

Harald Kautz-Vella:

Theoretical and experimentally proven negative effects of (Ba, Sr_x) TiO₃ nano particles on plant growth (first draft)

Regarding the chemical & physical (Ba, Sr_x) TiO₃ quality designated as aerosols in global weather engineering concepts

Abstract:

Theoretical implications as well as experimental proof show that (Ba, Sr_x) TiO₃ nano particles <100 nm as they are discussed as one component for cloud seeding in global weather modification patents would cause harm to plants by

- interrupting cell communication at the 230 nm UV absorption line by absorbing the weak intercellular UV signals responsible for triggering cell division
- irradiating the plant DNA with high energy ultraviolet light of 230 nm stored as excited states in the barium/strontium nuclides. This excitation is caused by exposure to cosmic radiation in clouds. The high-energy photons stored can be released by non-linear optical interaction when a weak longitudinal UV photon of same wavelength (Bio-photon) hits a nanoparticle. The excited state of the nuclides then discharges into a time reversed replica wave precisely flowing back to the DNA exposing it to a UV photon impact of same wavelength but much higher energy
- dis-balancing the cell potential when triggered by terrestrial EMF, microwave or radar-radiation by releasing free electrons during an induced change of crystal geometry following their piezoelectric properties, making the plants vulnerable to the attack of fungi.

The complex interaction of these three theoretically possible forms of damage is not fully understood. However the over-all-effect on plants could be experimentally confirmed showing a lethal dose for plants of approx. 35 mg (Ba, Sr_x) TiO₂ per kg dried organic matter depending on plant type and other external variables (**both by lab analysis and** outdoor studies).

Due to the fact that:

- the amount of (Ba, Sr_x) TiO₂ in g per ha and year projected for geo-engineering purposes is much higher than the experimentally evaluated lethal dose for plants in g/ha and additionally
- the non-solubility of these crystals would lead to a continuous accumulation of these particles in the biosphere

launching these projects would be a threat for the biosystems of the world which sooner or later would lead to a total destruction of natural biotopes and agricultural crops in fallout regions.

1. Introduction

The human mind is trained to handle things of macroscopic sizes, which can lead to wrong decisions when it comes to exposing nature to nano-particles. The smaller the particles, the higher the surface/volume ratio becomes. We are technically able to produce $(\text{Ba}, \text{Sr}_x) \text{TiO}_3$ particles with a surface of 2.500 square meters per gram. For the following estimations this value is going to be used for calculations.

Theoretically an amount of 300 tons of that material would be enough to build a 1 particle thick layer to completely optically cover a country of the size of Germany. To bring out these particles as an aerosol would take 30 flights with a Boing 737 only.

This simple calculation is what is tempting about these materials when it comes to geo-engineering. Whether it is for cloud seeding to controll climate change, or to protect industrial aereas from sun flares by forming a plasma-shield in the upper atmosphere utilizing the piezoelectric properties of this material – the benefits can be great. Additionally barium, the non-radioactive strontium isotopes 85, 86, 87 and 88 and titanium as well as their oxides can be regarded as chemically non-toxic.

There is irrefragable evidence that non-authorized aerosol spraying has been conducted in the past. Camera footage of spraying military planes, of persistent contrails at temperatures of -35 and a relative humidity of 40%, bear whitness of people involved up to the former leader of the FBI, and chemical analysis shows the footprint of barium strontium titanate in the chemical analysis of rainwater, soil and plant samples in most of the industrialised countries. However, this paper is not to discuss the existance or legitimacy of past action, it is to discuss the effects of future activities as they are currently carried into the public discussion for example by the German "Umwelt Bundesamt" in the brochure "Geo-Engeneering. Wirksamer Klimaschutz oder Grössenwahn. Methode. Rechtliche Rahmenbedingungen. Umweltpolitische Fragen. Berlin, April 2011."

Not taken into consideration in these public discussions are the optical and electrophysical properties of these materials, which are outstanding¹, and their possible interaction with biosystems.

The purpose of this paper is to bring these considerations into the debate.

