



Medicinal garden: scientific and popular contributions in the school environment

Horta medicinal: contribuições científicas e populares no âmbito escolar

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ABSTRACT

The use of plants in their varied possibilities of usability has become widely popular in our society, providing the practice of the cultural customs of our ancestors. The interest in the cultivation of medicinal species from gardens in schools allows an additional option in the diversification of pedagogical activities, enabling students a different experience, and a vehicle for Environmental Education, leading to changes in habits and attitudes of man and his relationship with the environment. The work aims to encourage the construction of mini medicinal gardens in the students' residences to contribute to the promotion of scientific and popular knowledge. The project was carried out in the classes of the 3rd morning year of the state school of basic education Costa Rêgo, located in the city of Arapiraca - AL, developed with an approach in the methodology of action research with quantitative basis. With the medicinal garden produced in their homes, it was possible to observe in the students a greater involvement in the project, since they were responsible for planting and cultivating the garden, where they had direct contact with the soil, learning to plant, sow, care and at the same time develop an interest in the subject through the research carried out, that is, learning by research. Thus, the insertion of the medicinal garden as a pedagogical tool was situated in a feat of sensitization for the construction of values and attitudes, providing a better relationship between man and nature, strengthening teamwork, instituting arguing citizens and pondering on environmental reflection and preservation of the environment.

RESUMO

A utilização de plantas em suas variadas possibilidades de usabilidade tornou-se amplamente popular em nossa sociedade, propiciando a prática dos costumes culturais de nossos antepassados. O interesse pelo cultivo de espécies medicinais a partir de hortas nas escolas possibilita uma opção a mais na diversificação das atividades pedagógicas, viabilizando aos alunos uma vivência diferente, e um veículo para Educação Ambiental, levando a mudanças de hábitos e atitudes do homem e sua relação com o ambiente. O trabalho tem como objetivo o incentivo a construção de mini horta medicinais nas residências dos alunos para que contribua com a promoção de saberes científicos e populares. O projeto foi realizado nas turmas do 3^o ano matutino da escola estadual de educação básica Costa Rêgo, localizada na cidade de Arapiraca - AL, desenvolvida com abordagem na metodologia de pesquisa-ação com base quantitativa. Com a horta medicinal produzida em suas residências, foi possível observar nos estudantes um maior envolvimento no projeto, uma vez que eles estavam responsáveis pelo plantio e cultivo da horta, onde tiveram contato direto com o solo, aprendendo a plantar, semear, cuidar e, ao mesmo tempo, desenvolver um interesse pelo tema por meio das pesquisas realizadas, ou seja, aprendendo pela pesquisa. Assim, à inserção da horta medicinal como ferramenta pedagógica situou-se em um feito de sensibilização para construção de valores e atitudes, proporcionando melhor relação do homem com a natureza, fortalecendo o trabalho em equipe, instituindo cidadãos arguidores e ponderando sobre a reflexão ambiental e de preservação do meio ambiente.

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Introduction

Plants have always been united to man and will always be used by him, both in the cure of ills and in other multiple uses. The survival of human societies has always been closely related to the botanical environment, because since the beginning of civilization the flora is manipulated by man according to his nutritional, cultural and therapeutic needs (SANTOS et al., 2013).

The use of medicinal and aromatic plants has been disseminated mainly by indigenous culture and Brazil is already recognized for a rich source of therapeutic and culinary products. However, this potential for the discovery of plants as a source of new drugs is still poorly explored or regulated (SOUZA et al., 2021).

The use of plants in their varied possibilities of usability has become widely popular in our society, providing the practice of the cultural customs of our more distant ancestors. Among its multiple applications, the use for medicinal purposes stands out [...]. The empirical experiences acquired with the use of medicinal plants, over time have been used in different generations and even with the advancement of medicine it's evident the use of these plants today, highlighting their applicability in underdeveloped countries, where they make these, one of their main means of treatment for diseases (KOVALSKI et al., 2011).

It becomes extremely important to rescue the practice of cultivation so that the tradition of the use of medicinal plants is not lost with the passing of the generations. It's important to emphasize the need to walk adjacent between the cultural tradition of the use of medicinal plants and the scientific study that points to evidence of the efficacy and safety of their use (OLIVEIRA et al., 2015).

The interest in the cultivation of medicinal species from gardens in schools allows an additional option in the diversification of pedagogical activities, enabling students a different experience, so Environmental Education contributes strongly to this process, leading to changes in habits and attitudes of man and his relationship with the environment (TAVARES & LIMA, 2018). Education is the key to building widespread awareness, since environmental education is described as mandatory in the Brazilian Constitution (ENO, 2015).

