# *Cannabis sativa*: Benefits and difficulties of using it for medicinal purposes

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**Beatriz de Carvalho Farias Lima da Silva[1] and Murilo Marques Scaldaferri[2]**


## ABSTRACT

*Cannabis sativa* was used for religious, economic, recreational, and therapeutic purposes. In Brazil, the plant is correlated with the country's history since 1500 with the arrival of the first Portuguese caravels, and with African slaves. However, in 1924, in Geneva there was the II International Opium Conference, which disapproved of the use of *Cannabis.* Scholars believed that it was possible that delta-9 tetrahydrocannabinol and cannabidiol were an alternative for the treatment of various diseases, with cannabidiol as the main non-psychotropic compound, which acts chemically on mental activity. In view of this, this research brings a major problem, which is: What are the challenges faced by the population that needs the use of cannabidiol for medicinal purposes? One of the questions that the survey cites is the issue of obtaining *Cannabis sativa*, where a large part with 75% acquired its herb and/or its medicine legally, through ANVISA authorization and medical consultation. However, another 12.5% of the participants acquired it illegally. It is possible to observe that most patients improved, with 93.8% of them noting that anxiety (31.3%) and depression (25.0%) are the diseases that are most treated through the herb by the participants, followed by migraine, Parkinson's disease, headache, chronic pain, skin lesions, fibromyalgia, epilepsy and quality of life. In the report of improvement, a decrease in pain, insomnia, anxiety, depression, as well as muscle recovery, improvement in focus concentration, increased disposition and energy, that is, medical *cannabis* brought quality of life to the participants. In conclusion, the present work brought blurring of authors and laws, as well as of the comorbidities themselves who make medicinal use of *Cannabis sativa*. Emphasizing the historical facts, benefits of the plant for the treatment and improvement of comorbidities, the advances through state laws that have been happening in Brazil on medical *cannabis*, in addition to the harm that patients face during this journey, such as preconception and high cost.


**Keywords:** Cannabidiol, Δ9-tetrahydrocannabinol, Medicinal, ANVISA.

[1] Bachelor of Biology – State University of Southwest Bahia (UESB)
E-mail: beafauslima98@gmail.com
[2] Doctor in Education - Biologist - Adjunct Professor - State University of Southwest Bahia (UESB)
E-mail: muriloscaldaferri@yahoo.com.br

## INTRODUCTION

In 1753, the Swedish botanist Carlos Linnaeus named a species of plant, *Cannabis sativa Linnaeus* (France, 2022). In Latin, *Cannabis* means hemp, where the genus of the plant family is established, and *sativa* which means planted or sThe authors, being the species and nature of the plant's development. It comes from Asia, that is, it is not native to Brazil, however it has long leaves, and can reach 6 meters in height (Fioravante, 2006), of the Cannabaceae family containing four subspecies *Cannabis indica*, *Cannabis ruderalis* and *Cannabis spontanea* (Sawler et al. 2015 *apud* Borille, 2016, p.1). *Cannabis sativa* was supposedly cultivated and used for therapeutic purposes by ancestral healers (Pamplona, 2014). Cannabis derivatives can be found by various names such as marijuana, hashish, charas, bhang, ganja and sinsemilla (Reckziegel et al, 2019).

In Brazil, *Cannabis sativa* is correlated with the country's history since 1500 with the arrival of the first Portuguese man-o-wars. The plant was cultivated by indigenous people and blacks, as soon as enslaved Africans brought them, to benefit from the herb for therapeutic, religious and recreational purposes, however, it ended up dissipating quickly (Carlini, 2006).

In 1924, in Geneva, there was the II International Opium Conference, which led to the disapproval of the use of *Cannabis* (Carlini, 2006). This Conference was created in order to help China in the fight against opium, which is a substance extracted from *Papaver somniferum,* this plant has sedative and hypnotic properties. The Conference, in addition to opium, also fought in the control of other narcotics such as cocaine (Perfeito, 2018, Rodrigues, 2006, Duarte, 2005).

In 1964, marijuana, as it is popularly knThe authors in Brazil, was on the rise among scholars such as chemists, botanists and pharmacologists, the aim was to increase research to discover the main substances that can be found in the plant. It was believed that it was possible for these chemical substances to be an alternative for the treatment of various diseases, with Cannabidiol as the main non-psychotropic compound, which acts chemically on mental activity (Matos et al., 2017).

In 2015, the Resolution of the Collegiate Board, which is an example of technical regulation established by ANVISA, allowed the importation of Cannabidiol-based products, based on medical prescription (Brasil, 2015).

Some studies mention that individuals who benefit from *Cannabis sativa* argue for their The authors use in order to reduce levels of stress, anxiety, chronic pain, among others (Lessa et al., 2016).

However, even with countless research proving the benefits of the active ingredient Cannabidiol (CBD) to health, arguments about its efficacy continue to be a problem. Frequent use of marijuana, accompanied by high doses, that is, when used inappropriately, can lead to tolerance.

In addition, marijuana is still widely used as an illicit drug, that is, as hallucinogens. Self-use, unauthorized production and illicit trafficking are defined as crimes. This illegal use of marijuana

includes another issue that makes it difficult for those who really need it for medicinal purposes to delay.

Despite the administrative regulation, individuals with a medical indication for the use of CBD continue to have to resort to the Judiciary to obtain the drug for the treatment of the diseases that affect them, considering that in some locations in the country they still do not provide treatment through the SUS.

The importance of the theme for the community that needs the *Cannabis sativa plant is remarkable*, for those who have some comorbidity or know someone who may have it and have no idea of the effectiveness of marijuana, as well as for the population that has a deep-rooted preconception. In my family circle, for example, there are those who do not know marijuana as a medicinal plant for their respective disease, and those who still have a certain preconception towards the plant.

In my case, there was also a preconception about marijuana because I only knew the illegal side of it. However, through research on some comorbidities such as epilepsy and autism, I ended up coming across the medicinal side of the plant where it aroused a great interest in the subject, becoming my main focus for the area of studies and research.

In view of this, this research brings a major problem, which is: What are the challenges faced by the population that needs the use of cannabidiol for medicinal purposes?

This search for *Cannabis* for the treatment of various disorders and diseases has been growing over the years, several studies point to its effectiveness, due to the lower side effects, such as those of the authors Bergamaschi et al., (2011), Zuardi (2018), Matos et al., (2017), among others. On 06/14/2022, the STJ allowed safe conduct for three patients where they allow the cultivation of *Cannabis sativa* in order to extract the medicinal oil for their The authors use.

However, there are still certain difficulties, such as the high cost, to guarantee the plant for treatment, especially for the lower-class population that looks to *Cannabis* as the last resort for the treatment of specific disorders, with public health as the only source of search. However, it is necessary to advance information about the use of *Cannabis sativa* for therapeutic purposes and the difficulties of acquiring it, being a public health problem.

The present work aims to discuss the benefits for medicinal purposes of *Cannabis sativa* and the difficulties of acquiring permission for legal use. To do this, we will analyze the history of the plant; provide information on the benefits and harms for medicinal purposes and verify the possible adversities faced by the population that depends on the cannabidiol compound.

With this, during the course of the work, the history and benefits and legal frameworks of Cannabis will be clarified, as well as the difficulties in acquiring it and the importance of disseminating the benefits of *Cannabis*.

## THEORETICAL FRAMEWORK

### HISTORICAL

Described by Carlos Lineu, *Cannabis sativa* is an ancient herb and is one of the first plants to be cultivated by man (Ribeiro, 2014). It was used for religious, economic, recreational, and therapeutic purposes (Correia-da-Silva, et al., 2019). The herb for religious purposes was a tradition for African, indigenous and European peoples, they attributed marijuana as divine nectar, which connects them with spirits and divinity, in addition to relating it to joy, happiness, courage, liberation and good luck. In 1917, the herb was usually found in tobacco shops, however, it was only in 1960 that the custom of smoking marijuana took hold in Europe and the United States, inserting it into the capitalist consumer society (Reckziegel et al., 2019).

