

UNIVERSITY STUDENTS PERCEPTION OF THE USE OF DERIVATIVES OF *CANNABIS* *SATIVA* FOR PSYCHIATRIC TREATMENTS

PERCEPÇÃO DOS ESTUDANTES UNIVERSITÁRIOS SOBRE O USO DE DERIVADOS DA *CANNABIS SATIVA* PARA TRATAMENTOS PSIQUIÁTRICOS

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Abstract: Cannabis sativa has been explored as a treatment option for psychiatric conditions, due to the properties presented by its metabolites, especially cannabinoids. Cannabidiol is one of the most studied cannabinoids with great therapeutic potential, acting as an anxiolytic, antidepressant, antipsychotic, anticonvulsant and anti-inflammatory. One of the main advantages of this compound is that it does not have numbing effects. Even with its proven therapeutic efficacy for various pathologies, its clinical use is still an obstacle. The present study aims to analyze the perception of health students regarding the use of cannabidiol for psychiatric treatments. This is a field study with an exploratory focus with quantitative data, the research was carried out using a questionnaire with students from undergraduate courses in the health area at the Centro Universitário do Recôncavo da Bahia. The research was evaluated by a Research Ethics Committee with opinion N° 6,339,318, shortly afterwards the research began, the data was obtained, organized and tabulated. It was found that

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45% of students stated that they were aware of the existence of treatments based on derivatives of this compound. The use of *C. sativa* for psychiatric illnesses offers a series of advantages, but investment in scientific studies and clinical trials is necessary to understand the action of the plant, as well as its benefits and adverse effects, which will contribute positively to its use. The students' perception of medicinal and recreational use, and how they deal with the use of plant derivatives for psychiatric treatments, was notable. However, it is still necessary to bring the use of medicinal plants to the academic sphere, highlighting their beneficial and harmful effects, considering that tests have shown significant results in relation to *C. sativa* in psychiatry.

Keywords: Cannabidiol; Mental Disorders; Therapeutic Use.

INTRODUCTION

About a third of the global population faces or will face psychiatric disorders at some point in their lives. Among the main psychiatric conditions are depression and anxiety, and depression, in particular, is considered one of the most significant afflictions of this century. The prevalence of these disorders is related to a complex interaction of factors, which include individual characteristics, such as genetic predisposition, coping skills with emotions and thoughts, as well as social factors, such as the environment in which the person lives, standard of life, working conditions and other relevant elements ¹.

Plants have been used for medicinal purposes to treat various symptoms and diseases for a long time, as they have healing potential. According to the World Health Organization (WHO)², about 80% of the population present in developing countries need the use of medicinal plants as a means of preventing and treating diseases³. Among these is *Cannabis sativa*, which has significant therapeutic capacity ⁴.

C. sativa, popularly known as marijuana or hemp, is a plant belonging to the Cannabaceae family, originating from Central Asia, and has the ability to adapt to different soils and climates. The presence of this plant in the history of Brazil dates back to the first Portuguese caravels, which arrived around 1500, its ropes and candles were made from the fibers of this vegetable. It is known that seeds of the plant were brought by enslaved Africans, who hid it in their clothes (Carlini, 2006) ⁵.

Currently, *C. sativa* has been explored as a treatment option for psychiatric conditions, due to the therapeutic properties presented by chemical substances present in its composition. This plant can be used in different therapeutic approaches, this highlights the need to expand discussions about the medical, ethical and social aspects associated with the use of cannabis-based manipulated medicines. Countries such as the United States of America and Canada have

considered these cannabinoid-based drugs, being promising alternatives for the treatment of pathologies such as Alzheimer's disease, Parkinson's disease, anxiety and depression ⁶.

Cannabinoids, flavonoids and steroids are produced by the secondary metabolism of *C. sativa*. Currently, about 400 chemical compounds have already been identified in this plant, tetrahydrocannabinol (THC), tetrahydrocannabivarin, cannabinol, cannabidiol, cannabigerol and cannabichromene are the quantitatively most important compounds, among the 60 isolated cannabinoids ^{7,8}.

C. sativa because it has psychoactive elements in its composition is considered a narcotic, both in Brazil and in other countries⁹. Cannabinoids are classified into two groups, non-psychoactive and psychoactive. In the group of non-psychoactive cannabinoids, cannabidiol (CBD) stands out, which is indicated for therapeutic purposes, such as anxiolytic, anti-inflammatory, antipsychotic, etc. THC is in the group of psychoactive cannabinoids ¹⁰.

