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Study of the Electric Field is from Homeopathy in Plants

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Abstract: Plants are known to be sensitive to electromagnetic fields, of which magnets are a source. The Earth is a huge magnet, with its core generating a magnetic field that influences several natural processes. Studies have shown that treating seeds with magnetic fields can improve germination by accelerating the formation of proteins in the cells. This results in faster and more robust growth. Applying magnetic fields has increased average germination rates, root and shoot growth, photosynthetic pigment content, and cell division, improving overall plant productivity. Magnetic fields can reprogram primary and secondary metabolites, enzyme activities, and plant nutrient and water uptake. This reprogramming stimulates growth and yield under favorable conditions and mitigates the effects of stress under adverse conditions, such as drought or soil contamination. The Earth's magnetic field is a constant environmental factor that affects plant growth. Strong and weak magnetic fields, compared to the Earth's magnetic field, play specific roles in plant growth and development. The objective of the manuscript is to relate the magnetic field to plants and homeopathy. A literature review study aims to gather all references found on a given topic, and the data collected came from scientific review productions found on the Scielo, Lilacs, Bvsms, and Google Scholar platforms. After identifying the articles, the following steps are taken reading all abstracts of the articles found; reading the selected articles in full after reading the abstracts; interpretive reading, and writing the text. The inclusion criteria were only original articles of qualitative and integrative reviews, available in full text, in Portuguese, English, and Spanish, which addressed the proposed theme and period. The choice was due to the scientific accuracy of the review articles.

Keywords: Agriculture, Electromagnetic, Photosynthetic, Seed, Vegetable.

RESEARCH PAPER

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1.0. INTRODUCTION

1.1. Homeopathy

Homeopathy's foundations, philosophy, and principles were established based on the laws of nature. Nature also provides the resources that give rise to dynamized homeopathic preparations, applied to the balance of living organisms. Alchemy is an ancient science. Alchemical principles offer knowledge of how to access the forces of nature. Alchemists have a profound understanding of the laws of nature. Homeopathy is a social technology for agricultural families and the environment. This text describes the practices of using homeopathy in rural areas (Figure 1) (Bilger *et al.*, 1995; Benites, 2006; Andrade and Casali, 2011; Deyt, 2025).

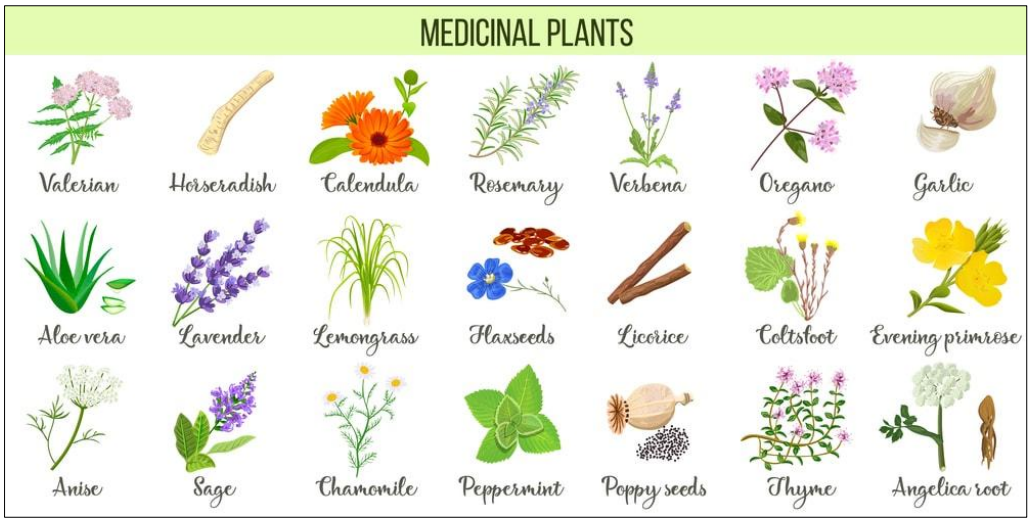


Figure 1: Natural health is concerned with maintaining good health naturally through the quality of the food and drink we take in, the air we breathe, our daily physical activities, quality of sleep, and interactions with other people; in other words, how we live our lives daily
Source: https://cnhh.ac.nz/about/natural-health-and-homeopathy/

The alchemical principles are passed on to agricultural families who soon become familiar with them and put them into practice. The results are surprising, confirming the logic and coherence of the teachings. In the scientific community and society in general, Homeopathy and Alchemy are often rejected. However, the basic principles of these sciences are based on recent theories of physics and their understanding and acceptance require paradigm shifts (Casali *et al.*, 2006; Conceição, 2006; Andrade and Casali, 2011; Deyt, 2025).

Homeopathy resonates with common proposals in the philosophies and practices of natural, organic, ecological, biological, and biodynamic agriculture models. Applying the science of homeopathy to the management of agrosystems proposes constructing a vitalist, regenerative agriculture process that understands and respects the diversity of systemic units and their ecological, social, cultural, and economic interactions (Figure 2) (Teixeira, 1998; APH, 2015; Torres and Schiavinato, 2008; Tichavsky, 2009).

Figure 2: Homeopathy plants and medicines in organic homeopathic vector illustration isolated on white
Source: The iStock design is a trademark of iStockphoto LP

Research using homeopathy in plants is being widely discussed, to abandon pesticides that cause harm to the health of living beings. Homeopathies are no longer used in organic production systems, and a law now regulates them. The use of homeopathy is a resource whose application does not contaminate the environment, improves the soil and water, and helps the balance of living organisms (Figure 3) (Resende, 2009; Santos *et al.*, 2012; Taiz and Zeiger, 2013; Correoso *et al.*, 2022).

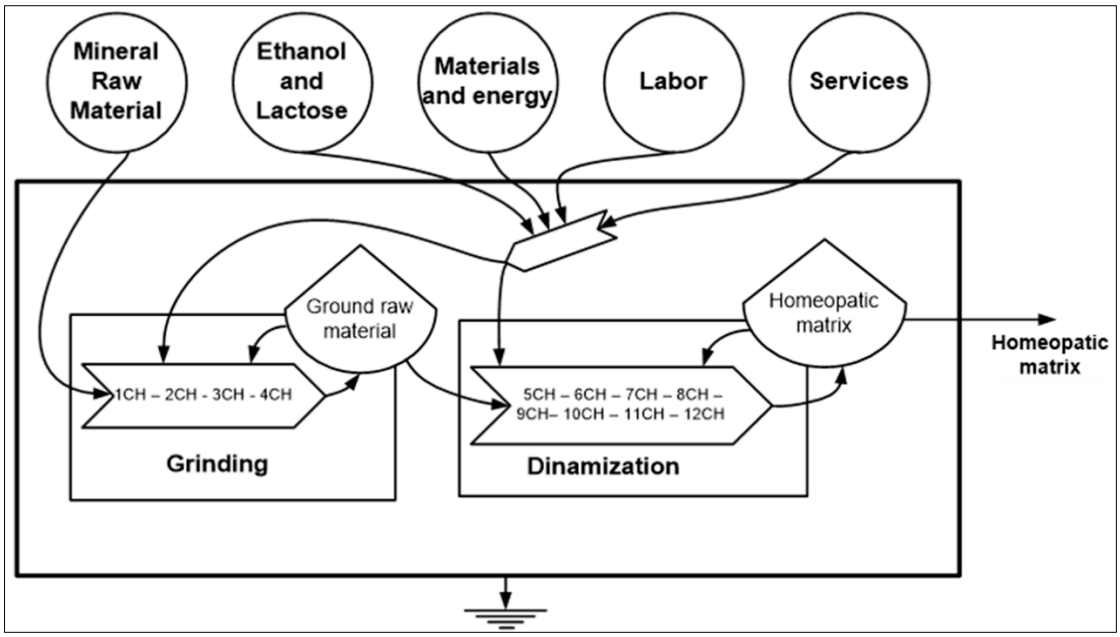


Figure 3: Energy diagram of the process of preparation of the homeopathic agriculture preparation from a mineral raw material up to 12CH (centesimal Hahnemannian)
Source: Doi: https://doi.org/10.3390/su14106334

Introducing homeopathy into agriculture aims to improve the quality of life in rural areas. Firstly, it results in applying conventional techniques that use many inputs with high fixed costs and generate dependence on the farmer. Organic production using homeopathy is a good intermediate technology widely used in the transition from conventional production to agroecological production. Thus, this technology has been innovatively used by farmers, as it does not depend on external inputs, conserving natural resources and leaving no residue of products in the environment, since the homeopathic preparation is ultra-diluted (Figures 4-5) (Silva and Belasco Junior, 1996; Conceição, 2006; Andrade and Casali, 2011; Santos, 2011; Deyt, 2025).

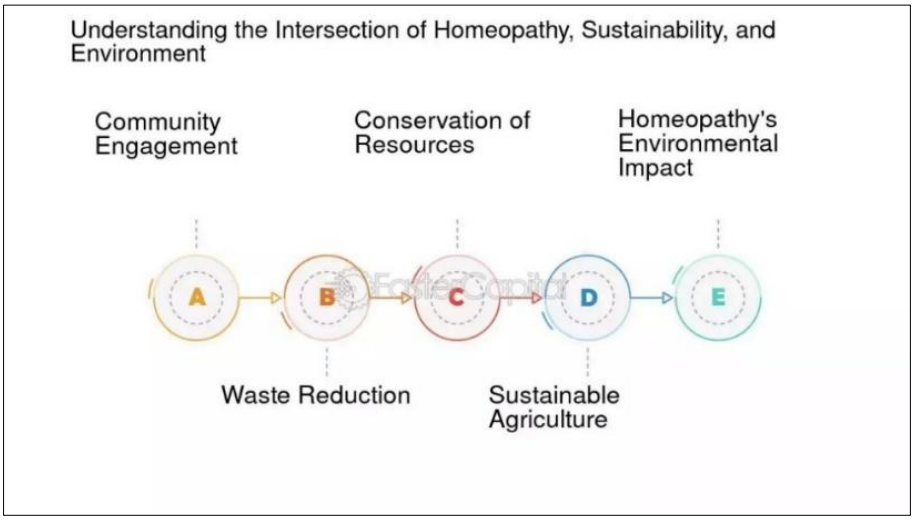


Figure 4: Understanding the intersection of homeopathy, sustainability, and environment - homeopathy sustainability and environment the role of homeopathy in sustainable living: a business perspective. Sustainable Agriculture: Homeopathy plays a significant role in sustainable agriculture practices
Source: https://fastercapital.com/topics/understanding-the-intersection-of-homeopathy,-sustainability,-and-environment.html