The first uses of *Cannabis* for medicinal purposes began with the Chinese emperor Shen Neng, in 2737 B.C., he used the herb to treat pain, epilepsy, arthritis, malaria, "poor memory", among others (Grieco, 2021)

In Brazil, it is believed that the herb was introduced in 1549, through the tying of the ends of the loincloths of the rag dolls that were brought by slaves (Pedro Rosado, 1959 *apud* Carline, 2006, p.315).

Like the rigging of the sails of the vessels, they were also made from hemp fiber. As a result, there was dispersion in Brazil, at that time restricted only to the socioeconomically disadvantaged class, the indigenous and black people. In the nineteenth century, information about the hedonistic effects, a doctrine that seeks pleasure, of marijuana, began to arrive in Brazil, having the greatest penetration in the environment at the time, at that time the herb began to be related to prohibited substances such as opium and cocaine, consequently it became a problem to be questioned (Carlini, 2006; Garcia et al, 2023).

In 1930, the repulsion of marijuana use began in Brazil, due to the collaboration of the Brazilian delegate, Dr. Pernambuco Filho, as well as other delegates representing 40 countries at the II International Conference on Opium, however the representatives did not really know *Cannabis sativa* and its hedonistic effects (Carlini, 2006).

Getúlio Vargas, the president of Brazil at the time, consented to Decree-Law 891 of the Federal Government, chapter II, article 2, on November 25, 1938: "The planting, cultivation, harvesting and exploitation of hemp "Cannabis sativa" and its variety are prohibited in the national territory." (Brasil, 1938, chap. II, art. 2).

In the 60s, Israeli professor and researcher Raphael Mechoulam was one of the initiators in the study of the physicochemical properties of *Cannabis* (Matos et al., 2017), more precisely in 1964, Delta9-tetrahydrocannabinol (Delta9-THC) was discovered, which is one of the active ingredients of the plant (Mechoulam, 2010). In addition to this substance, *Cannabis sativa* also has the compound

called cannabidiol (CBD), both are the main substances extracted from the plant for medicinal purposes (Gonçalves, 2014).

CBD and THC They are phytocannabinoid substances, produced by cannabinoids. These cannabinoids have multiple chemical compounds that act on cell receptors (CB), modifying the dispersion of neurotransmitters in the brain. There are two types of CB receptors, the CB1 (cannabinoid receptor type 1) o CB2 (cannabinoid receptor type 2) (Lima, et al., 2022). CB1 is found in the brain and peripheral tissues, while CB2 it is found in immune cells (Larrinaga et al., 2010).

CBD is mostly metabolized by the liver, then it goes towards the brain, as the compound has lipophilic properties, which has chemical affinity for fats (Matos et al., 2018). This substance acts by inducing the CB2 receptor. THC, on the other hand, develops psychoactive activity when bound to the brain's CB receptor, causing euphoria and hallucinations, it acts by inducing the CB1 receptor (Lima, et al., 2022).

Some researches such as the one recently done by the Federal University of the Southern Border using Cannabis-based oil in the worm *Caenorhabditis elegans*, which has a certain comparison with the genes and molecular pathways of the human body. It brings the finding that THC and CBD oils direct neurochemical, neuroprotective, neuroantioxidant, and neuroanti-inflammatory processes, which is directly linked to the benefits of THC and CBD compounds for the central nervous system and for the advancement of science, bringing important milestones to the population.

## BENEFITS AND LEGAL FRAMEWORKS

According to Bergeret et al., (1991 *apud* Gotiès, 2003) the proper use of marijuana does not lead to tolerance. However, the effects that marijuana brings will depend on some factors such as the dose, emotional structure and state of mind due to the exclusively personal problems of the bearer. Thus, according to Carlini (1980 *apud* Gotiès, 2003) the symptoms that the marijuana user can express are psychic alterations, with losses of temporal and spatial discrimination, accompanied by drowsiness, apathy and disinterest in the environment, which can obtain hallucinatory crises and panic reactions.

Lutge et al., 2013, mentions that THC and Cannabidiol have been analyzed as drugs for various comorbidities, gastrointestinal conditions, treatment of atherosclerosis, relief of symptoms of multiple sclerosis, Alzheimer's and amyotrophic lateral sclerosis, relief of Tourette's syndrome symptoms, attention deficit hyperactivity disorder (ADHD), depression, brain injury, treatment of neuroleptic-associated tardive dyskinesia, treatment of glaucoma, cough, and cholestatic pruritus 7. Zuardi (2018) also mentions these substances as drugs for other diseases such as epilepsy,

schizophrenia, Parkinson's disease, diabetes, cancer, nausea, in addition to being effective as an immunosuppressant.

According to the Resolution of the Collegiate Board (RDC) – N° 17, of May 2015 (Brasil, 2015, p.2):

> "... the criteria and procedures for importing, on an exceptional basis, a Cannabidiol-based product in association with other cannabinoids, by an individual, for their The authors use, upon prescription by a legally qualified professional, for health treatment."

Nguyen, et al (2022) developed recent research done in vitro and tested in mice, showing that cannabidiol can block viral infection by SARS-CoV-2 in the early stages and after infection. Preclinical studies done on the lungs and nasal conchae of mice infected with SARS-CoV-2 show that treatment with CBD decreased viral titers.

Several advances have been happening in Brazil, when it comes to *Cannabis sativa* for medicinal purposes. Recently, the Mayor of Salvador, Bruno Reis, sanctioned Law 9663 of 03/06/2023, which states:

> Art. 1 It is the patient's right to receive free of charge from the Government national and/or imported medicines based on medical cannabis that contain the substance Cannabidiol (CBD) and/or Tetrahydrocannabinol (THC) in their formula, provided that they are duly authorized by court order and/or prescribed by a medical professional accompanied by the due report of the reasons for the prescription, in the municipal public health units operating in the municipality of Salvador, the assumptions of article 196 of the Federal Constitution of 1988 were met (Salvador, 2023).

In São Paulo, Governor Tarcísio de Freitas also sanctioned Law 17.618/2023 of 01/31/2023 which states:

> Art. 1 The state policy of free supply of cannabidiol-based plant-derived medicines, in association with other cannabinoid substances, including tetrahydrocannabinol, is hereby instituted on an exceptional basis by the Executive Branch in state public and private health units affiliated with the Unified Health System – SUS (São Paulo, 2023).

In addition, the Federal University of Rio Grande do Norte became the first University in Brazil to secure authorization to work with *Cannabis sativa*, the release came through the National Health Surveillance Agency (ANVISA) for the controlled cultivation and processing of the *Cannabis sativa plant* for scientific research purposes.

A UFRN has been doing multiple researches on the herb *Cannabis sativa*, until he obtained permission from ANVISA to actually work with the *Cannabis.* The research refers to the socioeconomic impacts of the legalization of *Cannabis sativa* for recreational purposes in the light of the economic analysis of law, the concepts and prejudices of society regarding the medicinal use of the *Cannabis*, modernity, biopower and *Cannabis sativa*, the mobilization and articulation for the

therapeutic use of marijuana in Paraíba, the problem and detection of *Cannabis sp*., in recreational sweets and about the prohibitionist nature of drug policy in Brazil and the discussion about the legalization of marijuana. According to the rector of UFRN, José Daniel Diniz (2023) "It represents an important step for the advancement of research developed at UFRN and a historic milestone for Brazilian science."

Currently, researchers at the Federal University of Rio de Janeiro (UFRJ)) discovered the presence of the compound cannabidiol in the *Mitrantic blume trembles* which is a plant native to Brazil, the plant is part of the family of *Cannabis sativa*. It is still a recent research, the researchers found an important amount of cannabidiol in the plant, in approximately 6 months, the researchers began in vitro analyses in order to find out if the properties of this cannabidiol are consistent with the cannabidiol of the *Cannabis sativa*. According to the research coordinator and professor at the Institute of Biology at UFRJ, Rodrigo Soares Moura Neto, what drove the research was due to the discovery of cannabidiol in a *Umlaut* Asian, through this they decided to explore the only *Umlaut* Brazilian.

This discovery is extremely important for medicine and science as it will contribute to the national production of the compound and develop more research in the area that aims to bring quality of life to patients with various diseases, in addition, the demystification of cannabidiol. Consequently, this advance will facilitate the search for patients when it comes to difficulties in acquiring.