The objective of this study was to investigate the perception of health students in relation to the use of *Cannabis sativa* derivatives for psychiatric treatments.

METHODS

This study is a field study that, according to Gonsalves (2001)¹¹, is a type of research that seeks to bring information directly from the population being studied. It aims at the exploratory approach, the purpose of the research is to become familiar or obtain a new understanding of a phenomenon and discover new ideas. The work relies on quantitative data, which for Fontelles (2009)¹², the quantitative approach refers to the collected data, these were expressed in the form of numerical data, using resources and statistical techniques to classify and analyze them.

The project was submitted to the Research Ethics Committee (CEP), of the Maria Milza University Center (UNIMAM). And the data collection only occurred after its approval (opinion nº 6.339.318). Soon after, the research was carried out in a University Center present in the Recôncavo da Bahia, located in the Municipality of Governador Mangabeira - BA. This institution has seven (7) health courses, and the research was conducted with students from all semesters (1º to 10º) of health courses.

The study participants were 300 students, of which 287 met the inclusion criteria of the research. The participants were from the undergraduate courses in the health area (Pharmacy, Biomedicine, Physiotherapy, Nutrition, Nursing, Dentistry and Radiology Technologist) of a University Center present in the Recôncavo da Bahia, who were regularly enrolled, who were in accordance with the TCLE (Free and Informed Consent Term) and were 18 years old or older.

The individuals who could not participate in the study were those who did not obey the inclusion criteria of the research, therefore adopting as exclusion criteria: participants under 18 years of age, who were not part of the student body and who would not sign the consent form.

Health students were asked about the use of *C. sativa* for psychiatric treatments, through the questionnaire applied in person. The data were organized, and then analyzed by descriptive statistics and presented in tables and graphs through the Microsoft Excel platform.

RESULTS AND DISCUSSION

In this item were organized, transcribed, analyzed and discussed, the data obtained through the questionnaire applied in person, which was carried out with the students of the health area of the Maria Milza University Center, in Governador Mangabeira - BA.

The questionnaire had a total of 287 respondents, being distributed among the courses of: Pharmacy (53 students); Psychology (41 students); Physiotherapy (38 students); Nursing (34 students); Biomedicine (34 students); Nutrition (34 students); Dentistry (28 students) and Radiology (25 students).

Given the answers contained in the questionnaire by health students, the data were tabulated and read on the Microsoft Excel platform, so that the analysis could be made. Thus, the results were grouped into two main categories: evaluation of the sociodemographic profile and general considerations on the use of *C. sativa* derivatives.

Drawing the sociodemographic profile of students in the health area is extremely important, because it is from there that it will be possible to determine data from this population, where it was possible to collect data, such as age group, marital status, race and color, as can be seen in Table 1.

Table 1 - Quantitative data on the students' sociodemographic profile.

Sex		%
	Feminine	78
	Masculine	22
Color/Race		%
	Brown	51
	Black	34
	White	13
	Yellow	1
	Did not answer	1
	Indigenous	0
Age		%

	18 – 24	83
	25 – 30	12
	31 – 40	4
	43 more	1
Marital Status		
	Single	91
	Married	4
	Did not answer	3
	Stable union	1

Source: By own author, 2023

From the data, it can be seen that most students are young, as they total 83% between 18 - 24 years old and 12% between 25 - 30 years old. The minority of students are between 31 - 40 years old, which totals only 4% of the students questioned.

As most students are young, it is possible to infer that this can be an advantageous characteristic for students, as they have the opportunity to start their career when they are young. On the other hand, starting early may be associated with some career challenges and uncertainty about the choices they make (Silva, 2016)¹³.

Most of the responding students in the health area were female, representing 78% of the sample. As in the study by Silva and collaborators (2022)¹⁴ there was also a predominance of females (75.3%), the most prominent age group was that of students aged between 20 and 30 years (96.3%).

It is observed that in relation to color/race, most students declare themselves brown (51%), black (34%), white (13%) and those who declare themselves yellow were 1% of the total. According to data from (IBGE, 2021)¹⁵ in 2012, there was a significant increase of 36% of the population that declares itself black, while the brown population had growth by only 10%. With this, the number of people who declare themselves white decreased to 3% in the same period. It is also observed that about 91% of the participants are single, 4% are married and about 1% are in a stable union. It is remarkable that the participants in this study, in their vast majority, are students up to 30 years of age, female, single and who declare themselves brown or black.