The garden is a tool that enables questions related to inequalities and the conjuncture that fosters them, and thus makes possible a transformative environmental education, capable of problematizing acute issues of neoliberal society, such as the poor distribution of socio-environmental burdens and bonuses (NUNES et al., 2020).

The substantial purpose of the use of gardens of a pedagogical nature is the realization of an educational program, disposing of the garden in the school as an organizing axis, allowing to study and systematically integrate cycles, processes and dynamics of natural phenomena (SILVA et al., 2021).

The garden implanted in the school seeking to rescue the popular knowledge has great impact on the process of educational development of the student. According to Tavares et al. (2018), practical classes arouse and maintain the interest of students; involve students in scientific investigations, in the case of sciences, develop students' critical sense of common sense knowledge.

One of the foundations of active learning is the promotion of interaction between students, with the aim of achieving participatory and meaningful learning, both inside and outside the classroom (TORRES, 2004). According to Rückl and Vosgerau (2017), such methodology can be applied in different areas of human knowledge and in the different modalities of teaching, provided for by the guidelines and bases of national education, according to Law No. 9,394, of December 20th, 1996, in which it consolidates and expands the duty of the public power towards education in general.

The teaching of sciences focused on popular and scientific knowledge, especially in the theme of Medicinal Plants, promotes dialogue between student and teacher, making the traditional/popular study become a mechanism of cognitive and affective association of the student. Teachers create moments of exchanges, dialogues and challenges through diversified didactic-pedagogical strategies - practical and field classes, text productions, construction of the medicinal plant garden, visit to the medicinal garden, group research -, starting from what the students already know, so that, gradually, they synthesize and expand their knowledge about medicinal plants (KOVALSKI et al., 2011).

Dialogue and pedagogical proposals are a fundamental instrument for the recognition and appreciation of this knowledge. That is why it's extremely important that pedagogical proposals such as the school garden become effective in science teaching to overcome the existing barrier between theory and practice, because through the garden in the school environment enables the development of various pedagogical activities in environmental and food education, thus uniting theory and practice in a contextualized way, assisting in the teaching-learning process through the promotion of teamwork and cooperation among the social agents involved (THEISEN et al., 2015).

Therefore, the importance of studies in scientific methods in line with popular knowledge is highlighted, so that it is possible to integrate new educational methods for the construction of student knowledge in the scientific sense. The school needs to turn more to the knowledge of everyday life, traditional and popular that are part of the life and culture of students (KOVALSKI et al., 2011).

In view of the above arguments, the present work aims to encourage the construction of mini medicinal garden in the residence of the students promoting a learning environment that contributes to the promotion of scientific and popular knowledge, in addition to being able to mobilize contents that can be worked on in an interdisciplinary way.

Material and Method

The research was developed in the classes of the 3rd morning year of the state school of basic education Costa Rêgo, located in the city of Arapiraca - AL. Having approach in the methodology of action research on a quantitative basis.

The work involves the junior scientific initiation project / CNPq *stricto sensu*. initially, the research proposal was presented by one of the scholarship students, in order to publicize the activities that would be developed during the execution, using the Google Meet tool as a remote presentation resource (FIGURE 1).

Figure 1.

Presentation of the research project by the scholarship student.



Source: Research data, 2021.

It was sought to identify the age group, gender and age of the students and the knowledge of each one about what they know about medicinal plants, cultivation, and handling, through the realization of a questionnaire (FIGURE 2), elaborated in the Google Forms platform, where it was possible to obtain a survey of relevant information for the construction project of the medicinal garden, thus obtaining the participation of 110 students of the 3rd year of high school in the research.

Figure 2.
Questionnaire applied

- 1) How old are you?
- 2) Gender?
- 3) Do you know any medicinal plants?
- 4) Do you grow any medicinal plants in your residence?
- 5) If so, what medicinal plants are grown in your residence?
- 6) How your family learned to grow medicinal plants: with family members; neighbors; friends; community agents; through the media; we don't plant; they don't know; I don't know; we don't know what to answer.
- 7) Does anyone in your family make use of medicinal plants on a daily basis?
- 8) If so, in what way?
- 9) Are you interested in growing vegetables and medicinal plants in your residence?
- 10) Do you think it's important for students to have activities related to the vegetable garden or medicinal plants?

Source: Research data, 2021.

Community research

After the questionnaires were answered, the students were divided into groups of 5 members, where each group conducted a survey in their community, in order to identify the popular knowledge of the members of the communities about the plants they cultivate, and thus also obtain the seedlings of the medicinal plants for the construction of the medicinal garden in their homes.

Vegetable garden production

For the production of the vegetable garden, material was made available such as; paper, colored ribbon, colored pencils, hydrocolor pen and the students recycled containers of the type; pet bottle, ice cream jars, margarine, bottles of hygiene products and among others, for planting the seedlings. The production of the vegetable garden began with the preparation of the containers being washed, and painted by the students at school (FIGURE 3).