## DIFFICULTY IN ACQUIRING

In 2006, former President of the Republic Luiz Inácio Lula da Silva sanctioned Law 11.343, of August 23, 2006, knThe authors as the "Anti-Drug Law", which says:

> "Establishes the National System of Public Policies on Drugs – SISNAD; prescribe measures to prevent misuse, care and social reintegration of drug users and dependents; establishes rules for the repression of unauthorized production and illicit drug trafficking; defines crimes and provides another measure (Brasil, 2006)."

Still, to UNODC (United Nations Office on Drugs and Crime) reports that river, air, and land routes for drug trafficking purposes have been increasing. In 2019, there were large marijuana seizures in the United States, Paraguay, Colombia, India, Nigeria, and Brazil.

In 2018, *Cannabis* was the most used substance in the world, about 192 million individuals consumed it. In 2020, about 284 million people used drugs, emphasizing the age group from 15 to 64 years old. Young people have been using more and more drugs, on the continents of Africa and Latin America, people under 35 years of age are undergoing treatment for disorders arising from rampant drug use (UNODC, 2022).

According to historian Jean Marcel Carvalho França, writer of the book "The History of *Cannabis* in Brazil", marijuana associated with criminal behavior, vagrancy and psychic disorders harms those who need the plant for the treatment of their respective comorbidities, since these stigmas have brought to the prohibition of marijuana:

> "Marijuana helps finance organized crime and is linked to violence. In the discussions to be made, it is necessary to show that it is indeed possible to remove Cannabis from the circuit of crime. When there is legalized, controlled planting for medicinal and scientific purposes, trafficking loses ground, and the lives of patients, doctors, and researchers become easier (França, 2022)."

The illegal use of marijuana limits access to medicine, leading to smuggling and reducing the advance of scientific research. However, the individual and the scientist who seeks legal use end up submitting to a complicated, bureaucratic and high-cost administrative process, which may or may not be accepted, making it difficult to study scientific studies and/or improve comorbidities (Bezzera, 2019).

In 2015, according to ANVISA, about 850 authorizations were granted for the import of cannabidiol-based medicines, the year in which the use of these medicines began to be allowed. From then on, in 7 years this number increased reaching 9311%, concluding about 79,995 new patients authorized in 2022, compared to the year 2021 with 40,040.

Even so, experts point out that even with scientific evidence of the medicinal use of cannabidiol and the leverage of import permissions, there is still, for example, a lack of knowledge among doctors to prescribe them as medicines. Elisa Rezende, deputy coordinator of the scientific department of Cognitive Neurology of the Brazilian Academy of Neurology (ABN), says that the lack of prescriptions by doctors is due to prejudice in relation to the use of cannabidiol, but she believes that Anvisa's authorizations do research on them.

Allan Patioti, former director of the Oswaldo Cruz Hospital and CEO of Connect, a startup specializing in *medical cannabis*, mentions in an interview with the newspaper "O Globo", that one of the major problems of the absence of medicines is the high cost for trade in large drugstore chains. As a result, cannabidiol-based products become increasingly scarce and more expensive in drugstores in Brazil, automatically leading patients to import, which is a process that takes 10 to 15 days.

According to Eliane Nunes, psychiatrist and director of the Brazilian Society for the Study of *Cannabis sativa* (SBEC), Brazil has the capacity to produce the products, this would facilitate access and later the value when thinking about low-income families. Emilio Figueiredo, a lawyer with the Legal Network for Drug Policy Reform (Rede Reforma), says that low-income families have found a more economical way to get medicines through the SUS (Unified Health System). But only Salvador

and São Paulo have sanctioned in law the release by the Unified Health System to cannabidiol-based medicines.

Regarding the difficulties in obtaining *Cannabis* for medicinal purposes, such as trafficking and illegal use of the herb, even with confirmations of efficacy, the Brazilian legislation is objective when it mentions in article 196 of the Federal Constitution that health is a fundamental and social right, and it is the duty of the Government to ensure citizens access to the necessary treatment for their clinical cases.

In view of this, it is the duty of the State, due to public policies (social and economic), to ensure the universal and equal admission of citizens to health services, thus leading to a reduction in diseases (Gurgel et al., 2019).

## THE IMPORTANCE OF SPREADING THE WORD ABOUT THE BENEFITS OF CANNABIS

According to the National Health Surveillance Agency (ANVISA), drug import authorizations have been leveraging over the years since 2015, where about 850 authorizations were granted, in 2022 it grew by 93.11%, reaching a total of 79,995 authorizations for new patients, almost double compared to the previous year, with about 40,070 releases.

TV shows, websites and social networks are strong disseminators of information, bringing focus to social networks, according to the 2023 report by We Are Social there are about 4.76 billion users worldwide, in addition it was reported that people spend more than 2 and a half hours on social media every day.

Through this, several Brazilian artists have been defending through their social networks the medicinal use of *Cannabis sativa* in order to improve their comorbidities. Actresses Cláudia Rodriges and Guta Stresser who suffer from multiple sclerosis informed about the use of the medicinal plant and the improvement of symptoms (Uol, 2022). Chef Henrique Fogaça celebrated his daughter's improvement on his social network, which he quotes: "It brought joy and peace to Olivia", he also mentions that she suffers from a rare condition not yet knThe authors to doctors (Marie Claire, 2022).

The great samba singer, Arlindo Cruz, suffered a stroke in 2017 (Stroke) that left sequelae, during his treatment his wife Babi Cruz mentioned on her social network the use of cannabidiol and with it the evolution in treatment (Veja, 2022). Trap singer Matheus Brasileiro Aguiar, better knThe authors as Matuê, came through his Instagram stories to show ANVISA's authorization to import cannabidiol-based products for the treatment of anxiety (Sechat, 2023).

In addition to the spread about *medical cannabis* on social media, this information is also being taken to the population through reports, whether on television or on a communication site. Recently, Profissão Repórter, a program well knThe authors for bringing little-talked about issues to

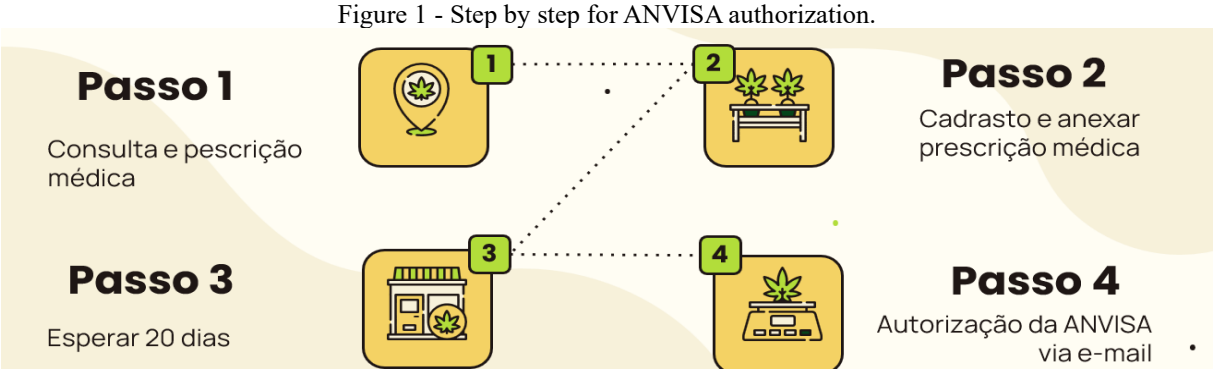
the public, televised by Rede Globo, brought medical *cannabis* as the theme of the program, where it focused on stories of individuals who use it for medicinal purposes.

Through this report it was possible to notice how well it is working, reporter Caco Barcellos brought the city of Búzios, on the coast of Rio de Janeiro as an example, since there was the approval of the municipal law that allows the use and distribution of *medical cannabis*, about 400 children and adolescents with autism and epilepsy are undergoing treatment using the plant as a medicinal source, and has been showing good results. As in the case of 3-year-old Nykollas, according to Lidiane Oliveira (mother): "The teacher said that after he started taking the medicine, he learned a lot, he was developing things that he didn't do (Oliveira, 2023)."