GENERAL CONSIDERATIONS ON THE USE OF C DERIVATIVES. SATIVA

Uses of Cannabis sativa and benefits of cannabidiol

Table 2 demonstrates students' knowledge of the difference between recreational use and medicinal use of C. sativa, knowledge of the use of the plant for medicinal purposes and the endocannabinoid system.

Table 2 - General perception of the difference between recreational use and medicinal use of *C. sativa* and about the benefits of cannabidiol.

Did you know that there is a difference between recreational and medicinal use of Cannabis sativa?		
	Yes	77%
	No	22%
	Did not aswered	1%
Do you know anyone who uses or has used Cannabis sativa for medicinal purposes?		
	Yes	12%
	No	88%
Did you know that there is a system in our body, in addition to the immune, nervous and circulatory systems, called the endocannabinoid system?		
	Yes	15%
	No	84%
	Did not aswered	<1%
Could you name any effects that the endocannabinoid system has on the human body?		
	The interviewee was able to quote	7%
	The interviewee was unable to cite	93%
At some point in your academic life, have you heard about the benefits of cannabidiol?		
	Yes	46%
	No	54%
	Did not aswered	<1%
Are you aware that there are treatments based on cannabidiol derivatives for psychiatric illnesses?		
	Yes	45%
	No	54%
	Did not aswered	<1%

Source: By own author, 2023

The results presented in **Table 2** refer to the questions of the questionnaire about the differences in the recreational and medicinal use of *C. sativa*, where 77% indicate that they know the difference between the two and 22% do not know the differences. Then they were asked if they knew people who made or have already used cannabidiol to treat some pathology and 88% indicated that they do not know people who use this compound therapeutically. Only 12% of respondents know current or non-CBD users, and of these, the most indicated treatment conditions were: Alzheimer's disease, depression, cerebral palsy, HIV, mitigating the effects of cancer, attention deficit hyperactivity disorder, anxiety and schizophrenia.

According to Grosso (2020)¹⁶ the role of information is fundamental and constitutes the main objective that is knowledge, which makes it possible to enlighten society on a certain subject. Know the products derived from *C. sativa*, distinguishing the difference between CBD, and THC, which, as we have seen, also has therapeutic effects, where it only has a toxic effect when used recreationally. Only with research, scientific articles and dissemination of scientists, doctors, chemists and other health professionals who have knowledge about *C. sativa* and its

derivatives, with this information it will be possible to reach the population as a whole.

When asked about the existence of another system in the human body in addition to the best known ones, only 15% answered yes to the question, also indicating low rates of recognition of the endocannabinoid system. In contrast to the low recognition of the system, cannabidiol is more recognized and cited, with 46% of students saying they had heard of the benefits of CBD and 45% saying they knew about the existence of treatments based on derivatives of this compound.

The discovery of the endocannabinoid system helped in the knowledge of the ability that cannabinoids can affect the psychological and physiological state through their communications with receptors and proteins, including pain, emotional response, regulation of the endocrine system and other systems, with the discovery gave understandings about a new direction, which can provide better treatment choices from the plant for a variety of neurological disorders, participating in various physiological and eventually pathophysiological processes in psychiatric diseases^{17,18}.

