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USO E CULTIVO DE PLANTAS MEDICINAIS: UMA EXPERIÊNCIA NA EMTI PROFESSOR JOAQUIM FRANCISCO DE SOUSA FILHO, FORTALEZA-CEARÁ.

USE AND CULTIVATION OF MEDICINAL PLANTS: AN EXPERIENCE AT EMTI PROFESSOR JOAQUIM FRANCISCO DE SOUSA FILHO, FORTALEZA-CEAR

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RESUMO
Esta pesquisa, apresenta relato de vivência ocorrido no primeiro semestre de 2023 no Programa Residência Pedagógica da CAPES - subprojeto Geografia da Universidade Federal do Ceará desenvolvido na Escola de Tempo Integral Professor Joaquim Francisco De Sousa Filho, nos anos finais do ensino Fundamental na cidade de Fortaleza (CE) tendo como objetivo a articulação entre a Universidade e a educação básica. O seu desenvolvimento ocorreu em etapas, desde o referencial teórico, planejamento de aulas a visita de campo dando ênfase a temática Agroecologia, especialmente a importância das plantas medicinais vinculado à cultura indígena, assunto abordado no livro didático adotado na referida escola. Mostrou ainda, a importância de utilizar metodologias ativas dentro de sala de aula para aprofundar sobre temática que envolve saberes tradicionais e comunidades indígenas. No processo de elaboração da pesquisa foram selecionados dois discentes do 7º ano para uma visita à comunidade indígena Pitaguary (em Maracanaú e Pacatuba localizadas na Região Metropolitana de Fortaleza) com o intuito de aproximá-los de outras realidades e que pudesse ser compartilhada com os demais estudantes. A socialização da visita foi apresentada em forma de trabalho científico (pôster) na feira de ciências escolar, na qual se constatou a importância de promover conhecimentos e experiências mútuas e salientar que a aproximação da universidade com a educação básica repercute na construção de um ensino geográfico com criticidade e praticidade em seu cotidiano.
Palavras-chaves: Agroecologia, Geografia, Aula de campo, Cultura indígena, Metodologias ativas**.**

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ABSTRACT
This research presents na experience report that occurred in the first semester of 2023 in the CAPES Pedagogical Residency Program – Geography subproject of the Federal University of Ceará developed at the Escola de Tempo Integral Professor Joaquim Francisco De Sousa Filho, in the final years of elementary school in the city of Fortaleza (CE) with the objective of articulating the University and basic education. Its development occurred in stages, from the theoretical framework, class planning to field visits, emphasizing the theme of Agroecology, especially the importance of medicinal plants linked to indigenous culture, a subject covered in the textbook adopted at that school. It also showed the importance of using active methodologies within the classroom to delve deeper into topics involving traditional knowledge and indigenous communities. In the process of preparing the research, two 7th year students were selected for a visit to the Pitaguary indigenous community (in Maracanaú and Pacatuba located in the Metropolitan Region of Fortaleza) with the aim of bringing them closer to other realities that could be shared with others. Students. The socialization of the visit was presented in the form of a scientific work (poster) at the school science fair, in which the importance of promoting mutual knowledge and experiences was noted and highlighting that the university's approach to basic education has repercussions on the construction of geographic education with criticality and practicality in your daily life.
Keywords: Agroecology, Geography, Field class, Indigenous culture, Active methodology.