Brazilian society associates the use of marijuana with marginality, much of this prejudice comes precisely through the media, more precisely television news. However, these same programs, as well as social media, are important tools for the dissemination of scientific information, as Mariluce Moura, journalist and creator of the Pesquisa Fapesp magazine, points out. The approach to medical marijuana in the media is of great relevance, as it brings the benefits of marijuana to the public in an informal way, that is, more layman, and consequently to the demystification of the illegal use of the plant.

The official website of the Federal Government (gov.br) objectively shows step by step to request authorization to import products derived from *Cannabis,* if the patient wishes to import. At first, it is necessary for the patient to go through the health professional to obtain the medical prescription, later the patient or his guardian will register and attach this prescription. After that, the patient will wait at least 20 days of analysis to receive authorization from ANVISA, which will be automatic by email.

Figure 1 - Step by step for ANVISA authorization.




Source: Propria, 2023.

## METHODOLOGY

Qualitative research directs to establish studies that provide understanding, describing and interpreting facts. Quantitative research, on the other hand, is a study that aims at a plan previously

calculated by the researcher, it has the function of enumerating and measuring procedures in a concrete and objective way (Proetti, 2004).

The two methodologies do not cancel each other out, and help in the compression and evaluation of the methodological and essential aspects of a veracity or phenomenon studied. These are rational, intuitive and descriptive researches that help researchers in their scientific and professional studies (Proetti, 2004).

The methodology adopted in this research refers to both the qualitative and quantitative types. However, the main focus is on the qualitative type, as the survey brings the difficulties that patients face to acquire medical *cannabis* and few enumerated data.

According to the difficulties presented to contact individuals who need to obtain *Cannabis sativa* for medicinal and therapeutic purposes, the social media Instagram/WhatsApp and Google Form were used as a collection instrument, at first there was a survey on these social media in search of individuals who use, who have already used or still know someone who uses *Cannabis sativa* for medicinal purposes.

The proposal for the participants was that the data collection would take place through the Google Form, a tool that provides an online form that allows the user to formulate multiple choice and discursive questions, in addition to presenting statistical evaluations, which can be sent through a link, either by email or social networks, facilitating the data collection process. With that, they answered some questions about *Cannabis sativa*, its medicinal use, its benefits, its harms and how it is obtained.

The Google Form is a tool that began to be widely used in the period of the Covid-19 pandemic, being very effective in supporting teachers in their assessments. This tool has several advantages, as it provides sharing properties that help in the practical improvement of evaluations, access anywhere and time, agility in data collection and analysis of results, in addition to ease of use (Martins, 2020; Mota, 2019).

Contact was made via Instagram with 38 accounts of individuals who talk about medical *cannabis* and 2 people via WhatsApp, 16 of them accepted to be part of the proposed research. Few people accepted to participate, since there was no return from some carriers.

With this, there was a data survey through the platform itself (Google Form), which directs the answers of the individuals to the Google Spreadsheet, on this platform it was possible to observe the questions and answers and through this the formulation of the graphs was obtained, which can be accessed through this link https://forms.gle/1vGvHv7FPkf236bb9.

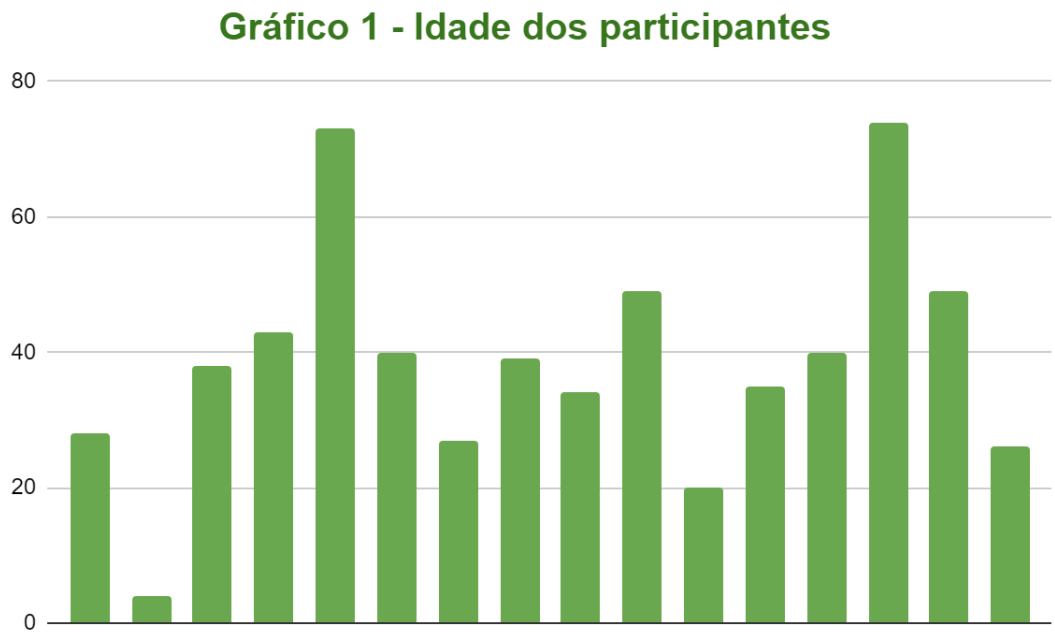
Figure 2 - Cannabis sativa form: benefits and difficulty of use for medicinal purposes.


Source: Google form, 2023.

## RESULTS AND DISCUSSIONS

Among the 16 participants who answered the form, their ages ranged from 30 to 70 years old. Most of them, 9 of them, have their ages ranging from 30 to 40 years, as shThe authors in graph 1. (**Erro! Fonte de referência não encontrada.**)

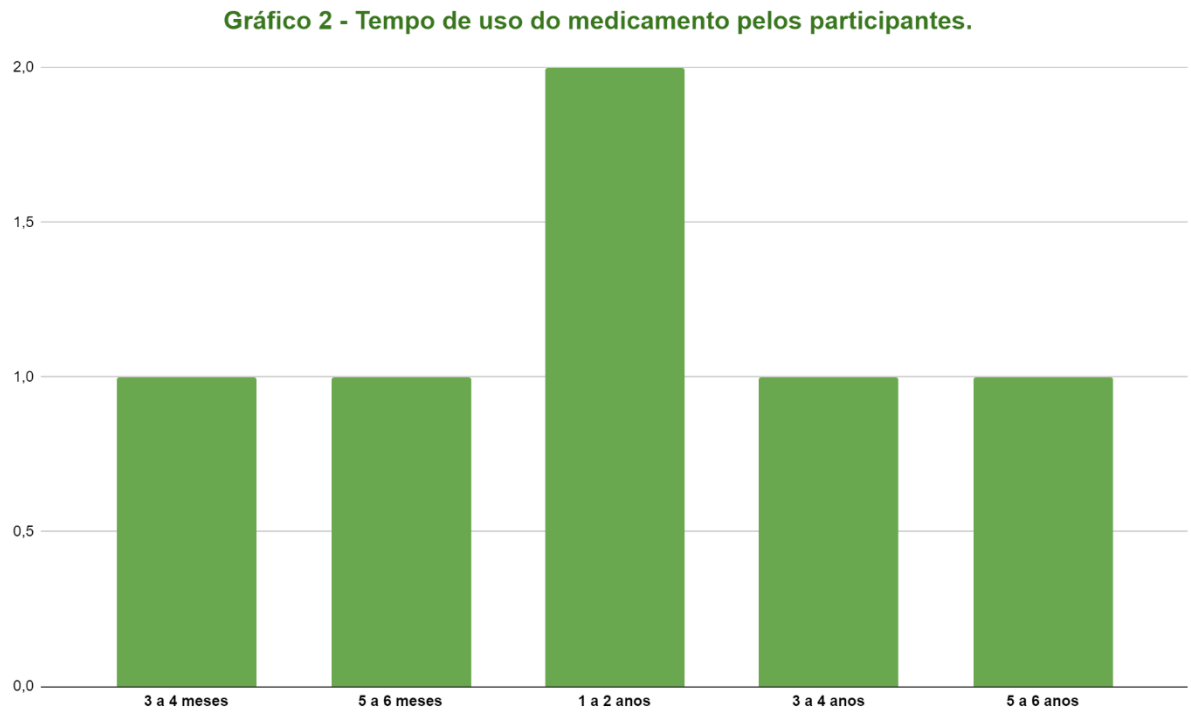
Figure 3 - Age of the participants.