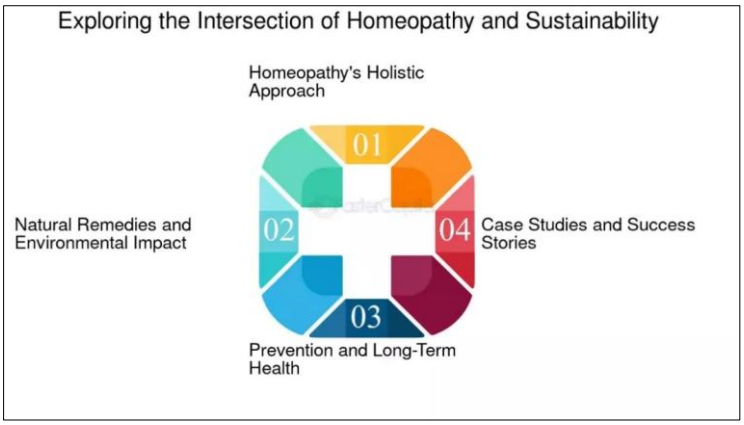


Figure 5: Exploring the intersection of homeopathy and sustainability - Homeopathy sustainability the role of homeopathy in sustainable healthcare: A business perspective. Through the use of homeopathic remedies, farmers can reduce their reliance on synthetic fertilizers and pesticides, promoting organic farming methods that are environmentally friendly and support biodiversity

Source: https://fastercapital.com/topics/understanding-the-intersection-of-homeopathy,-sustainability,-and-environment.html

1.2 Electric Field

The electric field consists of a condition around a charged body that will produce a force on any other charge in that space. Charged bodies create electric fields, and their effects can only be felt by bodies with an electric charge. Magnetic fields are produced by moving charges, electric currents, and other moving charges can feel the magnetic forces resulting from them. Therefore, according to the theory developed by these authors, fields are primary physical entities that can be studied without any reference to material bodies, and electric and magnetic vibration fields can travel through space in the form of radio waves, light waves, or other types of electromagnetic radiation (Pauli *et al.*, 1980; Torres and Schiavinato, 2008; Sales *et al.*, 2010; López *et al.*, 2023).

Greater root growth was also observed in the magnetically stimulated plant, which can be explained, according to Mahecha, by the action of the magnets on the root system roots which in turn facilitated the absorption of calcium, essential for the growth of the plant tissue, and iron, which contributed to the phenomenon of photosynthesis in the legume. All three cultivation models were carried out under the same environmental conditions in terms of water quality, temperature, and soil quality; the only factor that varied was the arrangement of the magnets", [Physicist Adriana Blandón from the District University] (Figure 6) (Capra,1983; Heneine, 1996; López *et al.*, 2023; GardenTreasures, 2025).

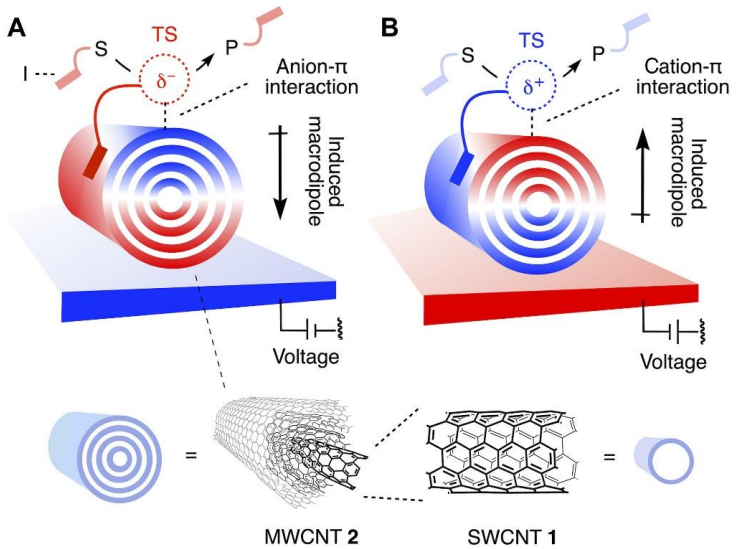


Figure 6: Systems design. Electric field–induced catalysis in electro microfluidic reactors is realized with (A) anion-π and, by implication, (B) cation-π interactions on polarized multiwalled carbon nanotubes (MWCNTs) 2 to directionally stabilize anionic and cationic transition states (TS), respectively, and thus accelerate, at best modulate, the conversion of substrates (S) into products (P) (red, electron-rich; and blue, electron-poor), with interfacers (I) to assure substrate binding to the catalytic system

Source: Doi:10.1126/sciadv.adj5502

This aspect was of great importance for the methodology and results of the research: the arrangement of the magnets at the base of the model generates a longitudinal magnetic field, and produced better results than when they were placed on the sides of the second model; this second model produced a transverse field, and the growth of the plant and the size of its leaves was very similar to that of the beans that had not received any magnetic stimulus. In this way, it was found that the direction of the magnetic field does influence the growth of the plants, the area of their leaves, their biomass or weight, and their root system. "It was more difficult to pull out the plant that had been stimulated with the longitudinal magnetic field, due to the density of its roots", [Adriana Blandón Scientific and Educational Instrumentation Group of the District University] (Pauli *et al.*, 1980; Capra,1983; Heneine, 1996; Torres and Schiavinato, 2008; Sales *et al.*, 2010).

1.3. OBJECTIVE

The objective of the manuscript is to relate the magnetic field to plants and homeopathy.

2.0. METHODS

A literature review study aims to gather all references found on a given topic, and the data collected came from scientific review productions found on The Scielo, Lilacs, Bvsms, and Google Scholar platforms. After identifying the articles, the following steps taken were: reading all abstracts of the articles found; reading the selected articles in full after reading the abstracts; and interpreting the reading and writing of the text. The inclusion criteria were only original articles of qualitative and integrative reviews, available in full text, in Portuguese, English, and Spanish, which addressed the proposed theme and period. The choice was due to the scientific accuracy of the review articles.

3.0. SELECTED STUDIES

3.1. Differences Between Allopathy and Homeopathy

Allopathy treats diseases with medicines that cause reactions contrary to the symptoms of these diseases, that is, "cure by contrast". This is the so-called traditional medicine in which, for example, an antipyretic is used to combat fever, an analgesic to combat pain or an antibiotic against a bacterial infection. Allopathy is immediate and based on collective care. It quickly eliminates discomfort and relieves suffering. Allopathy neutralizes or eliminates the symptoms presented without combating the specific cause that gave rise to the condition. In these cases, the clinical manifestation of the disease may recur, especially due to imbalances between the body and mind (Figure 7) (Brazil, 1999; APH, 2015; Brazil, 2015; Brazil, 2019; Ribeiro, 2024).

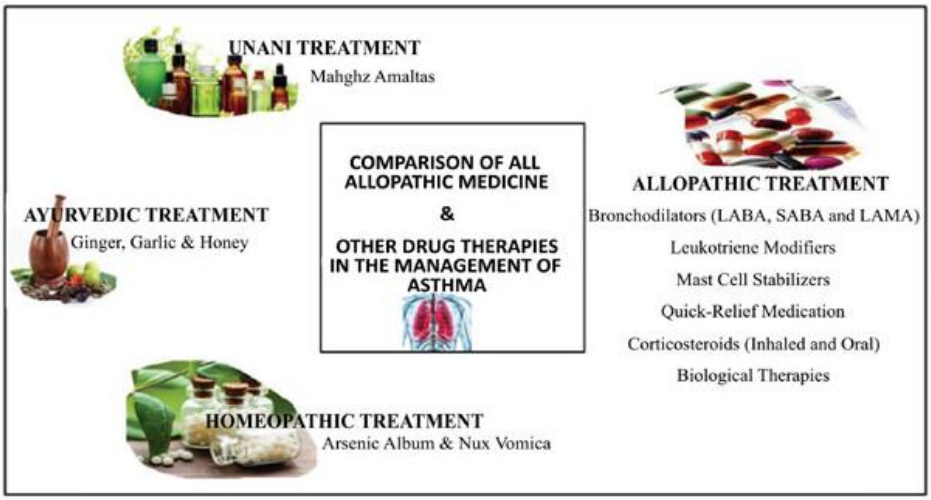


Figure 7: A review of the comparison of allopathic medicines to other drug therapies in the management of asthma

Source: Doi: 10.2174/0118715265249796231018050521

Homeopathy is a therapy based on the principle of *similia similibus curantur* similar cures. This means that homeopathy treats patients with medicines that cause symptoms similar to those caused by the disease. Homeopathy promotes the cure of a disease through medicines that cause symptoms similar to the patient's. This allows the body to enhance its healing capacity and be able to combat symptoms on its own. Treatment using homeopathic remedies is individualized and considers a series of factors in the patient's life, such as childhood traumas, eating habits, and perception of the world, to understand the origin of the imbalance in the body that resulted in the onset of a disease (Brazil, 1999; APH, 2015; Brazil, 2015; Brazil, 2019; Ribeiro, 2024).

3.2. Differences Between Phytotherapy and Homeopathic

The arrangement of the magnets at the base of the model generates a longitudinal magnetic field and produces better results than when they were placed on

the sides of the second model; this second model produced a transverse field, and the growth of the plant and the size of its leaves was very similar to that of the beans that had not received any magnetic stimulus [Mahecha] (Figure 8) (Torres and Schiavinato, 2008; Sales *et al.,* 2010; Zimmermann-Klemd *et al.,* 2022; Yadav, 2025).