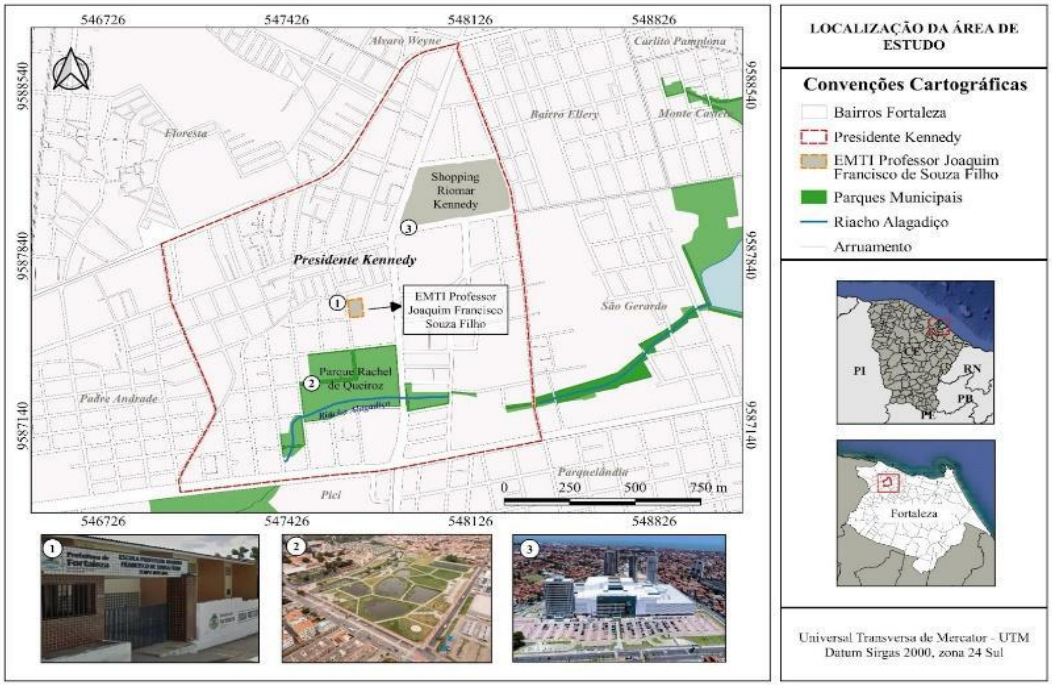
INTRODUCTION

This work presents an experiential report from the first semester of 2023 within the Pedagogical Residency Program (RP) of the Coordination for the Improvement of Higher Education Personnel (CAPES), in the Geography subproject of the Federal University of Ceará. This program aims to promote the improvement of initial teacher education in basic education courses, thus strengthening theoretical-practical training, contributing to the construction of professional identity, and valuing the experience of basic education teachers in preparing future professionals (CAPES, 2023). Therefore, the school where we conducted this work was the Full-Time School Professor Joaquim de Sousa Filho, focusing on the final years of elementary education in the city of Fortaleza, CE (map 01), where we served as scholarship holders, supervising teachers, and academic advisors.

In 2015, the school became full-time, thus promoting autonomy, solidarity, and competence among students through subjects in the Common Curricular Base and the diversified part. It started the 2023 academic year with 11 classes, comprising 429 students and 19 teachers. As seen on map 01, the school is located in the Presidente Kennedy neighborhood, where different life experiences can be found within the classroom, connecting to various ways of life.

Therefore, this work aimed to encourage and reveal paths for students to participate in scientific meetings within and outside the school through dialogue between university and basic education. To this end, its development occurred in stages, seeking theoretical references, observations, planning, and, finally, field trips emphasizing the Agroecology theme, especially the importance of medicinal plants linked to knowledge derived from indigenous cultures. The visit of two students to the Pitaguary People's village, located in Maracanaú and Pacatuba – CE, was essential for the production of the work and subsequently for its presentation at the school science fair.

Map 1: Location of the EMTI Professor Joaquim de Sousa Filho school and infrastructure in the Presidente Kennedy neighborhood



Source: Santos; Torres; De Paula 2023.

Throughout the process, it's worth noting that there was extensive preparation for two 7th-grade students to present at the Science and Culture Fair of the Municipality of Fortaleza, which took place on June 13, 2023, in the school's gymnasium. Initially, with the weekly RP meetings in January, it was decided that throughout the year, we would work on the theme "Agroecology" in the school-fields. Thus, armed with the theme and the grade level we were involved with, we linked lesson planning to the highlighted theme. The school environment is conducive to sowing ideas and harvesting discoveries. However, these discoveries don't always need to be innovative. Often, in the school environment, the harvest comes from rediscovering, valuing, and contextualizing old knowledge associated with academic knowledge. As Werner et al. (2021) suggest, agroecology in schools can perfectly play this role—seeking the old, combining it with the new, and being innovative.

In this context, through an analysis of the textbook "Araribá Mais Geografia" by Editora Moderna (2018), used by the school, we noticed that it covers content related to this specific theme. That is, the formation of the Brazilian territory, environmental preservation, cultural diversity, among others, which facilitated the approach to the theme in Geography classes.

In the first classes, at the beginning of the first semester of 2023, the teacher addressed environmental issues such as waste accumulation, river pollution, floods, and landslides, always using examples from students' daily lives and other realities to ensure better understanding of the subject. According to Cigoline and Silva (2020), the Geography teacher should relate school content to the students' space and consider different types of

languages that allow for cognitive development and understanding of spatial reality, beyond simple representation.

From this, cartoons were also used in classes as a teaching resource, a strategy that combines reading, writing, stimulates the formation of students' critical knowledge and creativity in a playful way, which can be seen in figure 01. Therefore:

> It is important that the teacher seeks different teaching methods, which are efficient for the class's learning. Therefore, through teaching methods, it is worth highlighting that the use of cartoon language allows students to feel motivated to interact in the classroom, reporting their curiosities about the topics covered and expressing their interpretations (LUCENA et al. 2021. p.2).