¹ Wada, S.; Tsurumi, T.: Enhanced piezoelectricity of barium Titanate single crystals with engineered domain configuration. British Ceramic Transactions, 2004, Vol. 103, No. 2.

Samples of dying plants or plants which significantly were being slowed down in growth rate from all over the world showed in lab analysis repeatedly high values of barium, strontium and titanium in a relative molar concentration that points to 35 mg nano-crystalline barium strontium titanate per kg dried organic matter at the moment of plant death². Although there is no biochemical explanation for any damage done to the plant, the correlation of damage and the barium, strontium and titanium concentrations is significant enough to take alternative mechanisms of particle-plant interaction into consideration than the known chemical ones. Knowing that nano-particles of the size projected in geo-engineering patents can be absorbed by plants as a whole, and knowing the outstanding properties of these materials, these alternative ways of interaction might be optical and/or electrophysical in nature.

2. Claims

2.1. Optical interruption of cell communication

In the concept of biophoton cell communication, the DNA molecules of a plant send out a interfering pattern of bi-directional weak UV emissions which are all together forming a holographic picture acting as a blueprint for the plant and leading to cell divisions at the points where there is no replica wave send back from a receiving DNA-molecule because of a "missing" cell. The monodirectional and therefore visible wave will trigger cell division in a neighboring cell to close the gap. Complete plants would have their intercellular light-exchange entirely in the annihilated state of UV waves and their time reversed replica waves, injured plants or growth-active areas like the cambium should show an excess of monodirectional UV waves triggering cell division.

A simplified form of this concept is used in holographic screening technologies deploying lasers as "transmitting DNA" and the same type of piezoelectric nanocrystals as "answering DNA" being able to project high resolution 3D holograms.³

The absorption line of barium-strontium-titanate nano particles has its maximum at a wavelength of 250nm, absorbing 90% of the light passing the crystal^{4/5}

² Analysis: University of Ås, Norway.

³ Heid, Christy A.; Ketchel, Brian P.; Wood, Gary L. (Sensors and Electron Devices Directorate, ARL) Anderson, Richard J. (National Science Foundation); Salamo, Gregory J. (University of Arkansas):3-D Holographic Display Using Strontium Barium Niobate. Army Research Laboratory, Adelphi, MD 20783-1197, ARL-TR-1520. February 1998.

⁴ VIJAYALAKSHMI, R.; RAJENDRAN, V. (*Department of Physics, Presidency College, Chennai, TamilNadu, India*): SYNTHESIS AND CHARACTERIZATION OF CUBIC BaTiO₃ NANORODS VIA FACILE HYDROTHERMAL METHOD AND THEIR OPTICAL PROPERTIES. Digest Journal of Nanomaterials and Biostructures Vol. 5, No 2, May 2010, p. 511 – 517.

⁵ Compare to entire concept - Sarney, Wendy L.; Olver, Kimberley A.; Little, John W. (Sensors and Electron Devices Directorate, ARL); Livingston, Frank E. (The Aerospace Corporation), Niesz, Kriszian; Morse, Daniel E. (Institute for Collaborative Biotechnologies, University of California, Santa Barbara): Progress in Materials Synthesis and Processing of Barium Titanium Oxide (BaTiO₃) and Barium Strontium Titanium

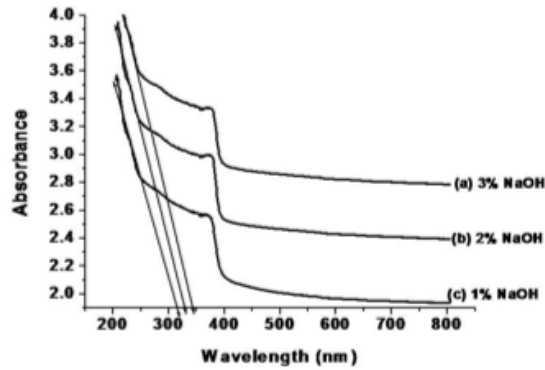


Fig. 5. UV-Vis Absorption spectrum of BaTiO₃ powders for various concentration (a) 3% NaOH (b) 2% NaOH (c) 1% NaOH.

