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Consciousness Energy Healing Treatment Modulating the Physicochemical Properties of Vanadium Pentoxide (V_2O_5)

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Abstract

Vanadium is a soft silvery-grey metal that might have pharmacological effect as a stimulatory agent in glucose metabolism, vanadate-dependent NADPH oxidation reactions, lipoprotein lipase activity, and growth of red blood cells, etc. This study was performed on vanadium pentoxide (V2O5) sample to analyze the impact of the Trivedi Effect®-Consciousness Energy Healing Treatment on its physicochemical properties as compared to the control sample with the help of different analytical techniques. The vanadium pentoxide sample was firstly divided into two parts. The first part known as the control sample and the second part received the Trivedi Effect®-Consciousness Energy Healing Treatment remotely by a renowned Biofield Energy Healer, Dahryn Trivedi. The alteration in the powder XRD peak intensities was observed in the range of -3.51% to 37.35%; while the crystallite sizes were altered in the range of -25.20% to 44.40%, compared to the control sample. However, the average crystallite size of the treated sample was significantly decreased by7.95%, compared to the control sample. The particle size data indicated the significant reduction in the particle sizes of the treated sample corresponding to d10, d50, d90 and D(4,3) by 29.13%, 21.05%, 25.01%, and 21.39%, respectively after the Biofield Energy Treatment; therefore, the specific surface area was significantly increased by 53.57% as compared to the control sample. Thus, the overall study concluded that the Trivedi Effect®-Consciousness Energy Healing Treatment might form a novel polymorph of V2O5 which might show better absorption, solubility, and bioavailability, compared to the control sample. Hence, the Biofield Energy Treated sample could prove to be beneficial in designing a novel nutraceutical/pharmaceutical formulation with improved therapeutic response and efficacy against various diseases and disorders such as prediabetes, high cholesterol, low blood sugar, tuberculosis, heart disease, etc. The Biofield Energy Treated V2O5 would also is more useful for the industry involved in the production of ferrovanadium alloy, ceramics, sulfuric acid, maleic anhydride, phthalic anhydride, detector material in bolometers and microbolometer arrays.

Keywords: Vanadium pentoxide; Consciousness energy healing treatment; The Trivedi Effect®; PXRD; Particle size

Introduction

Vanadium is a soft silvery-grey metal that exists in nature in various oxidation states such as, -1, 0, +2, +3, +4, and +5. However, commercially it is commonly found in the form of vanadium pentoxide (V_2O_5), *i.e.*, pentavalent state and appeared in the form of a yellow-red or green crystalline powder (Nielsen, F.H. 1990). The dietary sources of vanadium include a wide range of foods products such as mushrooms, dill, parsley, and black pepper (Hendler, S.S. 1991). Besides, the seafood, cereals, and liver contain it in intermediate amount; while fresh fruits, vegetables, and beverages are considered as the poorer sources of vanadium. Vanadium pentoxide is used for the production of ferrovanadium alloy, ceramics, sulfuric acid, maleic anhydride, and phthalic anhydride. It is also used as a detector material in bolometers and microbolometer arrays for thermal

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imaging, ethanol sensor, and redox batteries for energy storage (Nielsen, F.H. 1990; Hendler, S.S. 1991; vanadium pentoxide, WiKi). Some research studies reported the toxic effects of vanadium on the human body; however, it could be stated that the physiological response of the body to vanadium depends on the incoming level of vanadium and therefore, varies between deficiency and toxicity. It is suggested that at intermediate concentrations, it may affect the developing bones and teeth (Soremark, R. 1962; Norman, N.G. 1984; Bauer, G. 2005). Various research studies reported the pharmacologic dosages of vanadium as a stimulatory agent in glucose metabolism (French, R.J. 1993; Korbecki, J. 2012) vanadate-dependent NADPH oxidation reactions, adenylate cyclase activity and amino acid transport, lipoprotein lipase (LPL) activity, and growth of red blood cells (Nielsen, F.H. 1990).

There has been a variety of vanadium compounds that have been used and characterized these days as potential therapeutic agents for diabetes mellitus, cancer, and some diseases caused by viruses, parasites, and bacteria. Such agents are also proposed to be used as anti-hypertensive, anti-thrombotic, anti-atherosclerotic, and spermicidal agents. Besides, the other uses of vanadium include the treatment of prediabetes, high cholesterol, low blood sugar, tuberculosis, heart disease, syphilis, anemia, edema, preventing cancer, and for improving the athletic performance in weight training, *etc* (Treviño, S. 2019). It was reported that the metabolic disorders related to lipids and carbohydrates have the major links with the development of obesity, type 2 diabetes mellitus, insulin resistance, hepatic steatosis, dyslipidemia, and cardiovascular disease. Thus, the vanadium compounds have been shown their uses as a therapeutic alternative to the treatment of diabetes. In this regard, the first clinical trial was performed in the 1990s that involved the use of simple inorganic vanadium compounds for the treatment of diabetes in individuals (Goldfine, A.B. 1995; Willsky, G.R. 2001). Some research studies were also done to show the similarity between vanadate and phosphate that established the use of vanadate as a substitute for phosphate in phosphate-dependent physiological processes. Such processes involve the physiological processes that either depending on or regulated by, phosphatases, phosphomutases, kinases, diesterases, ATPases and ribonucleases, *etc*. The pharmacological activity of vanadate in the treatment of diabetes and related symptoms is basically related to this specific interchange (Rehder, D. 2013; 2015).