According to the authors, it is important to implement active learning methodologies in the classroom to create an environment conducive to enjoyable learning and to achieve all objectives regarding the content. This makes already engaging classes with students even more attractive, even if it increases the workload for teachers, who, in a country like Brazil, often face undervaluation of their profession and exhaustive work hours.

These methodologies motivate and involve the entire school community, showing students that they can participate in all extracurricular activities and projects, thus increasing their interest and changing their daily routines. Therefore, activities involving cartoons or caricatures allow for further exploration of imagination and absorption of content in the classroom

Figure 01: Activity related to the environment.

1- Observe a charge abaixo e em seguida responda as questões abaixo:

a) - Você acha que o homem estava se referindo a mesma "mudança" que a mulher estava falando? Justifique sua resposta.

b)- Quais "hábitos" o homem estava se referindo?

c)- O que significa Responsabilidade? Dê exemplos.

d)- No caso do "alagamento" presente na charge, você acha que mudar de casa vai resolver o referido problema? Justifique sua resposta.

e)- Explique os 2 sentidos da palavra **mudança**, presente na charge.

Source: disponível em: https://images.app.goo.gl/gp4CGgj3uw36q

This activity with cartoons aimed to work on textual interpretation based on the students' perception of the subject, always emphasizing the importance of environmental education in schools and in teacher training. "We believe it is necessary to create situations that prioritize student interaction with the themes, making them more tangible to the ability to abstract skills and competencies, facilitating their cognitive freedom" (CASTROGIOVANNI, 2015, p.94).

Thus, we sought the assistance of the geography textbook, where we were able to define the theme, namely, the importance of indigenous culture in the discovery and use of medicinal plants. The lesson plans were developed in accordance with the National Common Curricular Base, linked to the Competencies and Skills in Geography that address the concepts used in the classroom (BRASIL, 2017). In doing so, we highlight the importance of working on indigenous culture in geography classes, considering Law

No. 11,645, of March 10, 2008, which aims to obligate the teaching of the history and culture of indigenous peoples in both the early and final years. This fact urges us to deepen our understanding of this theme, seeking research and engaging in dialogue with active leaders in the field.

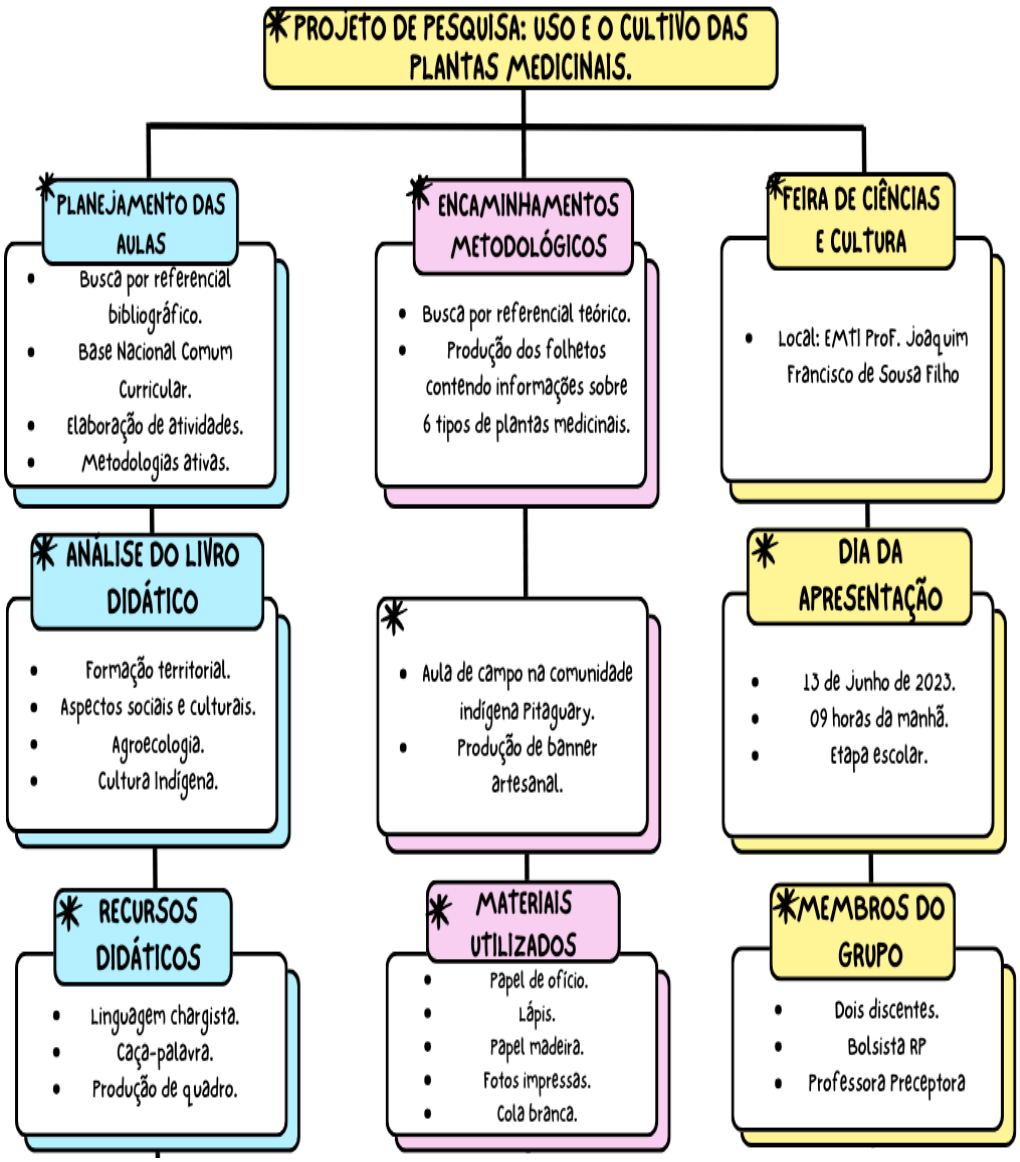
In the process, we managed to plan and organize a field class where two students were able to visit and learn about the history of the Pitaguary Indigenous Community told by the indigenous leadership. In this way, we understand the importance of a field class, as it allows knowledge of new places with different experiences, as well as new learning and encouragement for the development of school activities, with this, according to SANMARTÍ (2002):