The intercellular communication that is responsible for triggering cell division is carried out by weak photons of a wavelength of 260 nm⁶.

Putting these two findings together shows that inserting piezo-electric particles of this quality should heavily interfere with cell communication – hence the DNA and the particles are using the same wavelength and the same electromagnetic wave form to communicate.

To understand the quantitative relationship between this special type of opacity the nano particles create and the harm done to the plants it is useful to calculate the optical density of the particles in the plant in the moment of their death.

Estimating a concentration of 35 mg/kg dry organic matter like measured in Norwegian lichen as well as in the bark of dying Californian trees one can say that

$$35 \text{ mg} \approx 87,5 \text{ m}^2 \text{ particle surface} \approx 21,875 \text{ m}^2 \text{ optical surface}$$

Estimating that 1 kg dried organic matter equals a volume of 3 l = 0,003 m³ living organic matter opacity will be reached on an optical distance of 0,1311 mm which is in the range of cell size.

In the moment of the plant's death, containing 35 mg (Ba, Sr_x) TiO₂, the optical density of the nanoparticles is high enough to even interrupt the communication of directly neighbouring cells!

Oxide (BaTiSr O3 Films for Uncooled Infrared (IR) Detector Applications. Army Research Laboratory, December 2011. P. 9.

⁶ Nissen, Ted M.A. M.T.: Ultra-weak Photon (Biophoton) Emissions (UPE)-Background Introduction, Copyright © September 2006 Ted Nissen, online October 23rd 20012 at <http://www.anatomyfacts.com/research/photonc.htm>

2.2. Irradiation of plant DNA with high energy UV light

Understanding the concept of biophotones as a pattern of bi-directional waves and their time reversed replica waves sent and received by DNA-molecules, involving alien photoactive elements could mean changing the strength of the photons involved from weak to not so weak.

It is known that particles in clouds can be excited by incoming cosmic radiation and later release this radiation in form of gamma rays. This release of gamma rays can happen spontaneously or be triggered by an incoming photon.

Visualizing this possibility, it becomes obvious that the involvement of excited nuclides into a biophoton exchange could lead to a release of stored gamma quants as time reversed replica waves are being directly focused back onto the DNA that emitted the triggering bio-photon.

This negentropic process redirecting high amounts of energy back onto a weak triggering source actually is the main characteristic of non-linear optical systems. For full understanding please read the referenced articles.^{7, 8, 9, 10, 11, 12, 13, 14, 15}

High energy UV radiation is known to be the main source for plant DNA damage. Thus a deposit of optically excited aerosols could lead to DNA damage by released UV quants.

⁷ E. T. Whittaker, "On the partial differential equations of mathematical physics," *Mathematische Annalen*, Vol. 57, 1903, p. 333-355. ¹¹ V.K. Ignatovich, "The remarkable capabilities of recursive relations," *American Journal of Physics*, 57(10), Oct. 1989, p. 873-878.

⁸ E. T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," *Proceedings of the London Mathematical Society, Series 2*, Vol. 1, 1904, p. 367-372.

⁹ T. E. Bearden and Walter Rosenthal, "On a testable unification of electromagnetics, general relativity, and quantum mechanics, *Proceedings of the 26th Intersociety Energy Conversion Engineering Conference (IECEC '91)*, Aug. 4-9, 1991, Boston, Massachusetts, p. 487-492.

¹⁰ Floyd Sweet and T. E. Bearden, "Utilizing scalar electromagnetics to tap vacuum energy," *Proceedings of the 26th Intersociety Energy Conversion Engineering Conference (IECEC '91)*, Aug. 4-9, 1991, Boston, Massachusetts, p. 370-375.

¹¹ Carl Barus, "A curious inversion in the wave mechanism of the electromagnetic theory of light," *American Journal of Science*, Vol. 5, Fourth Series, May 1898, p. 343-348.