Source: The authors, 2023

The time of use of the drug by the participants is still a problem, we already know about the effectiveness of the *Cannabis* for medicinal purposes, which is already an advance, but why is there still this delay? The delay is related to the process of acquiring the medicine, from the medical consultation to the arrival of the product, making it difficult to start the treatment of patients. The bureaucracy for filling out the documentation, the arrival of cannabidiol-based drugs and the high cost of it, being between R$ 2 thousand and R$ 3 thousand for a 30ml bottle of the drug, are the main reasons for the delay for patients to start making legal use of the drug and or stay on it, even with the Resolution of the Collegiate Board authorized by ANVISA, which aims to reduce the waiting time of patients and the analysis queues, in addition to the non-solution of the problem of the high cost of the drug (Andrade, 2022). Santos (2023), questions the high cost of the cannabidiol-based medicine and relates that the patient has the right to health according to Art.5 of the Federal Constitution of 1988. Therefore, the participants' time of use varies from 1 to 3 years (Graph 2) (**Erro! Fonte de referência não encontrada.**).

Figure 4 - Time of medication use by the participants.

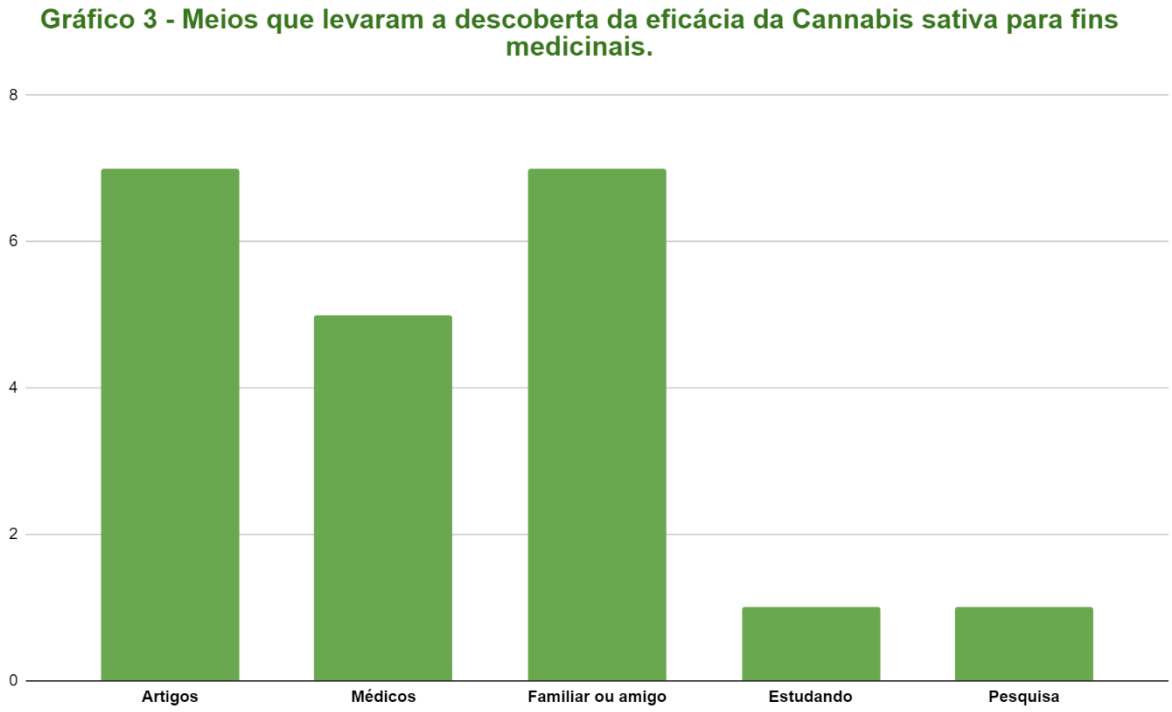



Source: The authors, 2023

Bring information about the benefits of *Cannabis sativa* is extremely relevant for Brazil and the world, we know that knowledge about the herb is not so positive, with this information many carriers would know and understand the effectiveness of the herb *Cannabis* for their respective comorbidities. It can be seen in graph 3 (**Erro! Fonte de referência não encontrada.**) the number of means by which users discovered the effectiveness of the *Cannabis* for medicinal purposes,

emphasizing medical and/or family articles. Articles about the *Cannabis* and its medicinal benefit began to be published in the 90s, the peak of research took place in 2002, at the moment there are more than 5,000 articles referring to the medicinal use of the *Cannabis* (Caetano, 2019). There are a number of doctors who support and cite the herb as a medicinal source and as a consequence its benefits, one of them being Dr. Elisaldo Carlini, a doctor specializing in psychopharmacology, university professor and Brazilian researcher, Carlini was knThe authors as the "Father of marijuana", he researched the *Cannabis sativa* for 50 years, becoming one of the pioneering doctors in the study of the herb. In Brazil, Carlini led a research group, they discovered that cannabidiol had an antiepileptic effect, but this discovery was "forgotten" for decades. Dr. Elisaldo Carlini has some articles on the subject, such as "History of marijuana in Brazil", "*Cannabis sativa* L. (marijuana) medicine that is reborn?" and "Research with marijuana in Brazil". AMA+ME (Brazilian Association of Pediatric Patients) *Cannabis* Medicinal) mentions a list of doctors who prescribe medical marijuana, more than 200 doctors among them it is possible to find pediatricians, psychiatrists, neurosurgeons, neuropsychiatrist, among others. However, AME+ME mentions that there are still few doctors who study and prescribe medical marijuana, which makes it even more difficult for patients to access it. Oliveira (2016), cites in his research how the pioneering families of the use of the *Cannabis* exchanged information with each other about use, such as ideal dosages, access to the bureaucratic part, among others. According to the CFM (National Council of Medicine) only specialists in neurology and their areas of expertise, neurosurgery and psychiatry can prescribe cannabidiol. Currently this exchange of information between family members continues, as shThe authors in graph 3, more than 5 of the participants discovered the effectiveness of the *Cannabis* through family members. The development of scientific, research, and medical articles that prescribe on the *Cannabis* and its benefits are extremely important for this information to reach the population with foundation, especially the less disadvantaged classes that need this knowledge.

Figure 5 - Means that led to the discovery of the efficacy of Cannabis sativa for medicinal purposes.