> The diversification of activities and teaching resources contributes to motivating students, making it possible to meet students' different needs and interests. Motivation is fundamental for the student to have meaningful learning and, furthermore, there is no single path that safely leads to learning, as there are countless variables that intervene in this process. Thus, Pluralism at the strategic level can guarantee greater opportunities for the construction of knowledge, in addition to providing support so that more students can find the activities that best help them understand the topic studied (SANMARTÍ, 2003, p.33-54.) .

According to the authors, we recognize the importance of preparing and executing different activities and practices. In this case, we presented and demonstrated different experiences from the students' daily routine, emphasizing that indigenous culture needs to be known and highlighted, along with ongoing discussions about environmental preservation.

MATERIALS AND METHODS

To facilitate understanding of the research development stages, an organizational chart was created depicting the initial steps involved in its construction. This ranged from searching for theoretical references to presentations at the school stage of the science and culture fair of the municipality of Fortaleza. The use of this organizational chart aids not only in understanding what was done but also for future activities that may arise based on this work. It helps align ideas and facilitates planning and execution of tasks. Below is the organizational chart of the activities:



Organograma: detalhamento do planejamento e da execução do projeto de pesquisa, 2023.

It was elaborated in a clear and concise manner to facilitate understanding of this research project, which lasted for six months—an intense and highly significant project for both the school and university community. It demonstrates the importance of good planning within the school environment, considering everything from analysis to the final objective, which was the presentation at the Science and Culture Fair. School planning enables teachers to organize their lessons, assist in completing their tasks, promote improvement, and ensure clarity in teaching (ALVEZ et al., 2020). As the author suggests, planning is the essential tool for the successful execution of activities, both professionally and personally.

The research stages contributed to its success, fostering scientific maturity as well as the construction of knowledge and exchange of learning. In this context, the aim was to identify and understand how Agroecology is present in the geography textbook "Araribá

Mais Geografia," as it is "the primary pedagogical tool for transmitting knowledge" according to Azevedo (2003).

Based on this analysis, we planned the appropriate day to teach a lesson on the topic: "the use and cultivation of medicinal plants," discussing the importance of indigenous culture in discovering medicinal plants, environmental preservation, ecological fairs, and home cultivation of medicinal plants. In this logic, with the assistance of the 7th-grade geography textbook, we established a direct connection with various themes such as social, territorial, cultural, economic, and environmental issues

Regarding the class “the use and cultivation of medicinal plants”, we started with an explanation of the definition of agroecology. As it is a topic little discussed in the classroom, it was necessary to deepen the topic, as topics related to food production in general are covered, in most cases, only in the agribusiness theme. With this, we showed that agroecology is a science that studies ecological agriculture and that we can practice in our homes and can find at ecological fairs. Afterwards, they were asked if they already knew or had heard about medicinal plants, asking questions such as (for example) frame 01):

What is it?	How was it discovered?	What is it for?	How to cultivate them?

