- and thrombocytopenia, cardiovascular disease, neural tube defects, and malignancies, risk of potentially developing allergic diseases, long-term risk of lower bone density, etc.

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