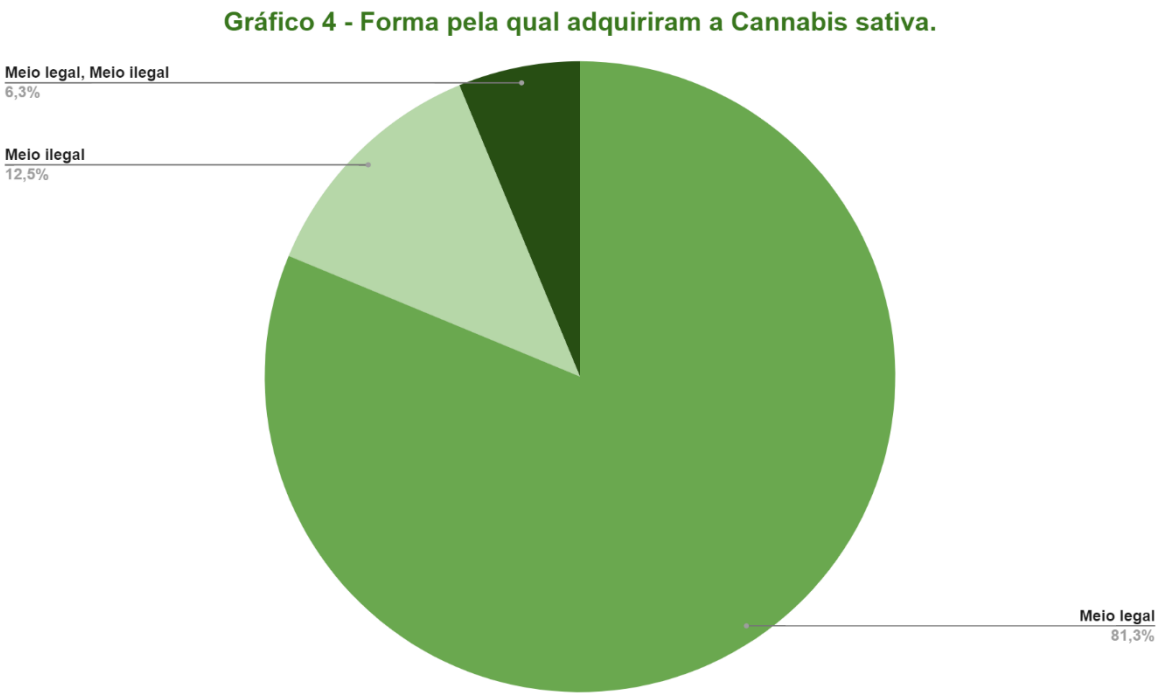



Source: The authors, 2023

The fourth question mentions the issue of obtaining the *Cannabis sativa*, a large part of which 75% acquired their herb and/or medicine legally, through ANVISA authorization and medical consultation, as shThe authors in graph 4 (**Erro! Fonte de referência não encontrada.**). Even with the legal form, they reported difficulties in acquiring and remaining legal, such as high cost, bureaucracy, misinformation, criminalization, high cost of consultation, access to the drug on the market, delay in getting the product, and few doctors who prescribe cannabidiol (Graph 4.1) (**Erro! Fonte de referência não encontrada.**). It was possible to observe that the high cost has been cited as the main factor in both situations, both to remain legal, and those who, not by choice, seek the illegal drug. Followed by the bureaucracy, some participants commented on the diversity of papers to fill out and the lack of specific people to request help, in addition to the delay for their authorization or their drug to arrive. Misinformation along with criminalization continues to be a problem, the population has a deep-rooted preconception in relation to marijuana, Brazil is dominated by the crime of drug trafficking, ranking first in the ranking of the most common crimes, in 2019 about 163.2 thousand were incidences for drug trafficking. The entire Brazilian population and especially the less favored end up living with the marginalized part of marijuana, bringing certain difficulties to those who need the medicines based on marijuana *cannabis*, with this, the medical information about marijuana needs to be propagated so that it can be demystified. Few doctors prescribing the *cannabis* for medicinal purposes is also a problem, since the medical prescription is the first step of several steps to obtain authorization from ANVISA, without the prescription there is no authorization.

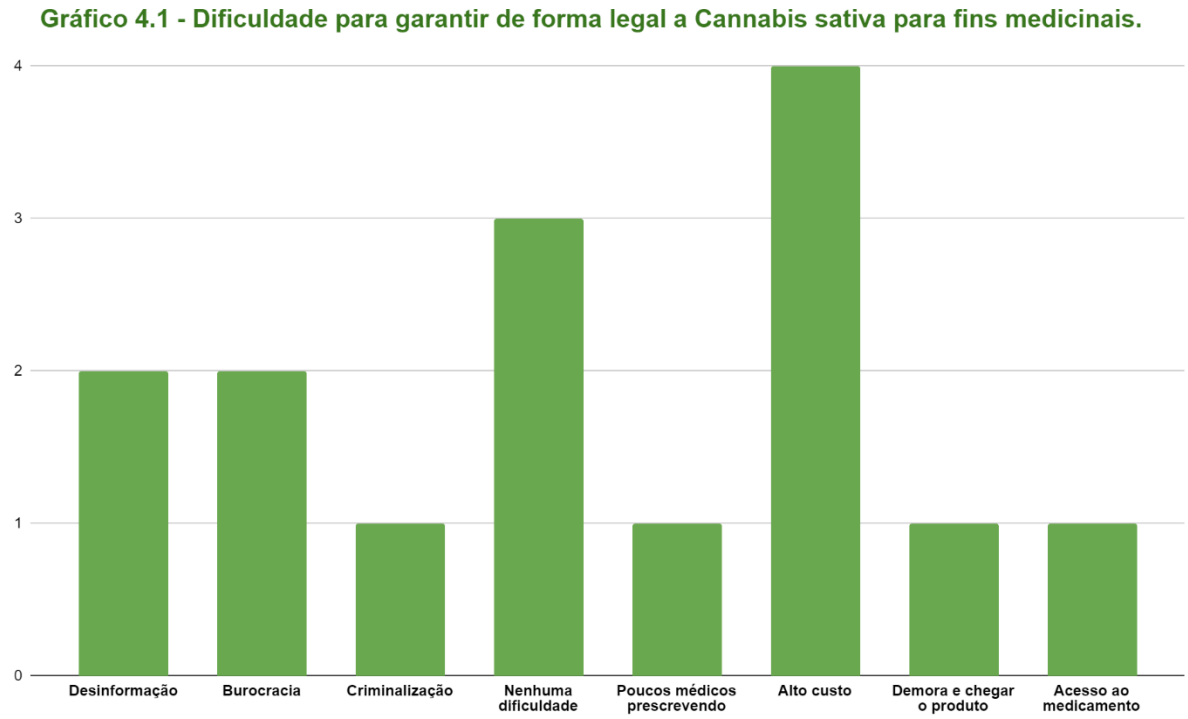
However, another 12.5% of the participants acquired it illegally (graph 4), we can observe that even if the percentage comparing obtaining it by legal means is small, it is still recurrent, we know that even with the release of ANVISA through authorization, the drug is quite expensive, in addition to the delay and bureaucracy related to documentation, these points being one of the main reasons end up leading users or their families, especially the lower class, looking for the product illegally, where it will guarantee low cost and agility. The survey "Map of the New Poverty" developed by FGV Social with data provided by the IBGE, showed that in 2021 the per capita household income was R$497.00 per month and affected about 62.9 million Brazilians, that is, 29.6% of the population of our country has a very low income. Regarding the price of the drug, in pharmacies that already have authorization from ANVISA to produce and sell products based on *Cannabis*, 200mg/30ml cannabidiol costs around R$ 2,143.30. It is notable that a family that earns R$497.00.00 per month will not be able to obtain the drug legally.

Figure 6 - How they acquired Cannabis sativa.




Source: The authors, 2023

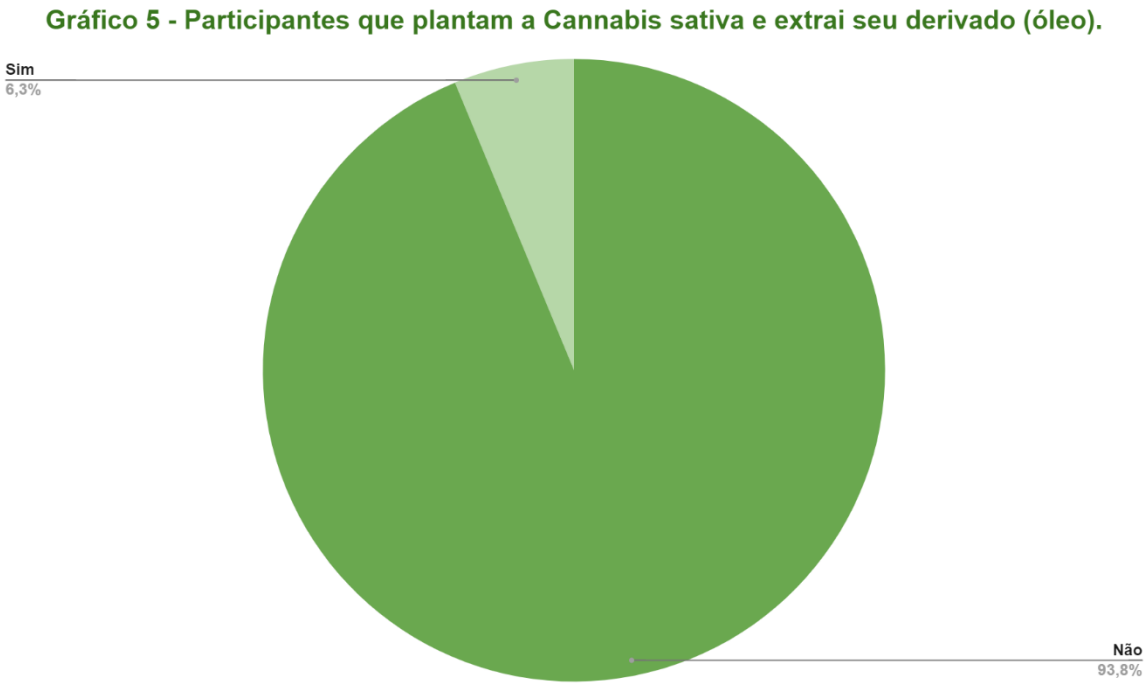
Figure 7 - Difficulties to legally guarantee Cannabis sativa for medicinal purposes.