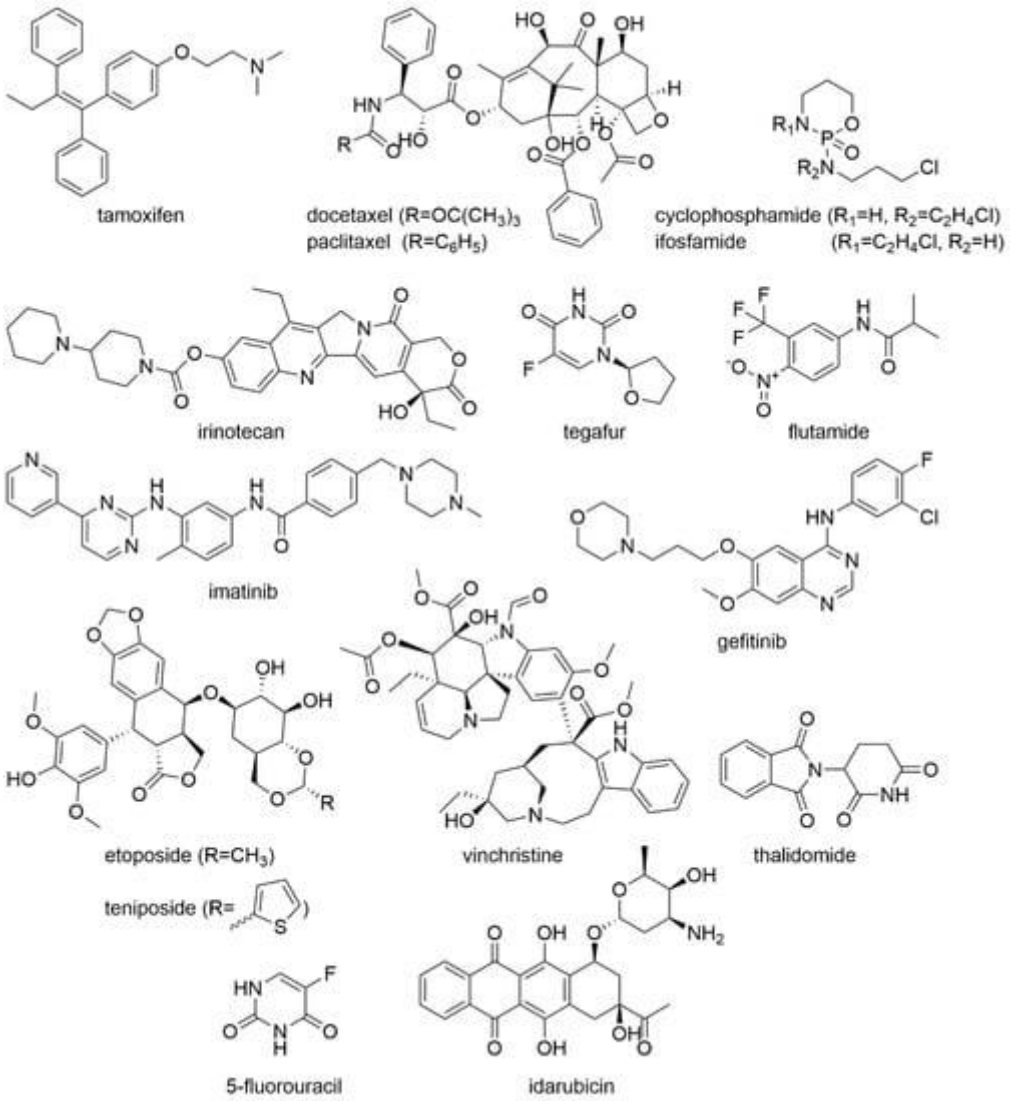


Figure 8: Chemical structures of various drugs potentially affected by the intake of phytopharmaceutical
Source: Doi: bhttps://doi.org/10.3390/molecules27103209

Based on traditional knowledge and scientific evidence, Phytotherapy uses medicinal plants and their extracts to treat and prevent diseases. It offers advantages such as using natural compounds, which tend to have fewer side effects than synthetic medicines. It contains bioactive compounds with beneficial properties such as antioxidants, anti-inflammatory, and antimicrobial (Furnham and Bhagrath, 1993; Eldin and Dunford, 2001; Ferreira *et al.,* 2019).

Homeopathy considers the patient as a whole, considering all aspects of his or her existence, such as sleep routine, mood, exercise, hygiene, emotional issues, and physical symptoms. The basis of this practice is the principle of cure by similarity. This means that the same substances that cause symptoms of disease in an individual if manipulated in a homeopathic manner, that is, through succussion, dynamization, and dilution of the elements, can lead to a cure (Ferreira *et al.,* 2019; Brinholi and Ribeiro, 2024).

3.3. Difference between Homeopathy and Naturopathy

The difference between Homeopathy and Naturopathy is that Homeopathy uses medicines made from diluted and natural substances, whereas Naturopathy uses organic substances, counseling, and various exercises to treat multiple individuals. Another important difference is that Homeopathy does not necessarily require a medical degree, while Naturopathy requires a medical degree to practice the profession (Figure 9) officially (Yadav, 2025).

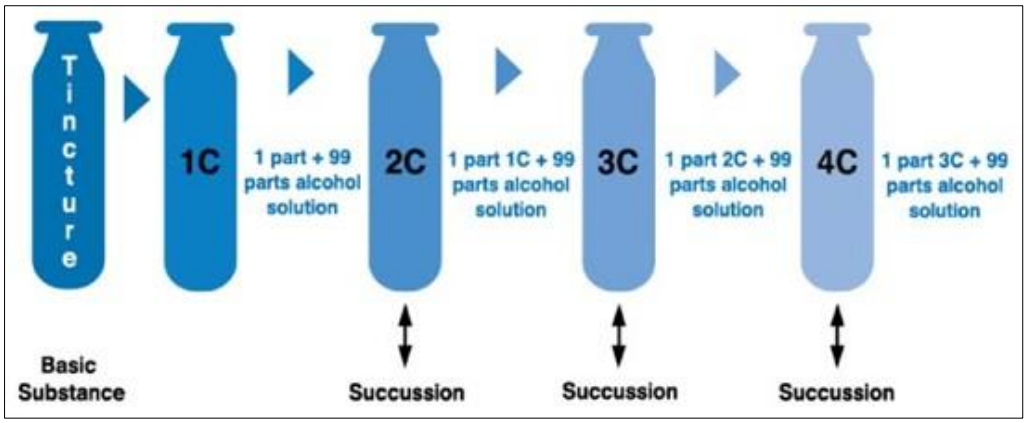


Figure 9: Naturopathy vs. Homeopathy
Sources: Mary Simon and https://www.nuhs.edu/naturopathy-vs-homeopathy/

3.3.1. Major Differences Between Homeopathy and Naturopathy

A. Homeopathy is a form of treatment that uses diluted and natural medicines as an option to treat patients. In contrast, Naturopathy uses therapies, exercises, and various herbal remedies to cure various health problems.
B. To practice Homeopathy, an individual does not necessarily require a medical degree. On the other hand, an individual practicing Naturopathy is required to complete a specific medical degree.
C. Homeopathy is based on the philosophy of the 'Law of Similars', whereas Naturopathy is based on the philosophy of the 'Six Principles of Naturopathy'.
D. Homeopathy considers the medical history of the patient, whereas Naturopathy may or may not consider the medical history of the patient.
E. Homeopathy does not include treatments in Naturopathy. On the other hand, Homeopathy is a subset of Naturopathy (Yadav, 2025).

3.4. The Science Behind Magnets and Plant Growth

Plants are known to be sensitive to electromagnetic fields, of which magnets are a source. The Earth itself is a huge magnet, with its core generating a magnetic field that influences several natural processes. Studies have shown that treating seeds with magnetic fields can improve germination by accelerating the formation of proteins in the cells. This results in faster and more robust growth. Applying magnetic fields has been shown to increase average germination rates, root and shoot growth, photosynthetic pigment content, and cell division, improving overall plant productivity (Figure 10) (Ferri *et al.*, 1979; Awad and Castro, 1983; Raven *et al.*, 1996; Lopes, 2002; Maffei, 2014; GardenTreasures, 2025).

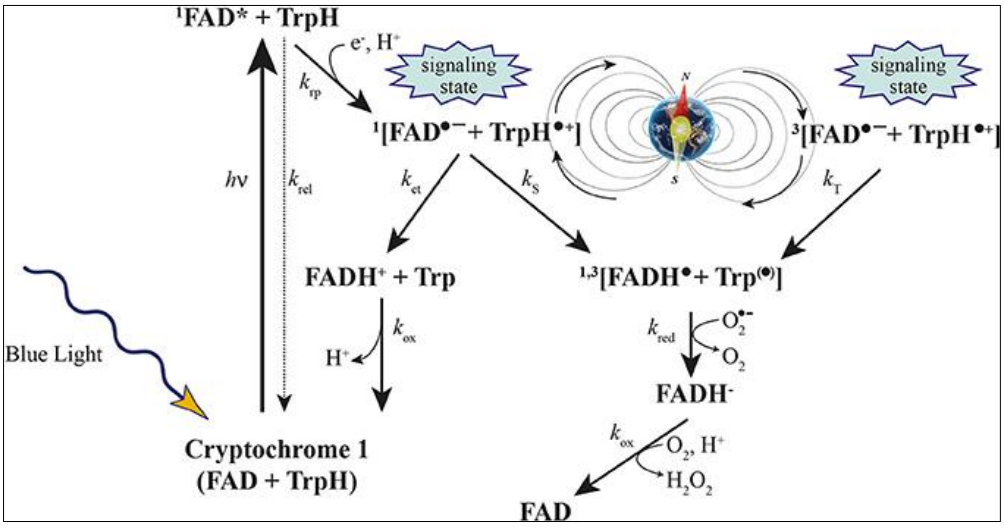


Figure 10: Blue light activates cryptochrome by absorbing a photon by the flavin cofactor. FAD becomes promoted to an excited FAD* state and receives an electron from a nearby tryptophan, leading to the formation of the [FADH• + Trp•] radical pair, which exists in singlet (1) and triplet (3) overall electron spin states by coherent geomagnetic field-dependent interconversions. Under aerobic conditions, FADH• slowly reverts to the initial inactive FAD state through the also inactive FADH− state of the flavin cofactor
Sources: Modified from Occhipinti *et al*., 2014 and Doi: 10.3389/fpls.2014.00445

Magnetic fields can reprogram primary and secondary metabolites, enzyme activities, and plant nutrient and water uptake. This reprogramming stimulates growth and yield under favorable conditions and mitigates the effects of stress under adverse conditions, such as drought or soil contamination. The Earth's magnetic field is a constant environmental factor that affects plant growth. Strong and weak magnetic fields, compared to the Earth's magnetic field, play specific roles in plant growth and development (Lopes, 2002; Torres and Schiavinato, 2008; Sales *et al.*, 2010; Casali *et al.*, 2012; GardenTreasures, 2025).

3.5. Practical Applications of Magnets

By placing a magnet in a plant pot, gardeners can potentially influence the growth and health of their plants. The magnetic field created by the magnet can interact with the Earth's magnetic field and affect the plant's growth processes. The impact of magnetic fields on plants can vary depending on the species, magnetic field strength, and duration of exposure. This variability requires careful experimentation and observation in home gardening applications (Figure 11) (Lopes, 2002; Torres and Schiavinato, 2008; Zhang *et al.*, 2021; GardenTreasures, 2025).