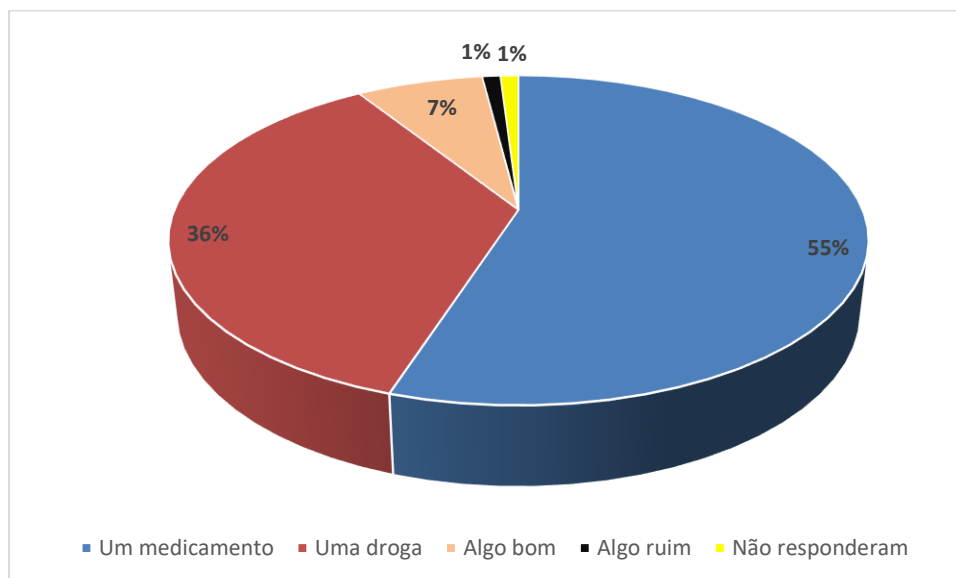
When asked about the endocannabinoid system and to mention what it can promote to the human body, only 7% of the students were able to mention something like: the system has receptors capable of regulating functions in the body providing relaxation, sedation (control of some neurological diseases such as Parkinson's disease), where *C. sativa* derivatives act thus promoting well-being for the human body. The other interviewees did not know how to quote, because they did not know such a system. Many related to something that could affect the human central nervous system bringing imbalance to the body.

Perception about *C. sativa* and its uses

One of the questions aimed to demonstrate the students' perception of the *C. sativa* terminology.

Thus, 55% of the answers indicate that health students associate *C. sativa* with a drug. Already 36% of students associated *C. sativa* with a drug, this fact is still established, because this vegetable is still considered a narcotic and the population has difficulty in differentiating medicinal use and recreational use. About (7%) of the participants indicated that *C. sativa* is something good, (1%) as something bad and (1%) did not answer on the subject (**Figure 1**).

Figure 1 - Students' perception of the terminology *C. sativa*.

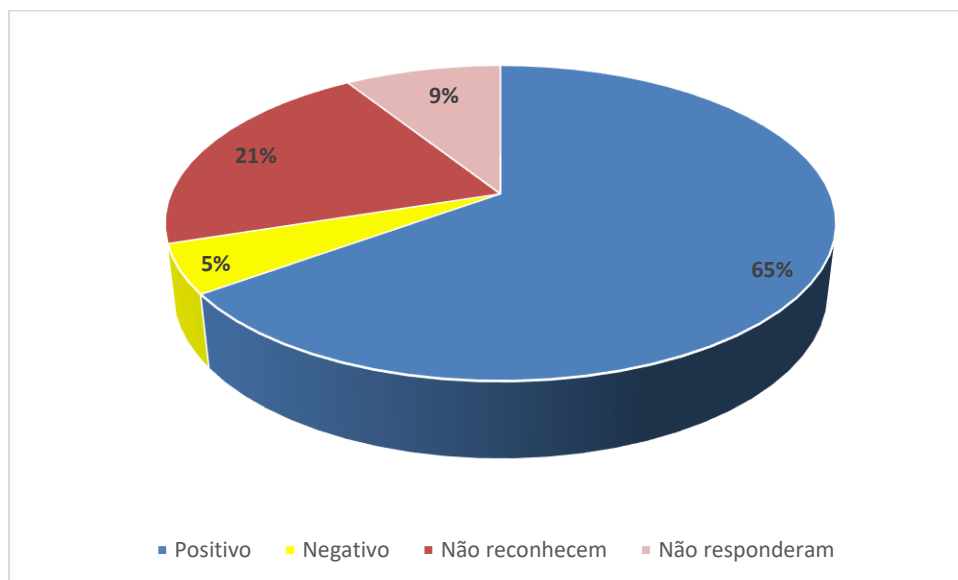


Source: By own author, 2023.

C. sativa, known for being a medicinal plant, has attracted a lot of attention over the years. In Brazil, there have been discussions about the implementation of medicines based on plant derivatives, mainly CBD for treatments of various therapeutic conditions. ANVISA¹⁹ brought changes in the terms of control and access, due to the import that has to be made to obtain these products²⁰.