Source: The authors, 2023

No graph 5 (**Erro! Fonte de referência não encontrada.**), it is possible to observe that about 6.3% of the participants plant the *Cannabis sativa* and extracts its oil, for treatment. And the other 93.8% do not obtain their medicine through cultivation and extraction of the oil. Growing and extracting the oil from *Cannabis* by the patient or family member, it would bring some benefits such as ease of treatment, low cost and consequently legal use. It is possible to grow the herb in two ways, indoors and outdoors, the way will imply the quality of the product. Indoor cultivation, or outdoor, is a less laborious and more familiar gardening cultivation, but this form of cultivation will be exposed to natural phenomena, bringing certain damage to the plants. Indoor cultivation, on the other hand, usually generates a superior product, as it has specific care such as air control, lighting levels and humidity, that is, more laborious and later less economical (The Canningma). Regarding extraction, there are some ways such as solvent or solvent extraction. Solvent extraction, which can be other vegetable oils, will depend on the polarity of the solvent and the plant's secondary metabolites. Solvent-free extraction, by physical friction, is one of the oldest extractions, this technique concludes a high-quality solution much more than the most current processes (Raber, 2015 *apud* Souza, 2022).

Figure 8 - Participants who plant Cannabis sativa and extract its derivative.




Source: The authors, 2023

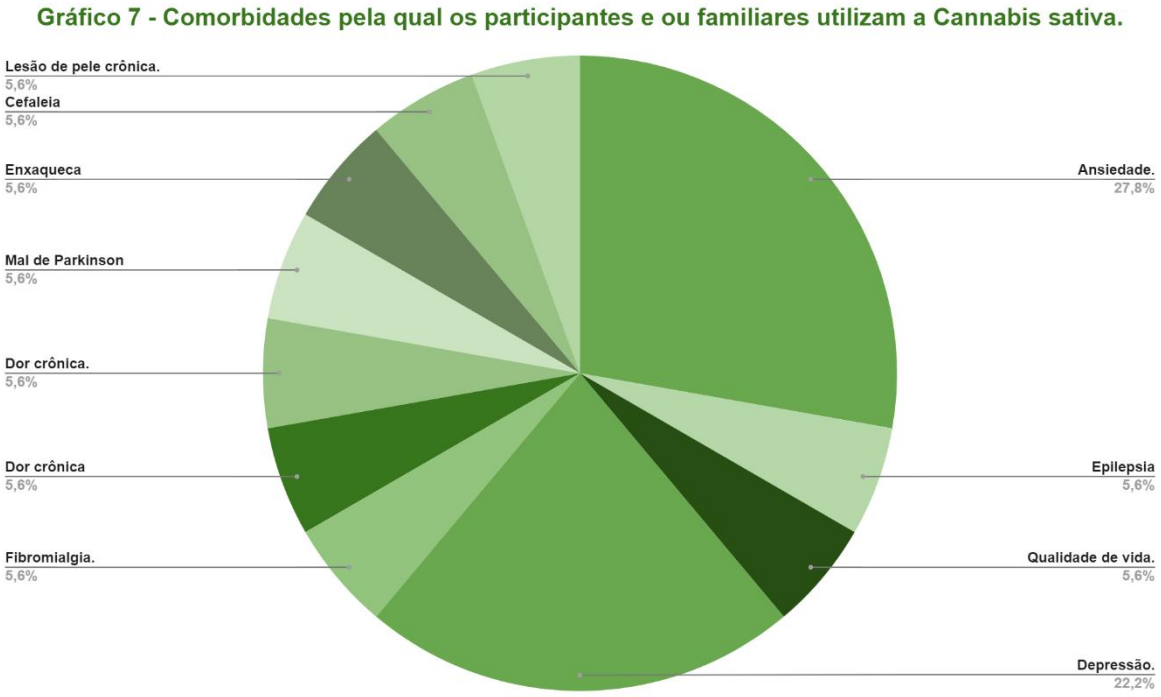
Specifically about the oil of *Cannabis sativa* we obtained 50% of the data that acquires while the other 50% do not acquire (Graph 6) (**Erro! Fonte de referência não encontrada.**), those that do not acquire either cultivation or oil, can possibly be used through other means, such as drugs, ointments, sprays or vaporizers. The substances extracted from the herb are effective and widely used in the global pharmaceutical industry. There are some marijuana-based medicines, such as: Metavyl, Marinol, Cesamet, Sativex (oral spray), Bebrocan, among others (Penha et al, 2019), in addition to marijuana oil that is rich in cannabidiol (Oliveira, 2016). The advantages of using oral drugs in addition to the pharmaceutical property, it has standardized concentrations/doses and a calmer way to be ingested. Medications made through cannabinoids, such as transdermal, nasal, pulmonary inhalation, and oral transmucosal enable action directly in the blood (Bruni et al, 2018). There is no doubt that substances extracted from the *Cannabis sativa* show good results for the treatment of several chronic, neurological or terminal diseases (Penha et al, 2019). Medical marijuana is not like any other medicine, each patient reacts in a different way, so the doses and the form of use differ according to each patient.

Figure 9 - Participants who purchase only the derivative (oil).


Source: The authors, 2023

Throughout this work, we were presented with the benefits of *Cannabis sativa* For several comorbidities, the graph shows the diseases highlighted by the patients in this study. In Graph 7 (**Erro! Fonte de referência não encontrada.**), noted that anxiety (31.3%) and depression (25.0%) are the diseases that are most treated through the herb by the participants, followed by migraine, Parkinson's disease, headache, chronic pain, skin lesions, fibromyalgia, epilepsy and quality of life. As mentioned by Mendes (2019), about the benefits that *cannabis* brings to the treatment of chronic diseases such as epilepsy, chronic pain, anxiety and depression. According to the WHO (World Health Organization), the prevalence of depression in Brazil is 15.5%, ranking 4th in the ranking of the main causes of burden, which is linked to overload, while anxiety takes over the ranking, with 18.6 million people who are affected by this disorder. The pandemic has increased about 25% in cases of anxiety and depression. According to the neuroscientist, professor at the Federal University of Rio Grande do Norte (UFRN) and researcher at the Center for Strategic Studies at Fiocruz, Sidarta Ribeiro, the comorbidities with the most evidence and the most indicated are Autism, Parkinson's, Alzheimer's, Tourette's Syndrome, Crohn's Disease, among others.