Table 01: Questions asked to students in class about medicinal plants. 2023.

During the same lesson, we discussed the importance of indigenous peoples in discovering medicinal plants, conveying to the students that this discovery process stemmed from observations where they analyzed the behaviors of sick animals, which tended towards certain plants. This enabled them to acquire knowledge about the plants and their benefits. Subsequently, they began using the plants in the form of teas and even directly on the skin in case of injuries.

In this context, we received positive feedback from the students, always making connections with their reality and, most importantly, listening to them and establishing a mutual exchange of knowledge to make the content understandable, facilitating the completion of future activities. Immediately after the explanation, we conducted two activities related to the topic. The first was a word search with questions and answers (Figure 02), and the second activity was a chart for the students to respond about the medicinal plants they knew of or had in their homes (Figure 03):

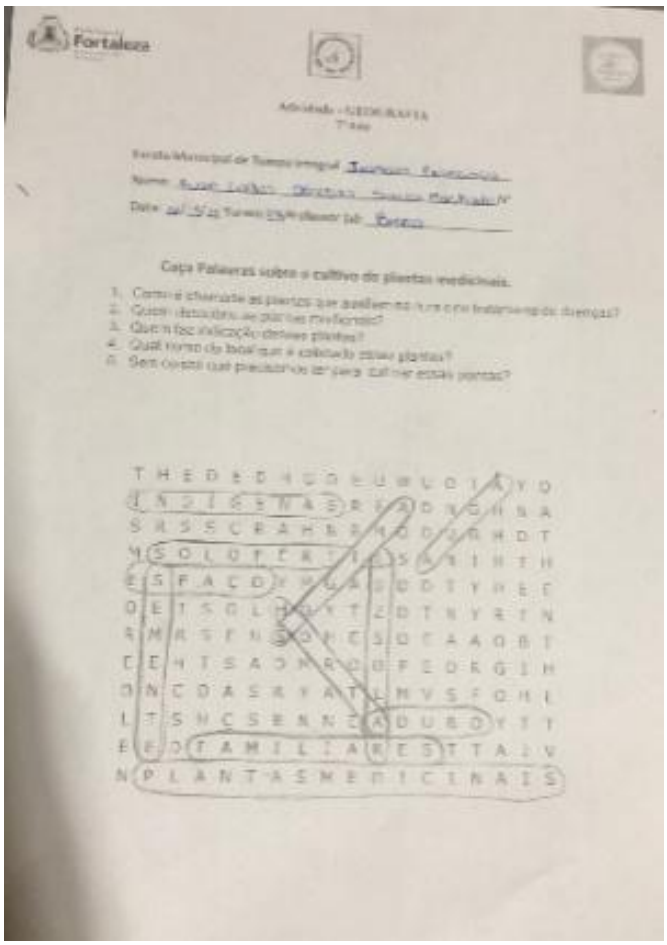


Figura 02: atividade caça-palavra.