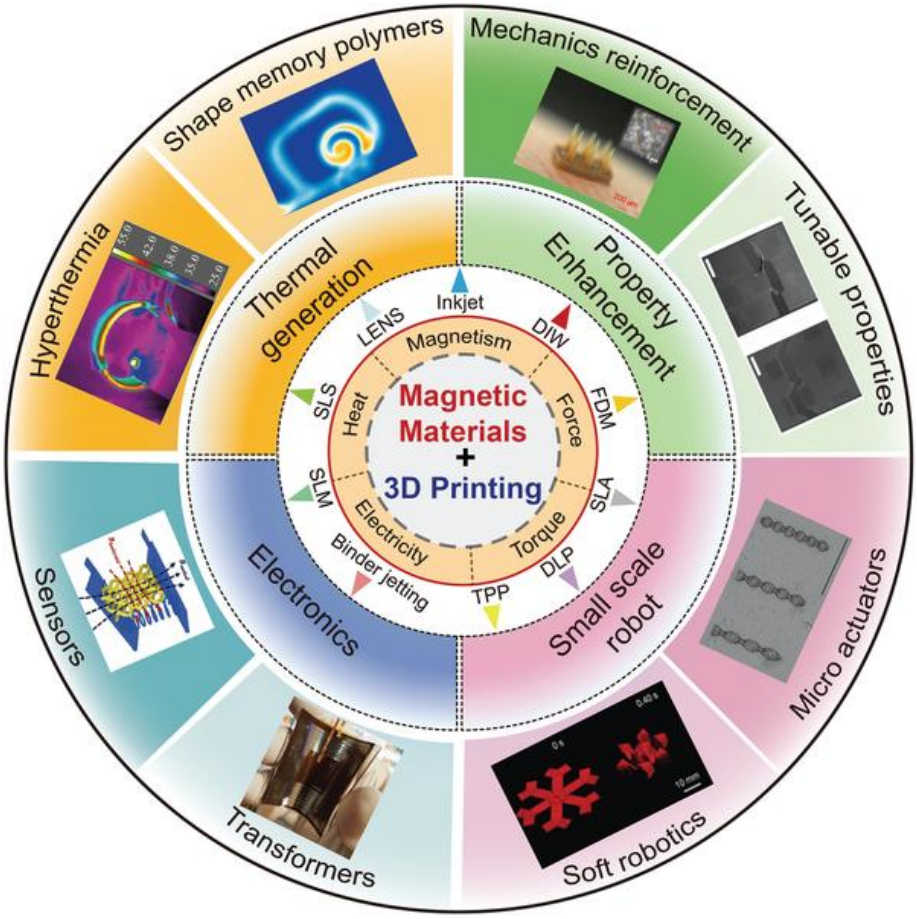


Figure 11: The functions and applications of 3D printed magnetic materials. The reviewed functions of magnetic materials include magnetism, force, torque, electricity, and heat. Primary applications include property enhancement, small-scale robots, electronics, and thermal generation. Representative functionality and applications are mechanical reinforcement
Source: Doi:10.1002/adfm.202102777

Using magnets in gardening is an environmentally sustainable approach because it does not emit waste or harmful radiation and does not require external energy. This makes it a sustainable option in modern agriculture. Practical applications suggest that magnets can positively influence plant health and productivity. Gardeners interested in experimenting with this technique should consider species-specific responses and adapt their approach accordingly. As research continues, the potential for magnetic fields to enhance plant growth presents a fascinating area for further exploration in home gardening and agriculture (Lopes, 2002; Sales *et al.*, 2010; Casali *et al.*, 2012; GardenTreasures, 2025).

3.6. Influence of Magnetic Field on Germination of Lettuce Seeds

In experiments carried out with lettuce seeds, it was possible to observe that: A weak magnetic field can enhance the germination of lettuce seeds. Oxygen, water, and hormones are essential for germination to occur. Water plays an important role in the germination of the

plant, since it, together with dissolved mineral salts, constitutes the so-called raw sap, which circulates in the plant in an upward direction from the root to the leaves, through the innermost part of the stem and, thanks to the action of the magnetic field, its effect was enhanced when it was directed from bottom to top. Excess water impairs the germination and development of the plant (Figure 12) (Awad and Castro, 1983; Pauli *et al.*, 1980; Heneine, 1996; Sales *et al.*, 2010; Bellino *et al.*, 2023).

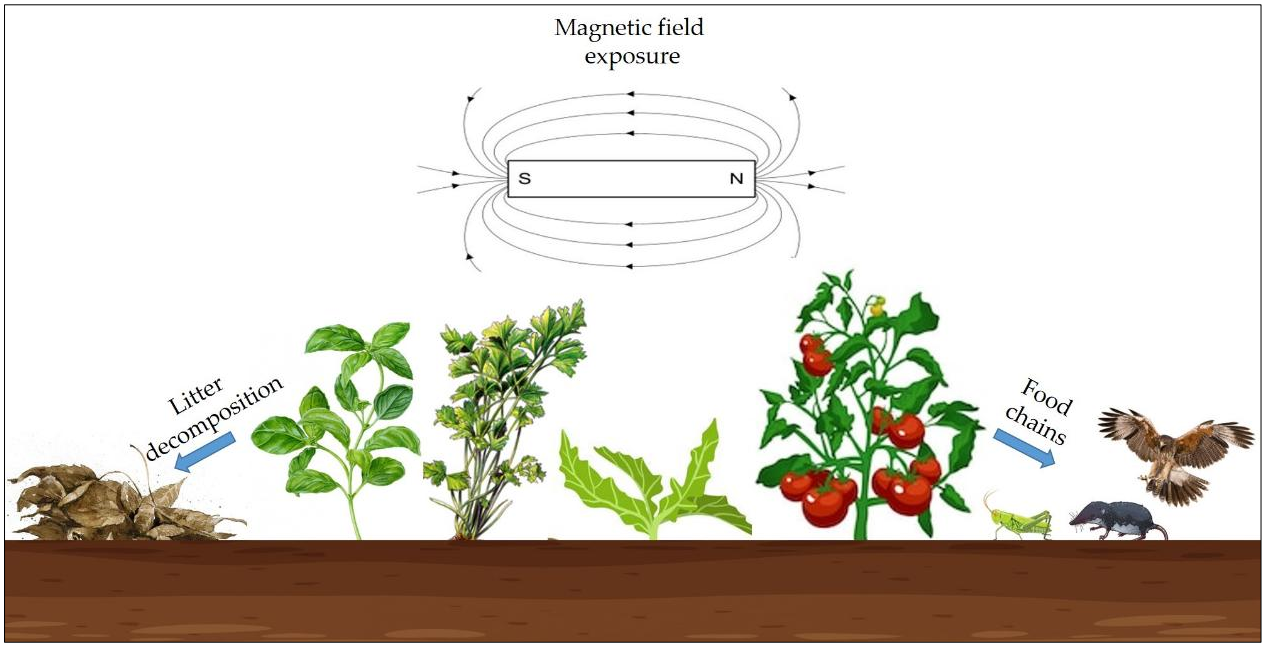


Figure 12: Magneto-sensitivity is widespread in biological systems and hundreds of studies have found that weak magnetic fields (MFs) can significantly influence their dynamics in various model organisms plants, bacteria, fungi, and animals comprising human beings, although the mechanisms involved and even more how they reflect on ecosystem processes remain largely elusive
Source: Doi: https://doi.org/10.3390/su15053918

The magnetic field directed from top to bottom does not enhance the number of germinations, thus resulting in a lower number of germinated seeds in the test group compared to the control group. The magnetic field directed from bottom to top, therefore favoring the flow of ions from the raw sap, provided a greater number of germinations in the test group; Alternating current, instead of direct current, was used as a source of the field inside the solenoid, provides a greater number of germinations (Pauli *et al.*, 1980; Heneine, 1996; Torres and Schiavinato, 2008; Sales *et al.*, 2010).

3.7. *Justicia pectoralis* Jacq. (Acanthaceae) Responded Concretely to Medicines and Homeopathic

Chambá is a medicinal plant native to the Caribbean but popularly used in South America. The leaves and branches of the chambá are used in the form of extract, tea, juice, syrups, and vegetable oil. The chambá syrup and tea are natural treatments for coughs, bronchitis, fever, flu, and nausea. The vegetable oil mixed with the macerated leaves is digestive. The leaf extract is used topically for wounds and dermatitis. Chambá contains tryptamines, substances with low hallucinogenic potential. There are no alkaloids in its composition, which indicates low psychotropic implications. This effect can be used on a small scale to obtain therapeutic effects such as sedation, pain relief, and nausea (Figure 13) (Macrae and Towers, 1984; Lino *et al.*, 1997; Andrade *et al.*, 2011; Leal *et al.*, 2017; Natural Medicine, 2024).

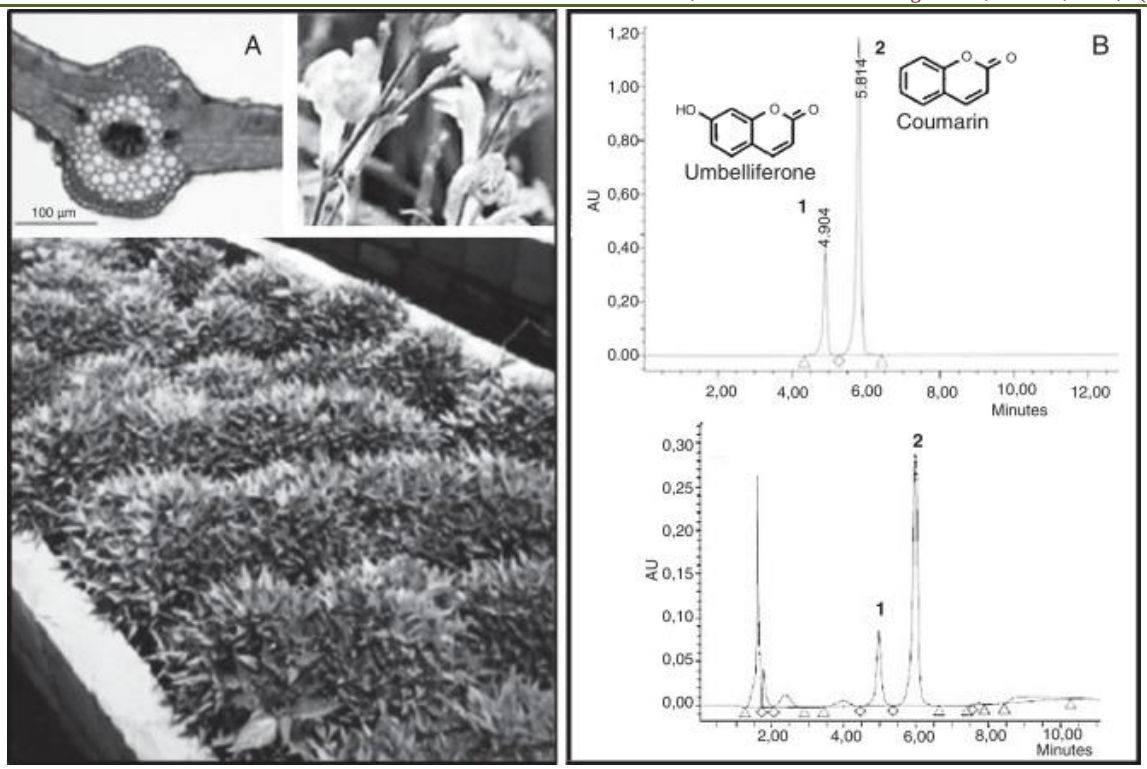


Figure 13: ***Justicia pectoralis*** **Jacq., (Acanthaceae), is a medicinal plant found in Central America. In the Northeast of Brazil, it is popularly known as "chambá" being extensively used in homemade preparations for the treatment of cough, bronchitis, and asthma. The species is part of a public phytotherapy program in Brazil entitled "Farmácias Vivas", National Record of Plants of Interest to the National Health System and the National Formulary of Herbal medicines**

Source: Doi: https://doi.org/10.1016/j.bjp.2017.09.005

Other constituents of the plant of medicinal importance are the anticoagulant coumarin and umbelliferone, which have a relaxing effect on smooth muscle and anti-inflammatory effects. Coumarins provide a pleasant odor similar to vanilla, reinforcing the calming effect. Justicia pectoralis responded concretely to medicines and homeopathic preparations, which was reflected in changes in secondary metabolism and electromagnetic field, suggesting resonance between the energies of homeopathy, plant defense, and the electromagnetic field. The principles of homeopathy, established for human beings, apply to the species studied (Macrae and Towers, 1984; Lino *et al.*, 1997; Andrade *et al.*, 2011; Leal *et al.*, 2017).