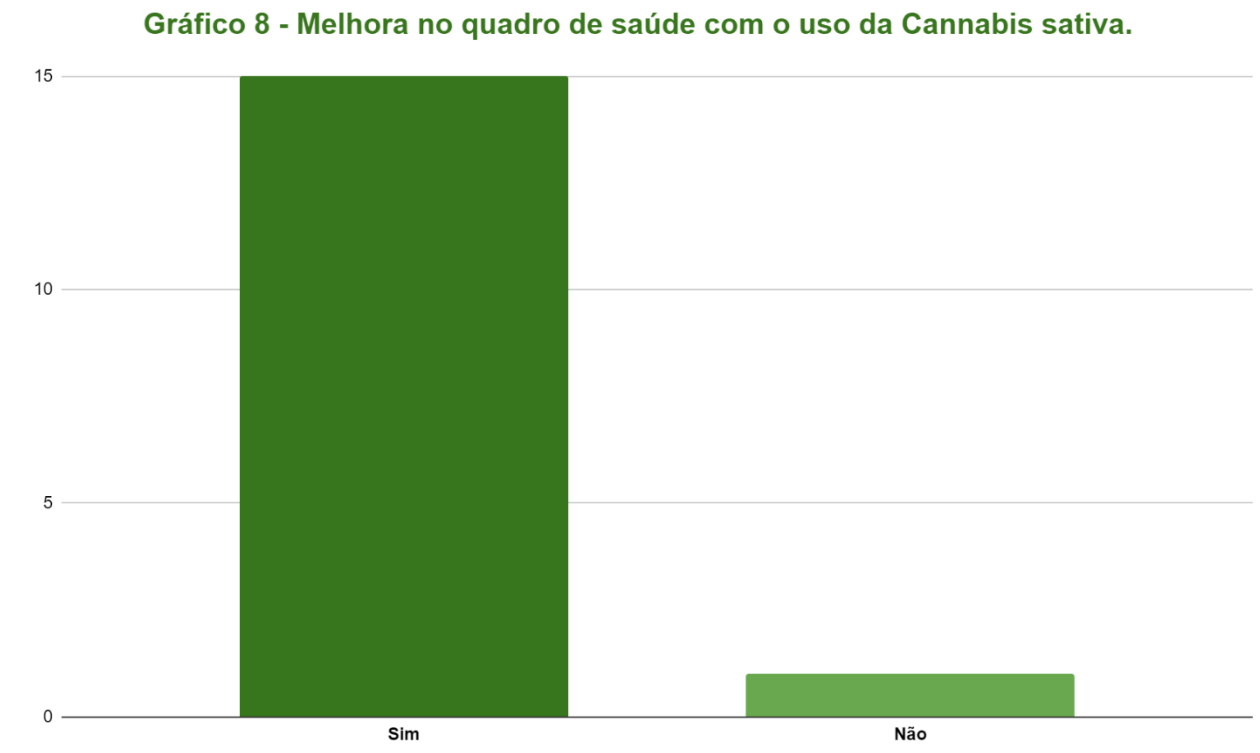
Figure 10 - Comorbidities for which participants and/or family members use Cannabis sativa.




Source: The authors, 2023

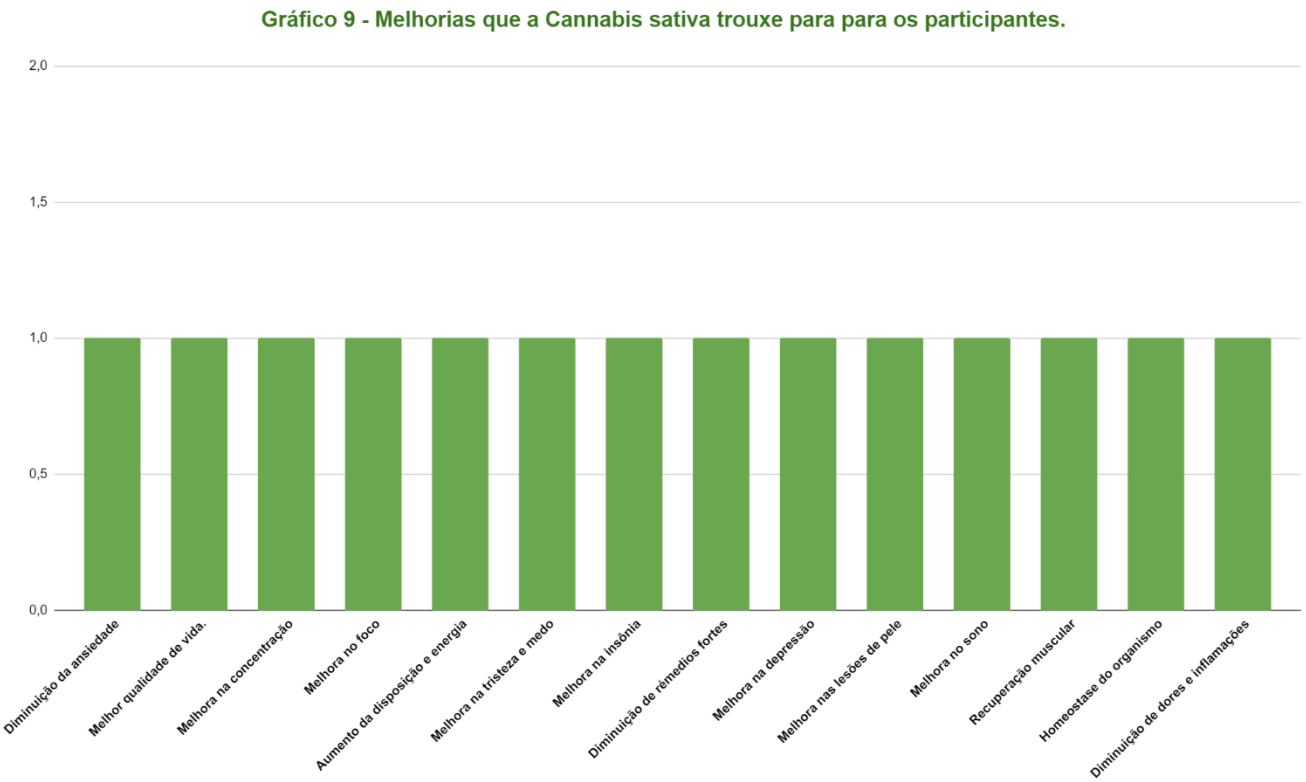
No graph 8 (**Erro! Fonte de referência não encontrada.**) It was observed that most of the patients improved their comorbidities, with 93.8% of them. In the report of improvement, a decrease in pain, insomnia, anxiety, depression, as well as muscle recovery, improvement in focus concentration, increased disposition and energy (Graph 9) (**Erro! Fonte de referência não encontrada.**), that is, the *Cannabis* brought quality of life to the participants. The *Cannabis sativa* is increasingly being used as a treatment for various comorbidities, its effects are related to the stimulation of the mind, increased energy, creativity, insomnia, even in the replacement of some medications such as opioids, which are drugs with analgesic effect used to contain pain, these opioids have been causing serious problems such as addictions and in some cases death by overdose (Vigil, et al, 2017; Schuckit, 2016; Rudd, et al 2016; Silva, et al, 2018; Nascimento, et al, 2019; Aguiar, et al, 2023). Dr Alline Cristina de Campos, PhD in the Department of Pharmacology at the Ribeirão Preto Medical School, mentions through her preclinical studies that cannabidiol has antidepressant and anxiolytic properties. Through the data, the effectiveness of the *Cannabis sativa* For the treatment of various comorbidities, we cannot deny that it brings quality of life to patients.

Figure 11 - Improvement in health with the use of Cannabis sativa.




Source: The authors, 2023

Figure 12 - Improvements that Cannabis sativa brought to the participants.




Source: The authors, 2023

## CONCLUSION

The current work aimed, through the research developed with the carrier public and its results, to show the benefits of *Cannabis sativa* for medicinal purposes and the difficulties of acquiring permission for legal use.

During the course of the work, the history of the plant was analyzed, being knThe authors as an ancient herb from Asia, used for medicinal, recreational, hedonistic and religious purposes.

In this way, information was made available about the benefits of the plant as a medicinal source for the treatment and improvement of various comorbidities such as anxiety, depression, reduction of chronic pain, insomnia, muscle recovery, improvement in concentration and focus, as well as increased disposition and energy.

Advances in Brazil have facilitated patients' access to medical *cannabis*. The laws sanctioned in São Paulo, Salvador and Rio de Janeiro provide patients with free access through medical prescription and SUS to medicines based on compounds extracted from *Cannabis sativa*. These advances bring benefits to all patients with the various comorbidities, especially the low-income classes, since medical consultations and medications have high costs.

However, it was possible to analyze the harm and adversities that patients go through to obtain ANVISA authorization and access to medicines based on *Cannabis sativa,* the work unraveled the difficulties of the participants when it comes to obtaining their rights. Even with the evidence of the medicinal efficacy of the cannabidiol and THC compounds, there is still repulsion due to the deep-rooted preconception, in addition to the difficult access to the drug, which will depend on the medical consultation that requires a high cost, thus making it difficult for low-income individuals to access it, as well as the permanence of the use of those who already do it.

In conclusion, the present work fulfilled the objectives and the problem in question, providing both blurring of authors and laws, as well as of the comorbidities themselves who make medicinal use of *Cannabis sativa*.

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