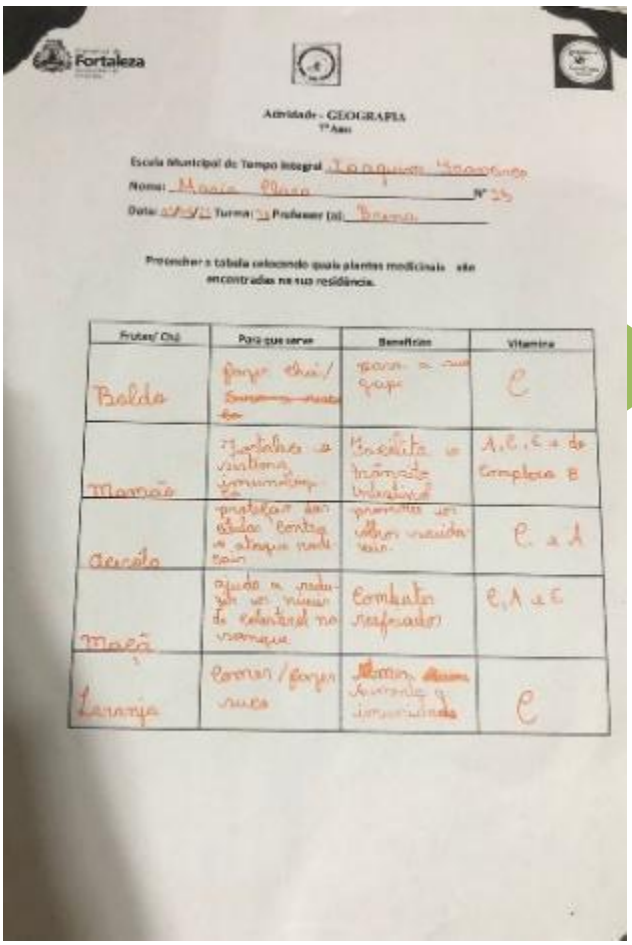


Figura 03: atividade para preencher o quadro.

In this way, we selected students based on their interaction with the geography discipline to begin preparing and producing the project, and consequently, to participate in the science fair with an oral presentation at their respective school. After choosing the theme "the use and cultivation of medicinal plants," the students were asked to research the topic and bring their findings in writing. After this, we started meeting every Tuesday afternoon.

The first meeting was to analyze the materials brought by the students and listen to their ideas for the project. Initially, we suggested producing brochures on medicinal plants based on their choices. Each brochure contained information such as: what it is, what it's used for, how to cultivate it, and its origin. Each student chose three different plants to work with, including fennel, chamomile, orange, mint, boldo, and lemongrass.

For the brochure's production, we used craft paper and pencils, as it was entirely handmade by a student and then laminated to ensure it remained in good condition until the presentation day on June 13, 2023. Figures 04 and 05 show parts of the brochure made by them:

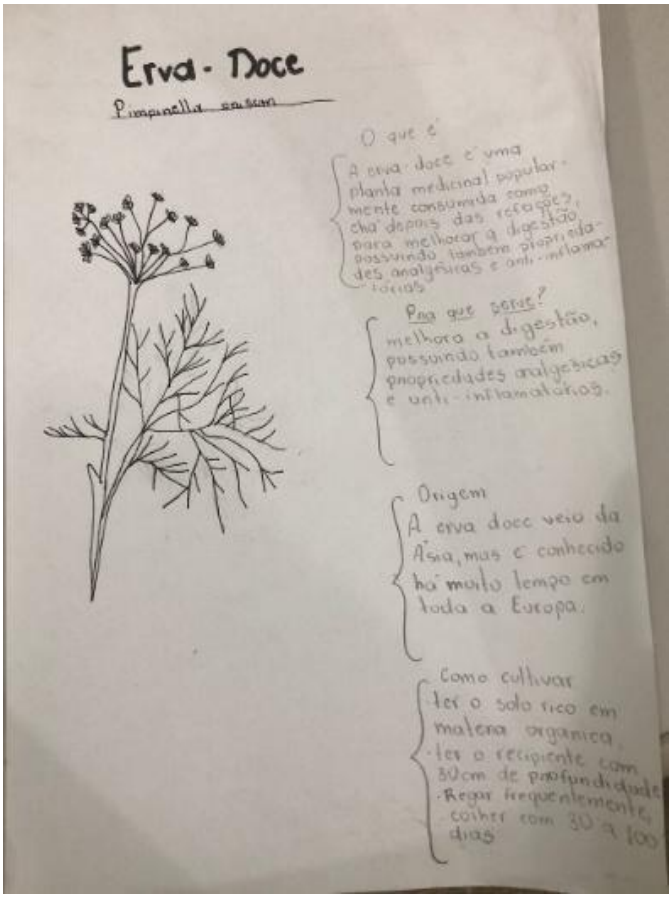


Figura 04: Folheto erva doce produzido pelos alunos.