3.8. Homeopathy: Plant, water, and soil

3.8.1. The use of Homeopathy in agriculture is increasing

Currently, with discoveries in the scientific area, especially in the fields of quantum mechanics and vibrational physics, bioenergetics, chemistry, physical chemistry, "clusters", orbitals, solvents, solubility, pH, conductance, thermodynamics and biochemical biology, physiology, enzymology, and genetics, Homeopathy advances among others (Bastide *et al.*, 1987; Bastide *et al.*, 1995; Bastide *et al.*, 2002).

Thus, there is a need for new research, technologies, characterization of homeopathic preparations, and systematization of the information obtained. Homeopathy acts on the constructive and defensive information of the vitality systems of living beings. It is considered the most important source of natural resources with the potential to balance plants. It enables the development of sustainable agriculture, that is, the management of resources to satisfy the changing human needs and, at the same time, maintain or improve the quality of the environment and conserve ecosystems (Figure 14) (Lisbon *et al.*, 2005; Casali *et al.*, 2009; Pereira and Bonfim, 2011; Casali *et al.*, 2012).

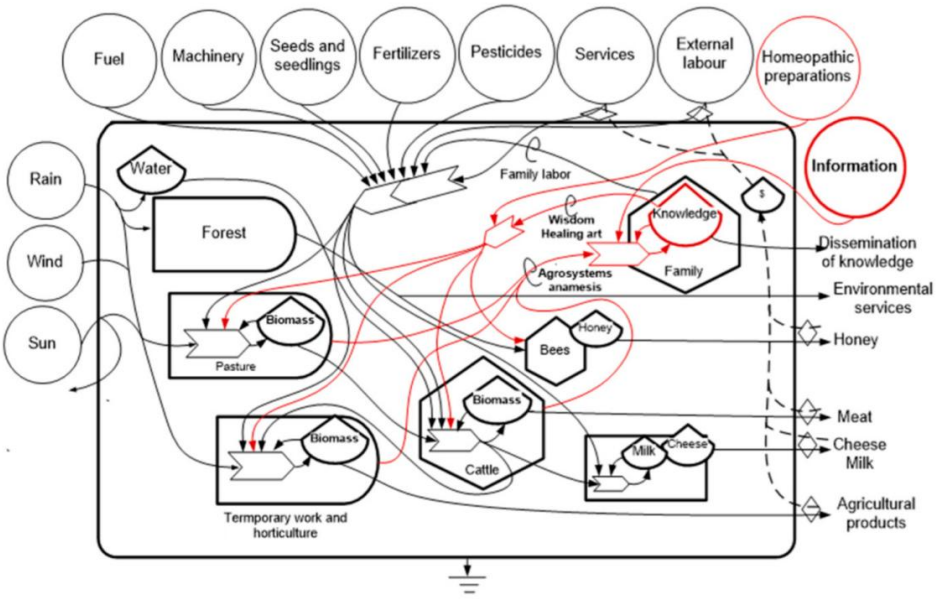


Figure 14: Energy diagram representing the family farms evaluated in the Serra Catarinense region with the integration of homeopathy for their management, highlighted in red
Source: https://doi.org/10.3390/su14106334

Farmers are carrying out many experiments in the use of Homeopathy in production in various locations. In Brazil and other countries, the results are positive regarding resistance to pests and diseases, tolerance to inappropriate conditions, flowering, breaking seed dormancy, production of healthy seedlings, and soil and water management. Plants, water, and soil respond very strongly to Homeopathy, being balanced healthy, or unbalanced (Figure 15) (Casali *et al.*, 2009; Pereira and Bonfim, 2011; Casali *et al.*, 2012).

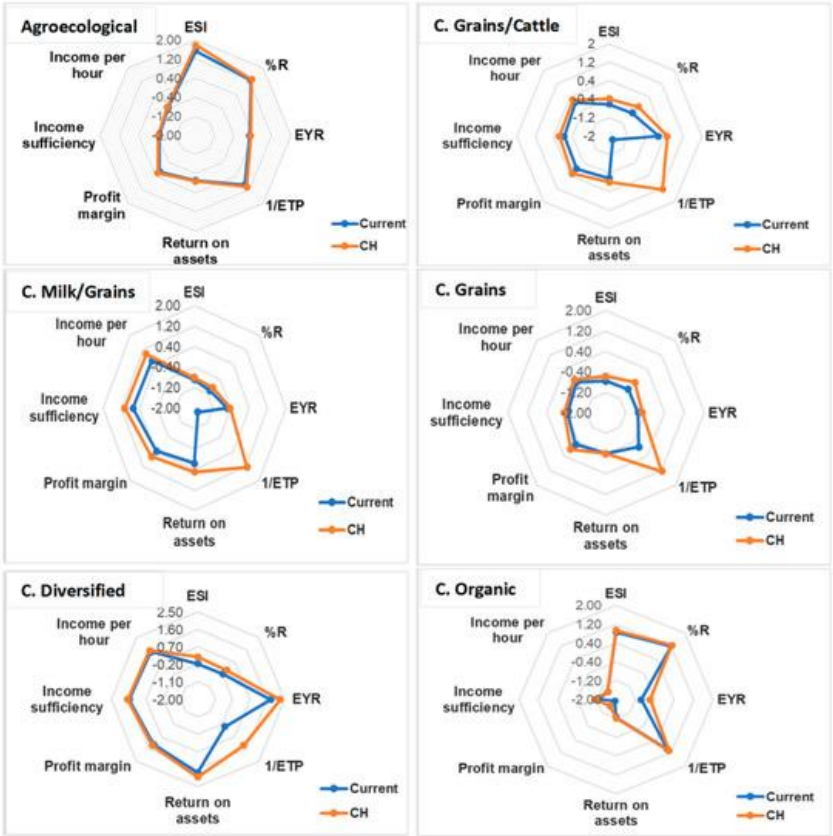


Figure 15: Comparison between the current and optimized scenarios as homeopathy (CH) of family farms evaluated in Serra Catarinense
Source: https://doi.org/10.3390/su14106334

The loss of homeostasis indicates the disturbance of self-regulation and vital energy. Symptoms are attempts to recover energy balance. Homeopathic preparations, therefore, can systemically promote homeostasis, providing balance to the whole. Homeopathic preparation can be useful in adaptive, aggressive, and traumatic processes imposed on organisms. The need for a paradigm shift concerning conventional agriculture and the growing concern for the planet and its climate changes further consolidate the use of Homeopathy. It is officially recommended in Brazilian agriculture, to be consistent with the ecological, organic, and holistic vision, as it considers the entirety of the living organism and not the fragmented parts. Thus, Homeopathy is the most important source of natural resources as it is an alternative to cultivated plants, soil, and water in unbalanced systems (Bastide *et al.*, 1987; Casali *et al.*, 2009; Pereira and Bonfim, 2011; Casali *et al.*, 2012).

3.9. Homeopathy in Brazilian Agriculture

Agriculture is undoubtedly an essential activity for the sustainable development of the country. It should be recognized not only for its economic importance but also for its cultural aspects and the generation of knowledge, work, and quality of life, due to the close relationship between human beings and nature. Experiments on the use of homeopathy in plants have been carried out in several places in Brazil by farmers, universities, and others, and also in other countries, such as France, England, Cuba, India, and others. Positive results have been obtained in terms of increased resistance to pests and diseases, tolerance to stress, seedling production, and soil improvement (Figure 16) (Boardman, 1977; Bjorkman, 1981; Barreiro, 1992; Castro *et al.*, 1996; Wedge *et al.*, 1999; Vilela and Ravetta, 2000; Campos *et al.*, 2002).

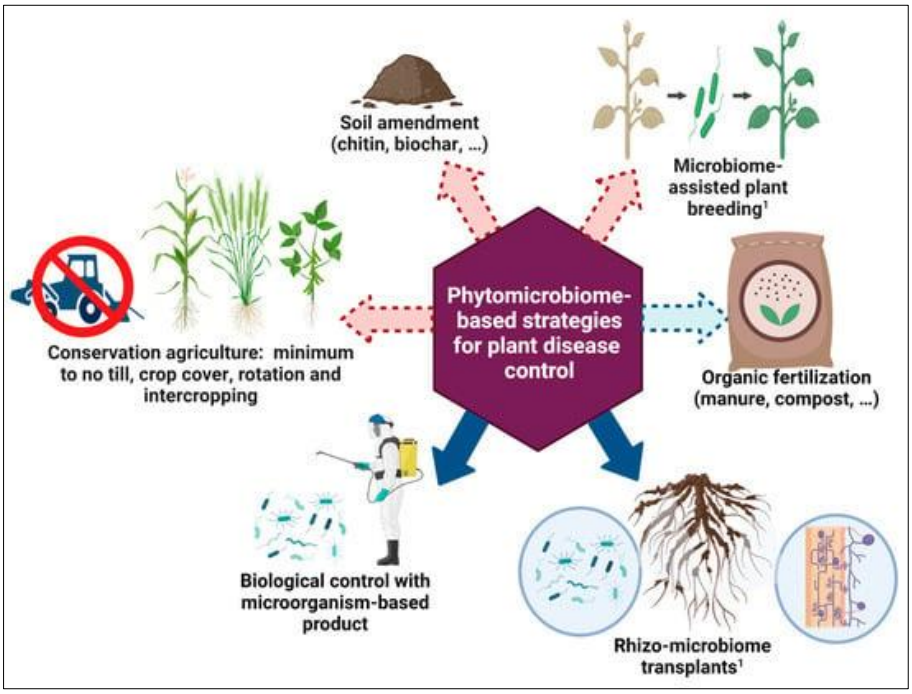


Figure 16: Outline of the phytomicrobiome-related agricultural practices that may lead to plant disease suppression and management. Red and blue arrows, respectively, point towards agricultural practices stimulating resident microorganisms or enriching the soil with microorganisms either transiently or long-term. Plain and dashed arrows, respectively, point towards strategies that are directly or indirectly (notably through betterment of the agroecosystem health) intended for plant disease control
Source: Doi: https://doi.org/10.3390/plants12142736