Figure 3.
Preparation of containers for use in the vegetable garden.



Source: Research data, 2021.

The perception about the need to reuse reusable materials, shows how much it is necessary to adopt a lifestyle that does not harm the environment, as well as the integration not only of children and young people, but of the whole family on the environmental problem experienced from the universe of the home vegetable garden (SILVA et al., 2022).

For the preparation of the vegetable garden, one student per team was selected to assemble the garden, making use of recyclable materials, and decorated with the material made available. The other members conducted a survey on the plants that will be cultivated, through research in order to understand the characteristics of these plants, therapeutic purpose, cultivation and scientific name.

Results and Discussion

With the medicinal garden produced in their homes (FIGURE 4), it was possible to observe in the students a greater involvement in the project, since they were responsible for planting and cultivating the garden, where they had direct contact with the soil, learning to plant, sow, care and at the same time develop an interest in the subject, through the research carried out and more interested in the area of science teaching. Understanding the importance of plants in ecosystems allows students to understand that simple actions can aid in environmental conservation (OLIVEIRA et al., 2021).

Figure 4.

Garden set up in the students' residences.



Source: Research data, 2021.

It's important to use different methodologies that connect directly with the student's daily life so that they can assimilate the content more easily, and the use of the medicinal garden is a possibility that helps in this assimilation. Works such as the implementation of the garden, can refer to the day to day of the student so that the student remembers more about this topic, mainly related to health, as is the case of the use of plants (Arruda et al., 2020).

Each team prepared their research and held a presentation in the classroom showing their acquired knowledge, such as the scientific name of the plants, their forms of therapeutic use, characteristics, functional groups and popular knowledge of the community. Through the process of scientific literacy, students are motivated to think and act according to their own observations, experiments and analyses, which allows them to understand that they are part of the environment and that their actions are reflected in the environment, whether in a beneficial or harmful way (OLIVEIRA et al., 2021).

After the research, the students presented in the seminar format the knowledge gathered during the process of production and learning of the garden, (FIGURE 5). The use of the seminar is an effective practice in research, as it develops the synthesis and exposure that the student acquired during the learning path (SILVA et al., 2021).

This strategy goes back to a greater participation in the subject, not only of the group in charge of leading the work on the proposed theme, but of the whole class. Once all are inserted in the same purpose, they can contribute intrinsically to the consolidation of knowledge (SILVA et al., 2021).

Figure 5.

Presentation of the seminars.



Source: Research data, 2021.

Through the creation of the vegetable garden, the students were able to experience group activities, and develop the research work more fluidly, with the distribution of tasks among themselves. With the school garden we can develop new attitudes and practices, and thus increase sensitivity to environmental issues, and promote cooperation through teamwork (PAGANI, 2018).

The implantation of species of medicinal plants in small spaces for culture at home becomes an opportunity for different perspectives of learning about cultivation. The process of

building gardens grants the possibility of teaching concepts of planting and maintenance of various species, in addition to addressing environmental education through nutritional and food aspects (SILVA et al., 2021).

In this sense, environmental education presents itself as a fundamental tool to establish the interaction of man with nature, contributing to the formation of an “ecological subject”, perceiving and reflecting on “environmental knowledge” and how to collaborate to conserve the environment that surrounds it (SILVA et al., 2021).

Undoubtedly the medicinal garden is an interesting strategy for the teaching-learning of students, a tool that encompasses different strategies to be worked among students and enable a fixation and ease in the study of the content in question. The interest in the cultivation of medicinal and aromatic species has increased from school gardens, which may have an additional option in the diversification of pedagogical activities. Being able to be used as a pedagogical resource, the school garden helps in the construction of knowledge giving life to the classes of the most diverse disciplines, encouraging interdisciplinarity and acting in the rescue of the popular culture of the region (SANTOS et al., 2011).

Final Considerations/Conclusions

Through this study, it was possible to observe the importance of studying themes interconnected with environmental education and its impacts, where the garden provided students with greater participation and development among the groups, especially in the preparation and research of a scientific nature.

The medicinal garden proved to be an interdisciplinary project, where students can debate on various subjects, such as health, environment, soil, nutrition and among others within the researched content, which can transform teaching-learning into an incentive, so that students produce the medicinal garden, and transform their community with the use of plants beneficial to the population.

Thus, the insertion of the medicinal garden as a pedagogical tool was situated in a feat of sensitization for the construction of values and attitudes, providing a better relationship of man with nature, strengthening teamwork, instituting arguidores citizens and pondering on environmental reflection and preservation of the environment.

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