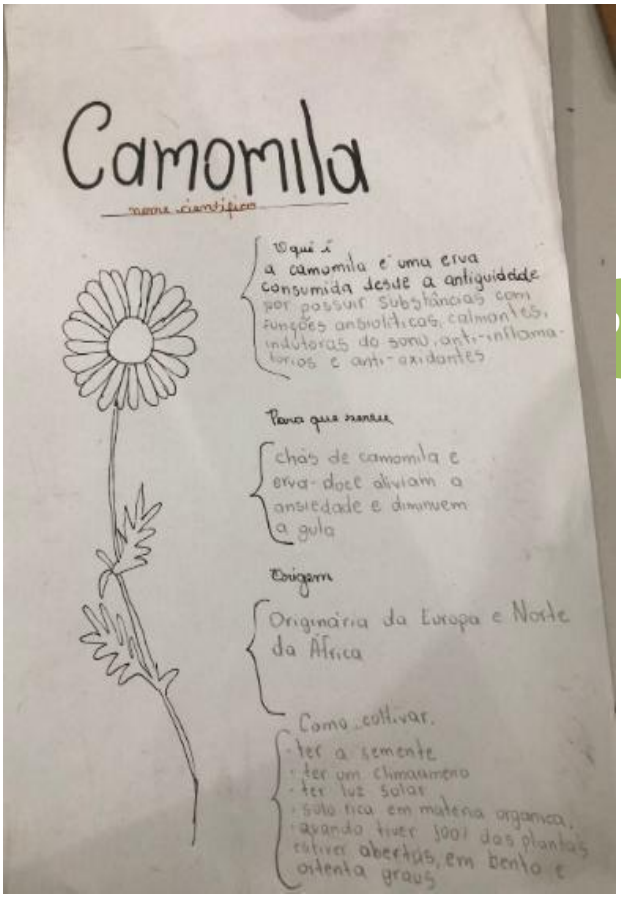


Figura 05: folheto camomila produzido pelos alunos.

To complement and further motivate the students, we arranged a field trip with the supervising teacher and with parental authorization to visit the Pitaguary indigenous community, providing them with another perspective on medicinal plants. This took place on June 3, 2023, where we visited two villages: one located in the municipality of Maracanaú (Santo Antônio) and the other in the municipality of Pacatuba (Monguba). During our visit, we had a discussion with the local indigenous leadership (Figure 06).

This moment was very promising as we learned about the struggle for the preservation of their territory and culture. They shared knowledge passed down through generations about medicinal plants and cultivation in the village, where they have a dedicated space for these plants. We visited the "living pharmacy," which relies on the assistance of everyone in the village to thrive, and the support house, which currently houses the village museum and serves as a meeting point for various events organized by the leadership.

Figura 06: Roda de conversa na comunidade indígena Pitaguary. 2023.

Com the fieldwork completed and the science fair presentations approaching, during the last week, we began crafting the handmade banner made with wood paper containing the theme, introduction, methodology, results, final considerations, and bibliographic references (Figure 07), all elaborated by the students and reviewed by the teacher. After completing the banner, we started preparing for the presentation. On the morning of June 13, 2023, the students were able to present, highlighting each point they had worked on over these six months at the Fortaleza Science and Culture Fair - school stage.

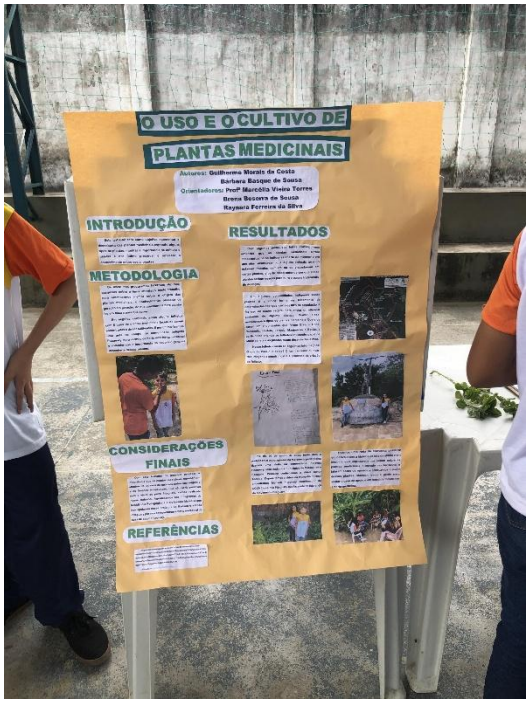


Figura 07: Banner de papel madeira produzido pelos discentes na Feira de ciências e cultura.

RESULTADOS E DISCUSSÃO

RESULTS AND DISCUSSION The use of teaching strategies linked to students' realities and other experiences is crucial, as it fosters dynamism and fluidity in classes. This encourages students to participate in activities, understand the content, and express their opinions. Thus, in classes about environmental preservation, there were many active participations. We followed this logic with classes on Agroecology as well. For instance, we used a questionnaire and emphasized the family context, asking questions like: "Did your mother or grandmother at home ever make a boldo tea when you had a stomach ache?" Based on the responses, we built a line of reasoning to ensure a good understanding of what these plants are, how easy they are to grow at home, and the importance of recognizing experiential knowledge and seeking natural products for our daily consumption.

In the analysis of the textbook, a deficit of content regarding indigenous culture or agroecology was noticeable. We found only one mention of this theme, and it was brief, referring to the formation of the Brazilian territory and its racial diversity. This led us to realize that there is still significant undervaluation of these contents in geography textbooks. Consequently, we question whether this is due to a lack of preparation in teacher training or simply a lack of appreciation for this content.