The use of homeopathic preparations in agriculture began with the guidance of the Austrian philosopher Rudolf Steiner. The preparations recommended by Steiner had different characteristics from homeopathic preparations per se, mainly in their preparation, but presented the same principles as the system proposed by Hahnemann. Steiner was the founder of Anthroposophic Medicine, which encompasses biodynamic agriculture using its own dilution and dynamization methods. In 1999, the use of homeopathy in organic farming was made official in Brazil. This was a milestone in the use of homeopathic solutions in agriculture, aiming to improve quality of life. This is an important instrument that requires research and that is in line with the development of sustainable agriculture that is not dependent on imported inputs (Figure 17) (Vithoulkas, 1980; Brown Junior, 1988; Zygadlo *et al.*, 1995; Castro *et al.*, 1996; Vogelmann *et al.*, 1996; Campos *et al.*, 2002).

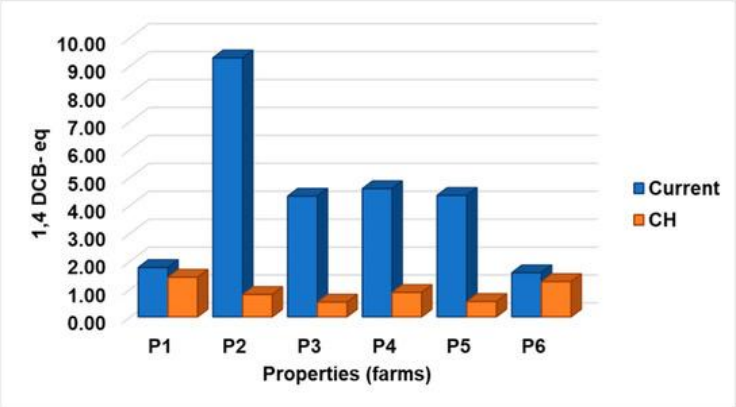


Figure 17: Comparison of current and optimized potential ecotoxicity with the use of homeopathy in family farms evaluated in Serra Catarinense. P1 = Agroecological, P2 = Cattle grains, P3 = Milk grains, P4 = Grains, P5 = Diversified, P6 = Organic

Source: https://doi.org/10.3390/su14106334

There are several guidelines for experimental work in homeopathy carried out with plants. The experiments have been conducted to evaluate the effects of homeopathic preparations in controlling diseases, pathogenic microorganisms in stored products, insect pests, effects on the growth and defense mechanisms of plants, and detoxifying action. In controlling plant diseases, they experimented with tobacco, in which they tested several homeopathic solutions before and after inoculation with the tobacco mosaic virus. Lachesis and Chimaphilla, in C200 dynamization, reduced the virus content by 50% in 24 hours (Bjorkman, 1981; Boardman, 1977; Brown Junior, 1988; Wedge *et al.,* 1999; Vilela and Ravetta, 2000; Campos *et al.,* 2002).

For fungal control, three homeopathic preparations were tested: *Thuya* sp, *Kali* sp., on the fungus *Alternaria* sp., and a significant reduction in spores was observed. In another experiment, the same authors found *Kali* sp. and *Arsenicum* spp. completely inhibited the germination of spores of the fungus *Pestalotia* sp. which causes guava fruit rot. Working with the homeopathic preparations Spigelia C30, Sulphur C200, and Teucrium C200, found inhibition of the germination of spores of the fungi *Alternaria* sp., *Curvularia* sp., and *Drechslera* sp. (Figure 18) (Barreiro, 1992; Castro *et al.,* 1996; Vogelmann *et al.,* 1996; Wedge *et al.,* 1999; Vilela and Ravetta, 2000; Campos *et al.,* 2002).

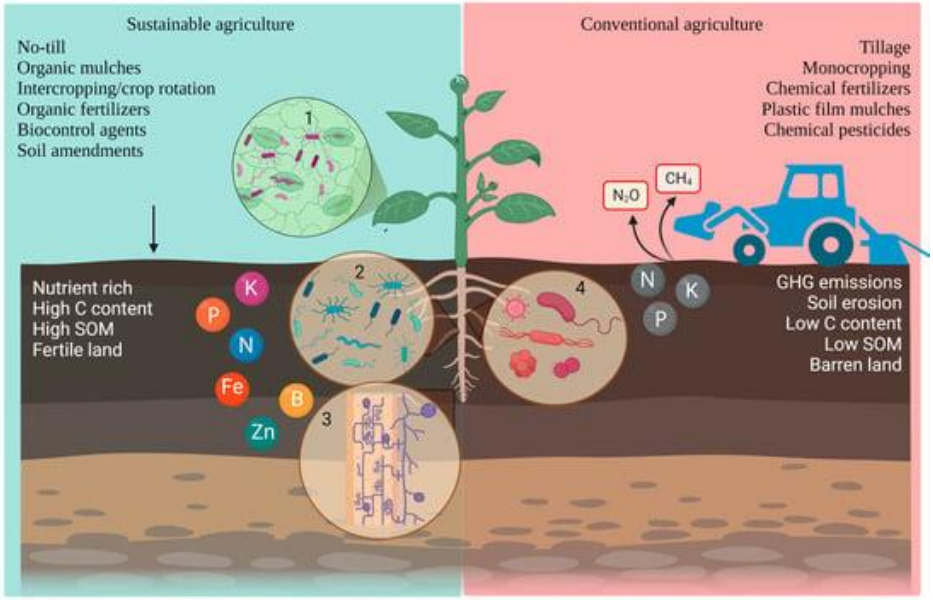


Figure 18: Illustration of the impact of agricultural practices on phytomicrobiome and plant pathogens. (1) Presence of endophytes in leaves (leaf microbiome); (2) Endophytes in root—root microbiome and rhizosphere microbiome; (3) Arbuscular fungi in the roots; and (4) Pathogens interacting with root. GHG: greenhouse gases; SOM: soil organic matter

Source: https://www.mdpi.com/2223-7747/12/14/2736

3.10. The Use of Homeopathic Preparations in the Control of Insect Pests

It has achieved good efficiency in controlling the *Cerotoma* sp. leafhopper by applying its biotherapeutic agent, in the dynamizations D5, D9, D15, and D29. In the particular case of plants, in addition to primary metabolism, secondary metabolism is of great importance, as it is an expression of their chemical individuality, related to the sensitivity, defense, and adaptations of these beings to the environment. Because of this, it is believed that medicinal plants are very useful in the knowledge of plants about homeopathic solutions, since such substances act, among other factors, in defense, one of the functions related to vital energy (Brown Junior, 1988; Zygadlo *et al.*, 1995; Castro *et al.*, 1996; Vogelmann *et al.*, 1996; Vilela and Ravetta, 2000; Campos *et al.*, 2002).

Use of homeopathic medicines and dynamized substances in the control of plant diseases and their pathogens despite the encouraging results obtained by different authors, more studies need to be carried out to verify the interference of some factors intrinsic to the plant species or cultivar used on the responses of plants to homeopathy. In this sense, some interesting studies have been carried out. Working with dwarf peas, considered that seed quality is a crucial parameter for the successful reproduction of studies on the effect of dynamized gibberellic acid on this plant species (Figure 19) (Lorenzetti *et al.*, 2017; Mioranza, 2017; Oliveira *et al.*, 2017; Teixeira and Carneiro, 2017; Carneiro and Teixeira, 2018; Rissato, 2018).

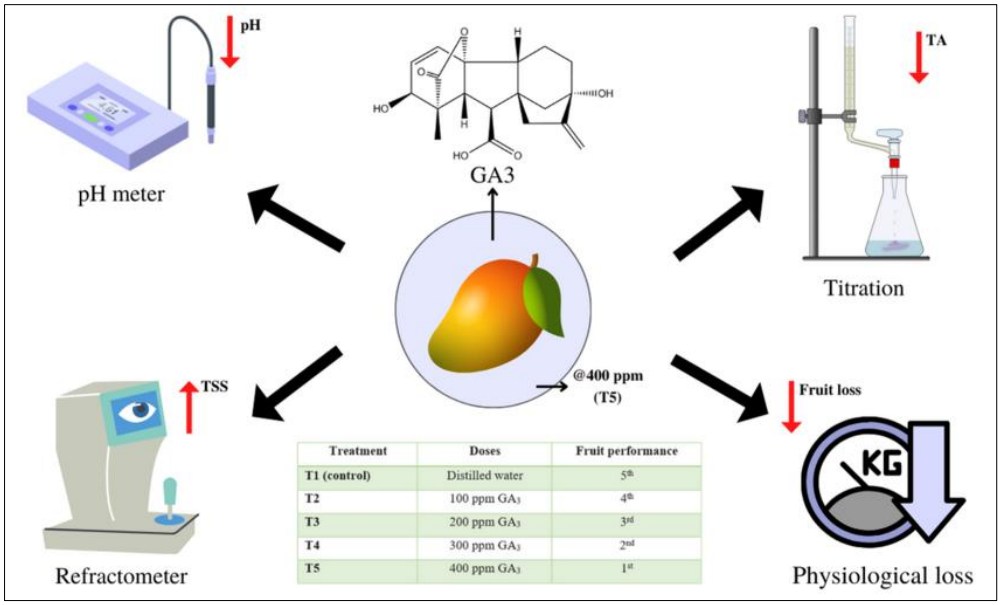


Figure 19: Graphical abstract representing the effects of gibberellic acid (GA3) on shelf life and physiochemical properties of mango *Mangifera indica* L. (Anacardiaceae)

Source: https://www.researchgate.net/figure/Graphical-abstract-representing-the-effects-of-gibberellic-acid-GA3-on-shelf-life-and_fig1_366580396

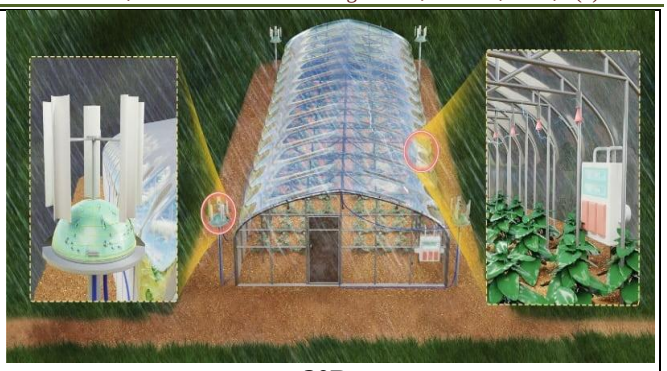
Studied the effect of dynamized gibberellic acid on the growth of *Lemna* sp., to verify the best conditions for the reproducibility of the tests, thus trying to minimize the influence of individuality. The authors worked with genetically identical plants of this aquatic species, a monocotyledon. However, they observed that even this plant appears to have different physiological states that lead to variable reactivity to homeopathic treatment and that the plant needs to be in a certain physiological state to exhibit a measurable response. The authors argued that individuality plays an important role in homeopathic treatment, considering that changes in the physiological state of individuals and psycho-emotional, in the case of humans interfere with the ability to respond to treatment (Bonamin, 2017; Lorenzetti *et al.*, 2017; Mioranza, 2017; Oliveira *et al.*, 2017; Carneiro and Teixeira, 2018; Rissato, 2018).