Following the questionnaire, students were evaluated for their perception of the use of *C. sativa* derivatives, such as cannabidiol for psychiatric treatments, and 65% are in favor of its use (indicating a positive perception of the subject) (**Figure 2**). Because Cannabis has therapeutic effects in improving several diseases, since it is scientifically proven for its chemical potential, which makes it very important for the medicinal and pharmacological branch, thus attending to diseases that can be treated in a less psychoactive way and, therefore, promoting benefit for improvements in quality of life. Approximately 5% of these students described its use as negative, for these, the derivatives are dangerous and that the plant does not have sufficient scientific evidence to prove its clinical use. In addition, 21% of respondents do not recognize this purpose of use.

Figure 2 - Students' perception of the use of *C. sativa* derivatives for psychiatric purposes.



Source: By own author, 2023.

The pharmacological effects of *C. sativa* are associated with its chemical compounds, mainly of which CBD and THC stand out (DA SILVA, 2024,)²¹. CBD has several clinical uses and has its proven effectiveness for medicinal conditions, presenting a beneficial profile for safety and tolerability to patients^{22,23}.

It is important to note that 87% of the participants would use *C. sativa* derivatives, because, as much as the plant has a negative social stigma, being related to a drug, it is known that there are two ways for its use: medicinal and recreational. Only 11% answered that they would not use the derivatives because they did not know the plant and that they could suffer some kind of prejudice in society for using a medicine that comes from marijuana. However, in general, people do not yet know how to differentiate between medicinal and recreational use, as well as the stereotype is reinforced by social, racial and religious prejudice.

According to Sousa (2013)²⁴ although cannabinoids such as CBD have their proven health benefits, the debate around their medicinal uses still remains controversial. The discussions addressed about *C. sativa* are traced by moralistic discourses, because they link the medicinal form to its recreational and illicit use.

Students' knowledge of the therapeutic effects of cannabidiol

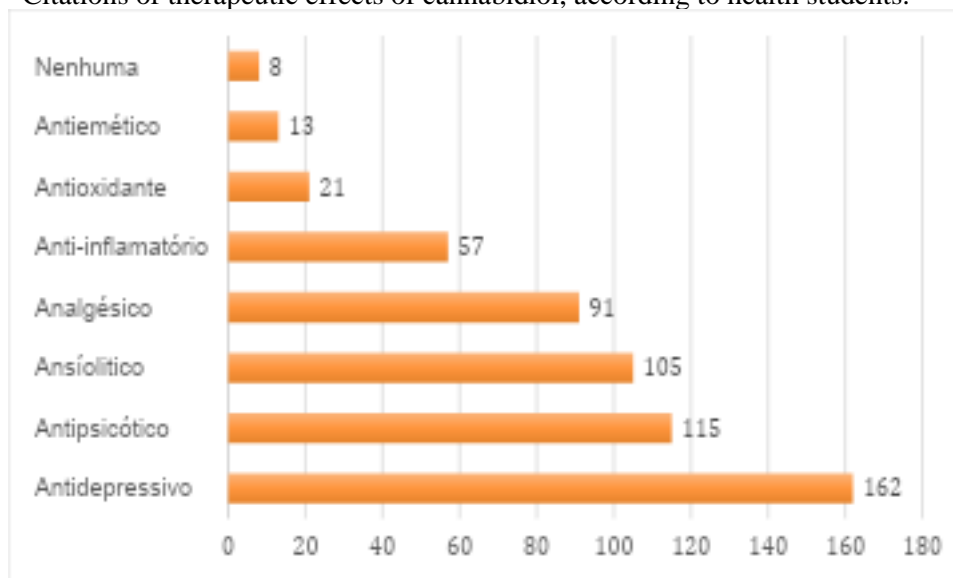
Parts of the plant have been used for centuries to promote analgesic, anxiolytic, anticonvulsant, antiemetic effects, to relieve muscle spasms and even migraine²⁵. Only with the isolation and description of the chemical structure, mainly of CBD, that it was possible to study in more depth its mechanisms and the therapeutic effects of *C. sativa*²⁶.

In psychiatric disorders such as anxiety and depression, there is evidence that plant derivatives, especially CBD, are capable of anxiolytic and antidepressant effects. Animal

research and clinical trials in humans have shown reports of the empowerment of CBD in modulating the action of neurotransmitters, serotonin and dopamine. In addition, cannabinoids can stimulate brain plasticity and neurogenesis, methods that are involved in the pathophysiology of depression and anxiety²⁷.