Despite all the therapeutic effects, there was an issue that the oral absorption of vanadium is less than 5% for most of the time. Some research studies also reported that in humans, only 0.13% to 0.75% of ingested vanadium is absorbed, while the absorption increases up to nearly 2.6% in rats. Moreover, there might be the impact of some other dietary components in the stomach which affect the oral absorption percentage of vanadium as well as the rate of change of its form into V4+. Also, various studies demonstrated the conversion of vanadium compounds under different physiological conditions in other forms (Hopkins, L.L. Jr. 1966; Ma, J. 2018). In this regard, the emphasis of research studies nowadays is to increase the absorption of such compounds to achieve the maximum therapeutic benefits.

It has been evident in various studies that the ADME profile of any drug could be affected by any alteration in its physicochemical properties. Therefore, the research studies focus on improving the ADME profile of the drug by using new approaches that may help in altering these properties such as, particle size, surface area, crystalline properties, partition coefficient, *etc*. (Wen, H. 2015). The Biofield Energy Healing Treatment (the Trivedi Effect®) is considered as such kind of novel approach that has been used these days for its considerable effect on altering the physicochemical and thermal properties of compounds (Trivedi, M.K. 2016a; 2016b; 2017a; 2017b). The Biofield Energy is unique, infinite and para-dimensional energy that involves in the form of the electromagnetic field surrounding the body of living organisms. Such Putative Energy is also used these days as healing therapies in the U.S. and is recommended by the National Institutes of Health/National Center for Complementary and Alternative Medicine (NIH/NCCAM) under the category of Complementary and Alternative Medicine (CAM) due to their beneficial effect in the treatment of various disease conditions (Barnes, P.M. 2008; Koithan, M. 2009). The Trivedi Effect® is also a form of Energy Healing therapy that involves the phenomenon of harnessing the inherently intelligent energy by a person and transmitting it further through the possible mediation of neutrinos, anywhere on the earth and thereby altering the characteristics of the non-living materials and living object(s) (Rubik, B. 2015). Various scientific research studies reported the astounding ability of the Trivedi Effect®-Consciousness Energy Healing Treatment for its significant effect on the physicochemical and thermal properties of metals, ceramic, nutraceuticals/pharmaceuticals, organic compounds (Trivedi, M.K. 2013; Trivedi, M.K. 2015a; 2015b, 2015c; Branton, A. 2017a; 2017b; Trivedi, M.K. 2016c; Trivedi, M.K. 2015d), alter the properties of microbes (Trivedi, M.K. 2015e; 2015f; 2015g), improved skin health (Kinney, J.P. 2017), plant growth (Nayak, G. 2015), growth and yield of crops and livestock (Trivedi, M.K. 2015h; 2015i; 2015j) *etc*. Hence, the aim of this study was to analyse the impact of the Trivedi Effect®-Consciousness Energy Healing Treatment on the physicochemical properties of vanadium pentoxide by using X-ray diffraction (PXRD) and particle size distribution analysis (PSD) analytical techniques.

Materials and Methods

Chemicals and Reagents

The test sample vanadium pentoxide (V2O5) powder was purchased from Sigma-Aldrich, India and the sunflower oil was purchased GoldD drop, India.

Consciousness Energy Healing Treatment Strategies

The vanadium pentoxide was divided into two parts. One part was considered as a control sample (no Biofield Energy Treatment was provided). Consequently, the second part of vanadium pentoxide was treated with the Trivedi Effect®- Consciousness Energy Healing Treatment remotely under standard laboratory conditions for 3 minutes and known as the Biofield Energy Treated vanadium pentoxide sample. This Biofield Energy Treatment was provided through the healer's unique energy transmission process to the test sample by the renowned Biofield Energy Healer, Dahryn Trivedi, USA. Further, the control sample was treated with a "sham" healer who did not have any knowledge about the Biofield Energy Treatment. After that, the Biofield Energy Treated and control samples were kept in sealed conditions and characterized using sophisticated analytical techniques.