3.11. Electronic Soil Proves That Electricity Optimizes Crops

3.11.1. Electrocute

Swedish scientists are giving scientific credibility to a practice widely disseminated among supporters of greener agriculture with less use of fertilizers and chemicals that are harmful to the environment. The practice of applying electric fields to the esoil to optimize the sprouting, growth, and production of plants has spread over the last 20 years. Originally known as electrocute, the practice has now left the alternative fields and gained more marketable names, such as smart agriculture or the fourth agricultural revolution (Figure 20A-20B) (Agtecher, 2023; Vasileios *et al.*, 2024).

20A



20B

Figure 20AB: Electroculture: A revolutionary method for higher yields and sustainability
Source: https://agtecher.com/pt/archives/1377

Academic acceptance aside, the fact is that the effects were impressive and exceeded the expectations of the most optimistic scientists: Barley seedlings grew on average 50% more when their root system was electrically stimulated by a new cultivation substrate that scientists call electronic soil. Instead of applying electricity directly to the soil, they created a substrate to be used in hydroponics (Agtecher, 2023; Vasileios *et al.*, 2024).

This substrate, which the team has named e-soil, is nothing more than an electrically conductive growing substrate that facilitates the distribution of the electric field to the seeds and plants [Vasileios Oikonomou and colleagues from Linkoping University]. "This way, we can make seedlings grow faster and with fewer resources. We still don't know how this works, or what biological mechanisms are involved. What we found is that seedlings process nitrogen more efficiently, but it is not clear how electrical stimulation impacts this process,"[Eleni Starvrinidou] (Figures 21-22) (Agtecher, 2023; Vasileios *et al.,* 2024).

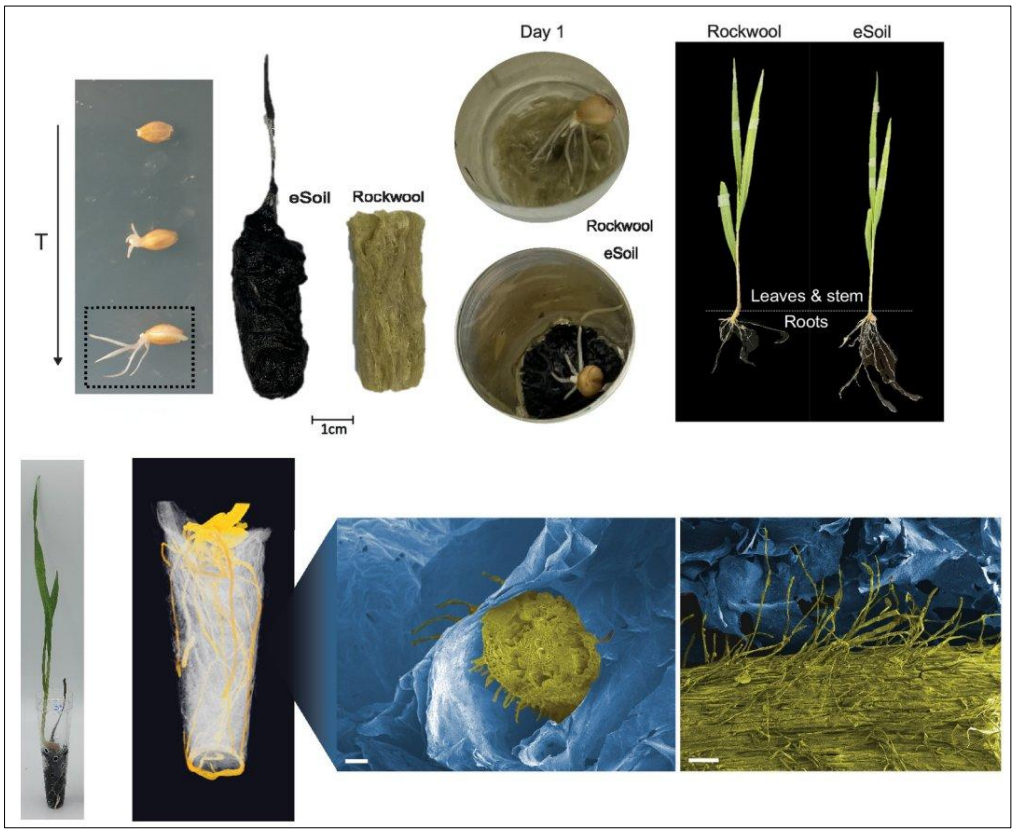


Figure 21: Instead of vegetables, the team chose to work with grains, which account for the largest share of the environmental impact of agriculture
Source: Image: Oikonomou *et al*., 10.1073/pnas.2304135120

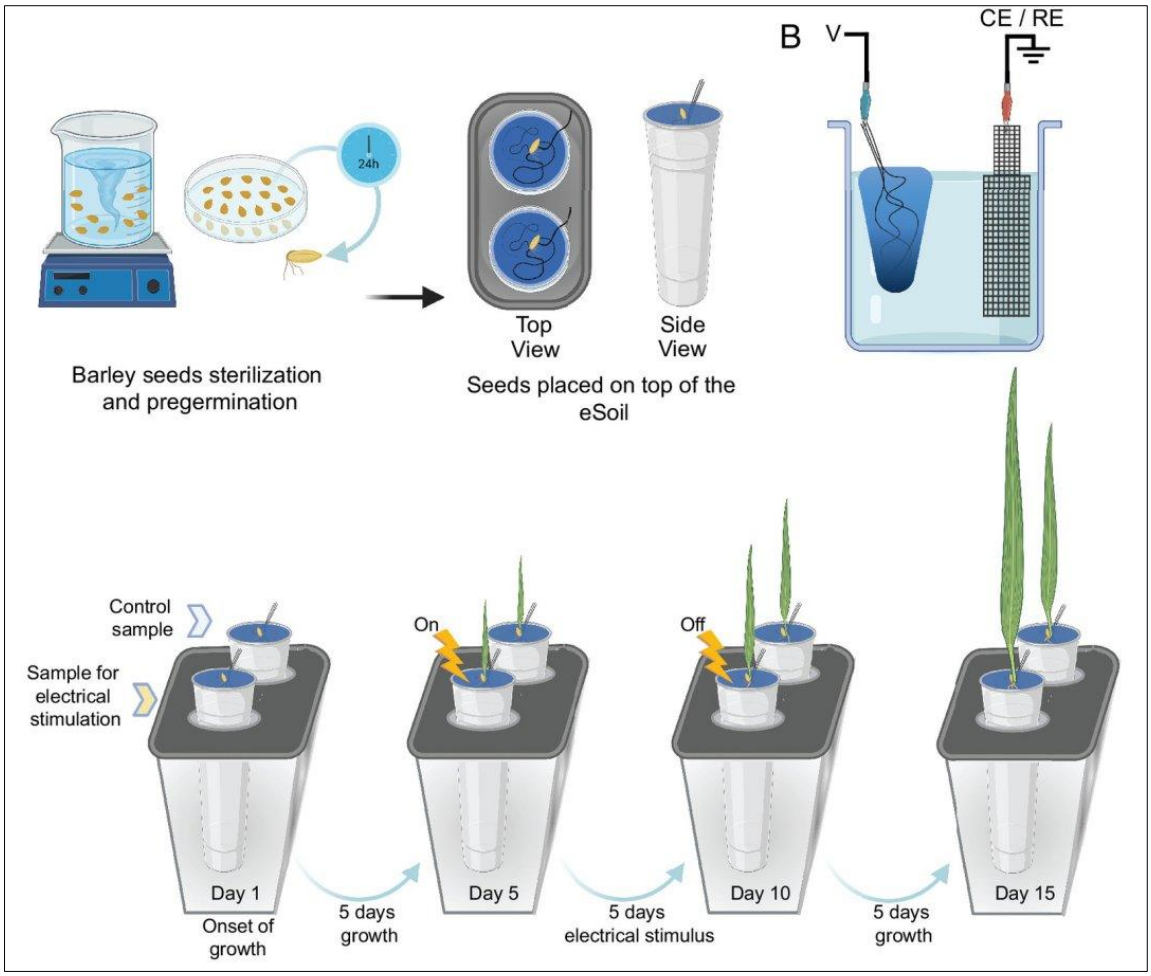


Figure 22: Electroculture operating diagram
Sources: Image: Oikonomou *et al.*, and 10.1073/pnas.2304135120

3.12. The Evolution of Homeopathy in the 21st Century

3.12.1. Revolutionary trends in modern homeopathy

A. Genetically-based personalized homeopathy: The integration of genomics into homeopathic practice is opening new frontiers in personalized treatment: Genetic profiling: Using genetic testing to identify individual predispositions and sensitivities (Anderson and Domsch, 1990; Botica Artesanal, 2025).

B. Nanotechnology in Homeopathy: Nanotechnology is revolutionizing the preparation and delivery of homeopathic remedies: Homeopathic nanoparticles: Developing nanoscale remedies to increase bioavailability and efficacy. Creating nanocarriers that target homeopathic remedies to specific areas of the body. Using nanoencapsulation to improve the stability and shelf-life of homeopathic products (Anderson and Domsch, 1990; Botica Artesanal, 2025).

C. Digital Homeopathy: The digital age is transforming the practice and access to homeopathy: Artificial Intelligence in prescribing: AI systems that assist homeopaths in selecting the most appropriate remedies and dosages (Anderson and Domsch, 1990; Botica Artesanal, 2025).