¹² Amnon Yariv, *Optical Electronics*, 3rd edn., Holt, Rinehart and Winston, New York, 1985. Chapter 16: "Phase Conjugate Optics -- Theory and Applications."

¹³ David M. Pepper, "Nonlinear optical phase conjugation," *Optical Engineering*, 21(2), March/April 1982, p. 156-183. On p. 156

¹⁴ See also David M. Pepper, "Applications of optical phase conjugation," *Scientific American*, 254(1), Jan. 1986, p. 74-83. See particularly the striking photographic demonstration of time reversal of disorder on p. 75.

¹⁵ Robert G. Sachs, *The Physics of Time Reversal*, University of Chicago Press, Chicago, Illinois, 1987.

2.3. Disbalancing of cell potential

The immune system of all cells follows a highly defined curve of electromagnetic cell potentials, with defined potential differences between cell-core and the inner membrane surface as well as between the inner and outer cell membrane surface. Any alteration of these cell potentials weakens the "immune system" by disturbing the equilibrium of oxydant and antioxydant processes.

Barium-strontium-titanate as a piezoelectric substance changes its crystal geometry when exposed to external electromagnetic fields¹⁶. Any change in crystallographic structure is accompanied by a release of electrons.

With regards to aerosols in the atmosphere, this effect can be used to switch clouds on and off by applying electromagnetic fields as used by HAARP and EISCAT devices or other microwave-radiating antenna systems. This alters the crystal geometry which then leads to free current turning the aerosol particle to an ion what instantly leads to the forming of a droplet in the cloud.

The same effect triggered by terrestrial cellphone, microwave or radar transmission would lead to a spontaneous release of free electrons by the particle, which would alter the cell potential and thus distroy or weaken the immun-system of the plant.

As a secondary cause the plant might die of fungi infections covering the primary reason of its suffering.

¹⁶ Wada, S.; Tsurumi, T.: Enhanced piezoelectricity of barium titanate single crystals with engineered domain configuration. British Ceramic Transactions, 2004, Vol. 103, No. 2.

3. Experimental proof

Germination experiments with barium-strontium-titanate of an engineered domain added in different defined concentrations to the germination process need to be conducted to experimentally evaluate the lethal dosis of barium-strontium-titanate for plants. I would estimate a concentration of 35 mg/kg soaked seeds as a targeted area of experimentation, adding the barium-strontium-titanate to the water and making sure it is completely absorbed by the seeds.

I would suggest to work on crop seeds like corn, soy beans and wheat, and some fast growing species like cress for quick results to be able to publish a first version.

It should be possible to purchase (Ba, Sr) TiO₃ via internet, I saw some offers. If it is impossible to get hold of smaller amounts I suggest to privately contact people working in labs where this substance is used.

4. Conclusion

Although the postulated mechanisms and their interaction is not fully researched, there is enough evidence and logic in the described mechanisms to suggest a ban on the use of nano-particles of the described quality until the matter is fully researched and damage to plants and nature can be excluded.

Although it is tempting to control the weather to the benefits of the agriculture, although it might appear without alternative to protect our technologies during sun flares that might hit down to the equator during a possible pole shift – especially regarding the exponentially accelerating displacement of the magnetic north pole during the last five years pointing to November 2012 to March 2013 as a possible time of transit – the price might be too high and nature might simply not wake up after a winter of bringing out aerosols – being totally blinded by our attempt to protect.

Dear Ladies and Gentleman

I kindly ask everybody who has access to lab conditions or greenhouses with controlled conditions to conduct the missing experiments in chapter 4 and to report the results including pictures to:

kautzvella@gmail.com

tel. 0049 179 2661123

If I should not react on incoming results within a week, this text might be used as public domain and completed with your test results naming the lethal dosis of barium-strontium-titanate together with the experimental proof. As long as eMail or phone contact to me is given I would like to evaluate the incoming results myself and will publish as soon as there is a visible pattern in the incoming results.

Thank you for your attention and possible contributions.

With best regards,

Harald Kautz-Vella