Characterization

The powder PXRD analysis of vanadium pentoxide powder samples was performed with the help of Rigaku MiniFlex-II Desktop X-ray diffractometer (Japan) (MiniFlex+, 1997; Zhang, T. 2015). The average size of crystallites was calculated from PXRD data using the Scherrer's formula (1)

$$G = k\lambda/\beta\cos\theta \qquad (1)$$

Where G is the crystallite size in nm, k is the equipment constant, λ is the radiation wavelength, β is the full-width at half maximum, and θ is the Bragg angle (Langford, J.I. 1978).

Similarly, the PSD analysis of vanadium pentoxide test samples was performed with the help of Malvern Mastersizer 2000 (UK) using the wet method (Trivedi, M.K. 2017c; 2017d).

The % change in crystallite size, peak intensity, particle size, andspecific surface area (SSC) of the Biofield Energy Treated vanadium pentoxide was calculated compared with the control sample using the following equation 2:

$$\%\ change=[Treated-Control]/Control\times100 \qquad (2)$$

Results and Discussion

Powder X-ray Diffraction (PXRD) Analysis

The PXRD diffractograms of the control and treated sample showed the presence of narrow base width peaks (Figure 1) that were high in intensity and therefore denoted the crystalline properties of both the samples. The treated sample showed significant alterations in the peak intensities and crystallite sizes corresponding to the characteristic peaks in the range of -3.51% to 37.35% and -25.20% to 44.40%, respectively, compared to the control sample.

Besides, the Biofield Energy Treatment also showed its impact on the average crystallite size of the treated sample (501.91 nm), which was significantly decreased by 7.95% as compared to the control sample (545.27 nm). There were several research studies that reported the alteration in the crystal morphology and crystalline properties of the compound due to significant changes in the peak intensity along the diffraction face (Inoue, M. 2013). Besides, it was also reported that the changes in the complete PXRD pattern might occur due to the polymorphic transitions taken place during the process (Brittain, H.G. 2009; Raza, K. 2014). Therefore, in this study, the observed variations in the PXRD pattern of the treated sample might suggest the possible alteration in the polymorphic transitions and crystal morphology of treated vanadium pentoxide sample after the Biofield Energy Treatment. Such alteration in the polymorphic form of the drug might help in enhancing the drug performance such as the bioavailability and efficacy (Blagden, N. 2007; Censi, R. 2015). Therefore, it was presumed that the Biofield Energy Treated sample might show better efficacy and response as compared to the control sample. Fig 1 table 1

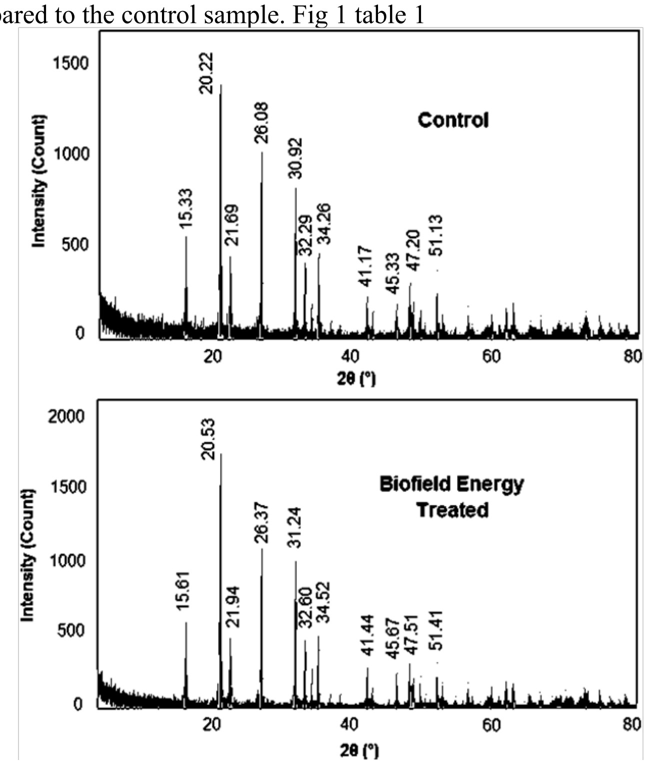

Table 1: PXRD data for the control and Biofield Energy Treated vanadium pentoxide

Entry No.	Bragg angle (°2θ)		Peak Intensity (%)			Crystallite size (G, nm)		
	Control	Treated	Control	Treated	% change *	Control	Treated	% change *
1	15.33	15.61	56.0	58.9	5.18	500	374	-25.20
2	20.22	20.53	182.0	247.0	35.71	457	394	-13.79
3	21.69	21.94	50.8	63.5	25.00	430	394	-8.37
4	26.08	26.37	116.0	130.0	12.07	584	517	-11.47
5	30.92	31.24	102.0	129.0	26.47	428	430	0.47
6	32.29	32.60	40.2	53.5	33.08	589	512	-13.07
7	34.26	34.52	44.6	50.4	13.00	646	621	-3.87
8	41.17	41.44	24.9	34.2	37.35	550	466	-15.27
9	45.33	45.67	18.0	20.5	13.89	527	761	44.40
10	47.20	47.51	29.9	37.5	25.42	582	498	-14.43
11	51.13	51.41	39.9	38.5	-3.51	705	554	-21.42

*denotes the percentage change in the intensity and crystallite size of Biofield Energy Treated sample compared with the control sample.