D. Sustainability and Green Homeopathy: Environmental awareness is shaping new practices in homeopathy: Sustainable sourcing: Use of organic and ethically sourced ingredients for homeopathic preparations. Eco-friendly packaging: Development of biodegradable and recyclable packaging for homeopathic products. Sustainable production practices: Implementation of manufacturing processes that minimize environmental impact (Bastide *et al.*, 1987; Botica Artesanal, 2025).

3.13. Homeopathy and Climate Change on the Planet

According to the science of Homeopathy, high-level symptoms guide homeopathic therapy. The systemic balance depends on the balance of these symptoms. This knowledge is consistent with the view of agrosystems as an organic whole since the balance of plants, animals, and humans and the production of healthy food will depend on the balance of the soil, a high-level component (Anderson and Domsch, 1993; Rezende, 2003; Andrade *et al.*, 2006).

The need for a paradigm shift concerning conventional agriculture and the growing concern for the planet and its climate changes are further consolidating

the use of Homeopathy. High-level symptoms guide homeopathic therapy. The balance of these symptoms depends on the systemic balance. This knowledge is consistent with the view of agrosystems as an organic whole, since the balance of the soil, a high-maintenance component, will depend on the balance of plants, animals, humans, and the production of healthy food (Figure 23) (Anderson and Domsch, 1990; Andrade *et al.*, 2006; Holopainen *et al.*, 2018; Cordoba *et al.*, 2022; Chen *et al.*, 2023).

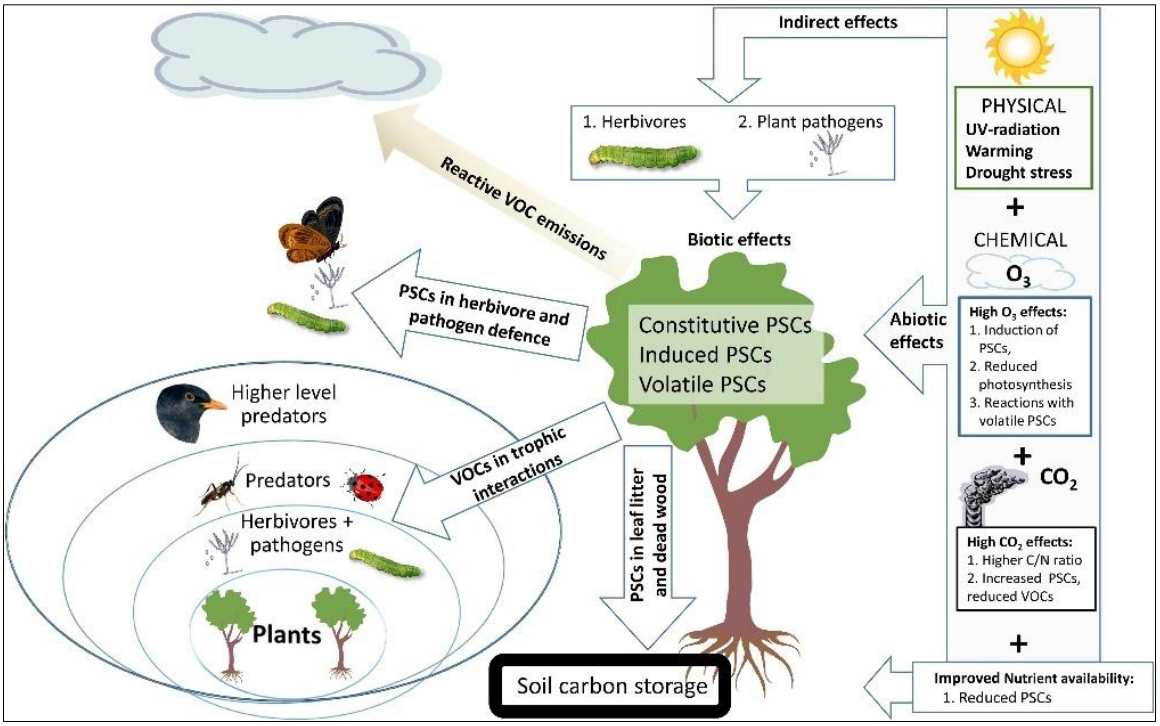


Figure 23: Thus, conventionally managed soil is interpreted as sick, as it progressively loses productive capacity, dynamism, balance, reactivity, self-preservation capacity, and the supply of solar energy. Humans are responsible for disease and devitalization of soil. The agricultural ecosystem, for example, when it practices diversity imitating nature, is healthier and more vital. With diversity, there is greater resistance, for example, to insect attacks when compared to any monoculture. Interpreting the facts within the homeopathic philosophy, it points to the symptoms of insect or microorganism attacks on plants as indicators of organic disease

Sources: Anderson and Domsch, 1990; Anderson and Domsch, 1993; Rezende, 2003; Andrade *et al.*, 2006; Cordoba *et al.*, 2022; Chen *et al.*, 2023 and Doi: 10.3389/fpls.2018.01445

In ecological-organic agriculture, it is essential to detect the biological processes of the soil, cultivation, plant or animal management that are blocked and limiting the availability of plant nutrients. There are agricultural practices that can stimulate these biological processes. Thus, biological indicators are important in research on soil quality, with increasing use (Cordoba *et al.*, 2022; Chen *et al.*, 2023).

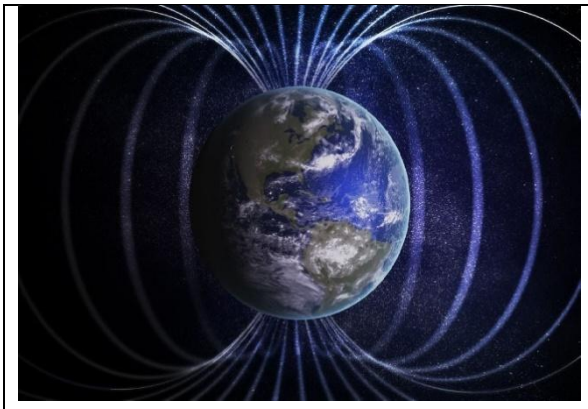
When the agricultural ecosystem practices diversity that imitates nature, it is healthier and more vital. With diversity, there is greater resistance, for example, to insect attacks when compared to any monoculture. Interpreting the facts within the homeopathic philosophy, it points to the symptoms of insect or microorganism attacks on plants as indicators of organic disease. In ecological-organic agriculture, it is essential to detect the biological processes of the soil, cultivation, plant or animal management that are blocked and limiting the availability of plant nutrients (Anderson and Domsch, 1990; Anderson and Domsch, 1993; Rezende, 2003; Andrade *et al.*, 2006; Cordoba *et al.*, 2022; Chen *et al.*, 2023).

3.14. Climate Change and the Earth's Magnetic Field: Is There a Relationship?

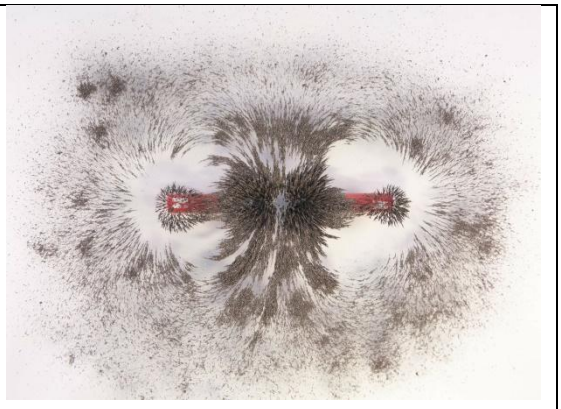
Certain theories indicate that the magnetic field is partly the cause of current climate change, but science has investigated and clarified these doubts. The magnetosphere is the name given to our planet's magnetic field. It acts as a protective shield for the atmosphere against high-energy particles arriving from the Sun. The Earth's magnetic field shifts gradually and with varying intensity. However, there is little scientific evidence of a significant relationship between the magnetic poles and the climate. The magnetic field, however, shows no evidence that the Earth's climate has been significantly affected by the last three excursions of the magnetic field (Henríquez, 2021; Agtecher, 2023; Oliveira, 2023).

Although electromagnetic currents exist in the upper atmosphere of the Earth, the energy that drives the

weather system in this area is, on average, a small fraction of all the energy that drives the weather system at the surface. On the other hand, solar storms and their electromagnetic interactions impact only the Earth's ionosphere, which extends from the mesosphere to space and has no impact on the troposphere or lower stratosphere, where the Earth's weather originates (Figures 24A-2B) (Henríquez, 2021; Oliveira, 2023).



24A



24B

Figure 24A: The magnetosphere is the name given to our planet's magnetic field. It acts as a protective shield for the atmosphere against high-energy particles arriving from the Sun. Figure 24B: Magnetic interactions
Source: https://www.tempo.com/noticias/ciencia/mudancas-climaticas-e-campo-magnetico-da-terra-existe-uma-relacao.html and https://cienciahoje.org.br/artigo/interacoes-magneticas/

Certain theories indicate that the magnetic field is partly the cause of current climate change, but science has investigated and clarified these doubts. The magnetosphere is the name given to our planet's magnetic field. It acts as a protective shield for the atmosphere against high-energy particles arriving from the Sun. The Earth's magnetic field shifts gradually and with varying intensity. However, there is little scientific evidence of a significant relationship between the magnetic poles and the climate (Henríquez, 2021; Oliveira, 2023).

The magnetic field, however, shows no evidence that the Earth's climate has been significantly affected by the last three excursions of the magnetic field. Although there are electromagnetic currents in the upper atmosphere of the Earth, the energy that drives the weather system in this area is, on average, a small fraction of all the energy that drives the weather system at the surface. On the other hand, solar storms and their electromagnetic interactions impact only the Earth's ionosphere, which extends from the mesosphere to space and has no impact on the troposphere or lower stratosphere, where the Earth's weather originates (Henríquez, 2021; Oliveira, 2023).

Planet Earth is surrounded by a large magnetic field called the Magnetosphere, which acts as a shield that protects the atmosphere from radiation, solar wind, and any high-energy particles coming from the Sun. The forces that generate this magnetic field are constantly changing and, as a result, the Earth's magnetic poles also gradually vary in location. Climate change, scientifically, should not be related to variations in the Earth's magnetic field, so it should not be a cause for concern (Henríquez, 2021; Oliveira, 2023).

4.0. CONCLUSION

In recent years, there has been an increase in research into homeopathy worldwide. analyzed eight hundred and thirty experiments using homeopathic ultra-dilutions of dynamized or potentized substances, and of this total, most of the experiments were carried out with animals and with plants demonstrating at least one positive result. Brazil currently ranks fourth among the countries that publish the most basic research into homeopathy.

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