Cannabidiol has anxiolytic and antipsychotic properties where through research with volunteers these activities have been proven. CBD was administered orally (1 mg/kg, associated with a dose of 0.5 mg/kg of THC). There was a reduction in psychotic symptoms and anxiety caused by THC, it was noticed that there was no change in the plasma levels of the component by CBD. Above all, its ability to alter other neurotransmitters ends up contributing to the balance of excitatory and inhibitory transmission, restoring synaptic plasticity and the performance of neurons²⁸. In Figure 3, it is possible to visualize the therapeutic effects that are attributed to CBD, being the most cited indications for antidepressant, antipsychotic and anxiolytic effects.

Figure 3 - Citations of therapeutic effects of cannabidiol, according to health students.

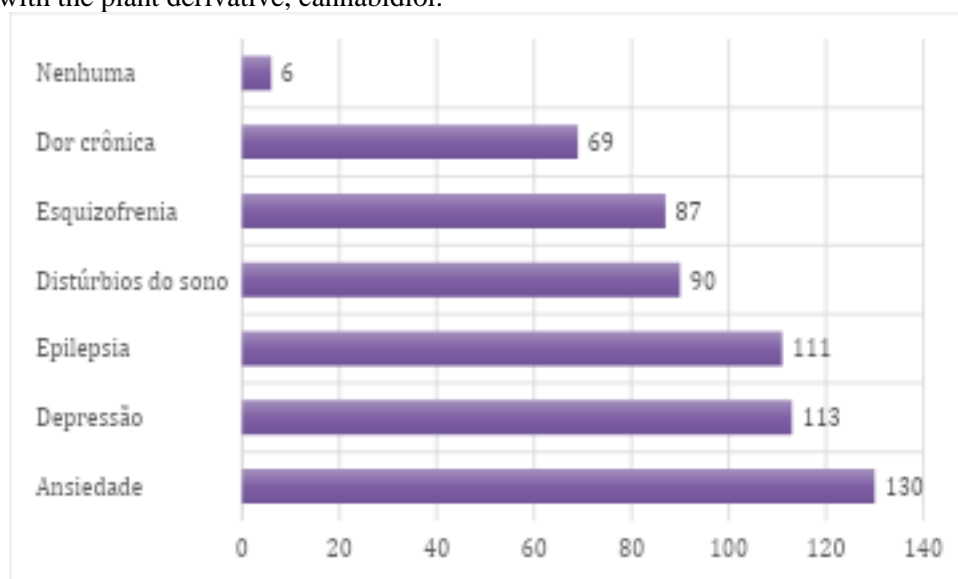


Source: By own author, 2023

In 2700 BC, Shen-Nung, popularly known as "The Red Emperor", came to be considered a pioneer in the reference to the therapeutic use of *C. sativa*, where in the pharmacopoeia of his own, it is reported for the treatment of conditions such as: rheumatic pain, irregular and painful menstrual cycles and even malaria. Already in the first century, we had Dioscorides, a Greek doctor, pharmacologist and botanist, who through his work "De Matéria Médica", associated the use of the plant with relief of joint pain and inflammation, being this book a reference until the 18th century¹⁶.

With the advances of medicine, cannabidiol has become a medicine released for therapeutic use for patients with epileptic seizures. Thus allowing that with the dissemination in the media of the promising impacts, other uses may emerge as a treatment for chronic pain, for inflammations such as rheumatoid arthritis; nausea; depression²⁹.

Figure 4 shows the students' citations regarding the diseases that can be treated with the plant derivative, cannabidiol.



Source: By own author, 2023.

It is possible to see that most students consider cannabidiol as a treatment for anxiety, depression, epilepsy and sleep disorders, however less than 80 students have knowledge that: chronic pain, schizophrenia, can also be treated with cannabidiol.

CONCLUSION

A positive perception of students was observed regarding the use of *C. sativa* derivatives for medicinal purposes, as a considerable portion of these students said they carried out treatment or knew people who use it for various conditions, physiological or mental. It is concluded that the use of *C. sativa* for psychiatric diseases offers a series of advantages, being necessary, however, investment in scientific studies and clinical trials to understand the action of the plant, such as benefits and adverse effects, which will contribute positively to its use. Because it has low acceptance by society, due to the lack of knowledge on the subject, as well as most of the students questioned in the survey. It is of great importance to highlight the use of medicinal plants for therapeutic purposes in universities. This research provides a reflection on the topic addressed, and highlights the importance of the dissemination of scientific knowledge.

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