Figure 1: PXRD diffractograms of the control and Biofield Energy Treated vanadium pentoxide

Particle Size Analysis (PSA)

The particle size analysis of the vanadium pentoxide sample showed the impact of the Biofield Energy Treatment on the particle size distribution of the treated sample in comparison to the control sample (Table 2). The particle size values at d10, d50, d90, and D(4,3) (d10, d50, and d90: particle diameter corresponding to 10%, 50%, and 90% of the cumulative distribution, D(4,3): the average mass-volume diameter)of the treated sample significantly decreased by 29.13%, 21.05%, 25.01%, and 21.39%, respectively compared with the control sample. The significant change in particle size distribution further increased the specific surface area of the treated sample by 53.57%, compared to the control sample. The Biofield Energy Healing Treatment put an external force on the particles of the treated sample that causes the reduction in the particle size by breaking them in smaller ones than the control sample (Loh, Z.H. 2015). The decreased particle size ultimately increases the surface area of the compound, which may help in enhancing the dissolution, absorption, and bioavailability of the drug in the body (Zhao, Z. 2015). Hence, the treated sample might show better solubility and dissolution profile compared to the control sample, which improves the bioavailability after the Biofield Energy Treatment of the sample in the body. The Biofield Energy Treated V2O5 would be more useful for the industry involved in the manufacture of ferrovanadium alloy, sulfuric acid, ceramics, maleic anhydride, phthalic anhydride, detector material in bolometers and microbolometer arrays for thermal imaging, ethanol sensor, and redox batteries for energy storage.

Table 2: Particle size distribution of the control and Biofield Energy Treated vanadium pentoxide

Parameter	d_{10} (μm)	d_{50} (μm)	d_{90} (μm)	D(4,3) (μm)	SSA (m^2/g)
Control	14.18	48.17	183.71	76.80	0.28
Biofield Energy Treated	10.05	38.03	137.76	60.37	0.43
Percent change (%)	-29.13	-21.05	-25.01	-21.39	53.57

d_{10}, d_{50}, and d_{90}: particle diameter corresponding to 10%, 50%, and 90% of the cumulative distribution, D(4,3): the average mass-volume diameter, and SSA: the specific surface area.

Conclusions

In this study, the research was performed to analyze the impact of the Biofield Energy Treatment on the physicochemical properties of vanadium pentoxide as compared to the control sample. The alteration in the powder XRD peak intensities was observed in the range of -3.51% to 37.35%; while the crystallite sizes were altered in the range of -25.20% to 44.40%, compared to the control sample. However, the average crystallite size of the Biofield Energy Treated sample was significantly decreased by 7.95%, compared to the control sample. Such changes in the intensities and crystallite sizes corresponding to the characteristic peaks of the Biofield Energy Treated sample indicated some considerable alterations in the crystalline properties of vanadium pentoxide that might occur due to some novel polymorph formation, compared to the control sample. Such polymorph might ensure the better solubility and bioavailability profile than the control sample. The particle size data indicated the significant reduction in the particle sizes of the Biofield Energy Treated sample corresponding to d_{10}, d_{50}, d_{90}, and D(4,3) by 29.13%, 21.05%, 25.01%, and 21.39%, respectively after the Biofield Energy Treatment; therefore, the specific surface area was significantly increased by 53.57% as compared to the control sample. Thus, the overall study concluded that there is the possibility of formation of a new polymorph of vanadium pentoxide after the Trivedi Effect®-Consciousness Energy Healing Treatment, which might show improved solubility, absorption, and bioavailability profile in comparison to the control sample. Hence, the Biofield Energy Treated vanadium pentoxide containing formulations might be more useful in the treatment and prevention of prediabetes, tuberculosis, high cholesterol, low blood sugar, heart disease, anemia, edema, syphilis, cancer, insulin resistance, hepatic steatosis, dyslipidemia, and cardiovascular disease *etc*. The Biofield Energy Treated V2O5 would also be more useful for the industry involved in the production of ferrovanadium alloy, ceramics, sulfuric acid, maleic anhydride, phthalic anhydride, detector material in bolometers and microbolometer arrays.

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