Cigoline and Silva (2020) explain a little about the mandatory teaching of indigenous histories and cultures when they say:

> Law No. 11,645, which guides the teaching of indigenous history and culture, also aims to reduce stereotypical views

> and forms of discrimination and prejudice in society. Reaffirms the commitment and demand for effective education for ethnic-racial relations and the promotion of respect for different cultures (CIGOLINI; SILVA,2020, p.87)

But we know that's not how it happens. Many schools only make reference to indigenous peoples on Indigenous Peoples' Day. Through this experience, we realized the importance of addressing in geography classes the preservation of indigenous communities and territories, thus working on cultural, social, and territorial geography. With this work, we understood that the lack of preparation among teachers to discuss these topics leads to a problem of not delving into issues of societal interest, such as traditional knowledge. It is up to us to delve deeper and explore an inclusive geography with cultural diversity and social justice to stimulate students' critical thinking, presenting them with different spaces and ways of life.

Despite difficulties, we managed to highlight in our classes the importance of indigenous peoples in the discovery and preservation not only of plants but also of the entire fauna, as well as the importance of addressing such topics within schools. The field trip aided in this process; we, as researchers, understand the importance of designing and conducting field trips within both school and university settings. We know that this practice has been used by teachers as a teaching methodology, allowing us to relate theory to reality.

Even though teachers face administrative bureaucracy, field trips continue to be an essential methodology in geography education. According to Silva and Junior, the field trip is:

> An important methodological tool for teaching, this teaching-learning process is the path to student “development”, not only at school, but throughout society, because by living with reality, and being able to argue about it, making connections with theory, makes him a critical being, and this is one of the roles of teaching geography, forming critical citizens (SILVA; JÚNIOR. 2016, p.2).

The fieldwork sparked curiosity about knowledge of another space, particularly a cultural one, and motivated the students for the scientific presentation, giving them more confidence about the experiences they would share. This made a difference in the project's execution because they saw and learned firsthand through the local indigenous leadership what had been taught in theory in the classroom.

At the beginning of this research, the focus was to make our presence as scholarship holders an incentive for the students, bringing different teaching proposals and taking them out of the exhausting routine of everyday life. In the end, we managed to achieve all of this. The two students who participated in the science fair reported that it was an incredible experience. They explored a different environment than they were used to, were fascinated by the natural resources, and developed a unique project. We succeeded in bridging the gap between university and basic education when we exposed the students

to different experiences. The project lasted a semester, and we achieved our goals, further understanding the importance of providing children with a different daily life experience and fostering critical thinking about indigenous territories and those who inhabit and care for them.

FINAL CONSIDERATIONS This respective work promoted mutual knowledge and experiences, as the approach to basic education contributes to the construction of geographical teaching that awakens critical thinking and demonstrates practicality in everyday life. The experience of researching indigenous peoples and medicinal plants within the context of agroecology was significant and challenging, both for us and for the two students who experienced it and were able to share their dedication and commitment to this work with the school community through scientific events.

This work also served to further understand the importance of promoting fieldwork, even though teachers are often constrained by the bureaucracy of education departments, which do not provide sufficient support for such activities for all students. With a class of 39 seventh graders, we could only take two of them to participate in this rich fieldwork activity. Thus, it becomes even more evident that teachers are often constrained by administrative resources and lack support from education departments.

It is worth noting that when the students returned from the field trip to the Pitaguary indigenous community, they shared with the others how good and beneficial it was. It was an experience filled with learning and mutual knowledge, particularly emphasizing the importance of knowledge and preservation of indigenous culture and practical geographical teaching with active methodologies. It is challenging to promote geographical teaching practices that engage all students, making them want to participate in scientific events and classroom activities.

Another aspect we observed was that, in addition to dealing with diversities within the classroom, such as cell phone use, heat, and restlessness, we also have to deal with the lack of teaching materials that go beyond books. However, this work facilitated a direct connection between us as scholarship holders and quality, enjoyable basic education.

ACKNOWLEDGEMENTS

We would like to thank Capes for providing the Pedagogical Residency Program in public universities, giving undergraduate students the opportunity to gain experience with basic education schools, enhancing our training. We thank the school for allowing our presence and involvement in its space. We also appreciate the two students who ventured into this experience, showing dedication, companionship, and respect for the work. Finally, a big thank you to the Pitaguary indigenous community and its leadership for welcoming us into their territory with kindness and attention, showing us that moments like these are essential for the teaching and learning of students, and even for us as teachers.

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