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Research Article

Community Health Agents as Awareness in the Production of Organic Waste: Creation of a Household Protocol

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Abstract

The practice of cultivating plant resources has been growing in cities, as a means of redemption of values by the residents. In this way, the present work was concerned with proposing that innovation was present in the process of training community health agents. Therefore, this is a methodological study aimed at recommending the elaboration of a protocol aimed at creating an organic garden with the basic health unit in which the training course will be developed, with the joint action of the unit's management, and with location yet to be defined. The course already mentioned will have theoretical and practical classes, in which concepts and factors that affect the process will be worked on. Classes will be divided into 3 (three) modules, the first of which will discuss organic matter and the use of waste; the second on the composting process, including concepts, conditions and recommendations; and the third about the use of the compound and its extract. It is expected that through training, focused on the problem of organic waste management, it will be possible to realize that garbage from non-renewable resources can be used as organic compounds in planting vegetables through the composting method, thus providing community agents obtain support so that, based on the acquired knowledge, they understand the importance of creating this space that will serve as a study, which can still act to awaken people's awareness regarding the impacts caused by their actions on health and the environment..

Keywords: *Organic Garden; Basic Health Unit; UBS; Organic Waste l; Community Health Workers; Composting*

Introduction

Urban green areas are associated with the quality of life of the population and, among them, parks, squares, gardens and, currently, several community gardens stand out. These offer the population, in addition to green space, a place for the development of social projects, planting species of food and medicinal interest, and ways to recover contact with nature [1].

In 2015, a global agenda was established by the United Nations Organization containing 17 Goals for Sustainable Development (SDGs) and 169 goals so that these goals could take action by 2030, some of which should be achieved before [2]. Among these objectives, SDG2 refers to ending hunger and achieving food security, in addition to improving nutrition. In this way, all strategies for improving food are relevant, since decent food is a human right [3].

Among the urban spaces that offer better quality of life to residents, there are those that can also contribute to improving the quality of food, whether through the consumption of food and/or medicinal plants, such as community gardens. These can be located in squares, parks [4] or residential spaces in cities, contributing to complement or enrich the diet of families. In this way, they help to reduce poverty (SDG1), which places them even as a form of sustainable urban agriculture (SDG2; SDG11).

The gardens involve ecological and social processes, promoting individual and community benefits, contributing to urban sustainability[4]. Among the social benefits, the interaction between residents, such as the exchange of knowledge about cultivation and the use of plant resources, are very relevant so that community gardens are increasingly implemented in cities and considered in public policies [5]. They can be managed by family farmers, a group of elderly people, housewives or children from a local school [6].

Such space, in addition to bringing benefits to the families involved, can promote the reuse of public areas aimed at generating income, with the production and sale of organic food in a sustainable way, and can also promote nutritional benefits for families in relation to greater consumption of food. fruits and vegetables [7].

With the practice of cultivating vegetable resources in cities, the recovery of residents' values has been growing, especially with regard to healthy eating, which should be based on eating practices that assume the social and cultural significance of food as basic conceptual functioning.

Urban gardens are extremely important places to be considered in urban planning as well as their conservation[5]. In this context, community gardens are inclusive, accessible and green public spaces, particularly for women and children, which includes goal 11.7 of SDG11, cities and communities.

In this way, they reveal themselves as a space for socializing, leisure and learning, with strong socio-cultural potential and increasing the quality of life of its users. It is also a way of getting to know the neighborhood better, revitalizing the use of urban space by increasing green areas in the city and encouraging the consumption of fresh, healthy and pesticide-free food.

These medicinal plants are predominant in crops and expresses the local investment in the implementation of the national policy of integrative and complementary practices, including the prescription of herbal medicines by health professionals.

According to the Food Guide for the Brazilian Population of the Ministry of Health, adequate nutrition is based on the consumption of food and not nutrients and must be based on eating practices that have social and cultural significance. Foods have taste, color and shapes, aroma and texture and all of these components need to be considered in the nutritional approach. Nutrients are important, however, food cannot be reduced to vehicles for them, as they add unique cultural, behavioral and affective meanings that can never be neglected.

2012 data from FAO (Food and Agriculture Organization) and WHO (World Health Organization), which is a member of the United Nations Food and Agriculture Organization, revealed that food and nutrition are a global concern in the face of finding that in 2050 there is an estimate that the world will have 9 billion people.

Thus, the production of food should be 60% higher than the current one to prevent 300 million adults, young people and children from going hungry on a global scale. The same institution described that, in 2007, one in seven people went hungry in the world and this was equivalent to about 75 million people. Currently 925 million people do not eat enough to be considered healthy.

Faced with this and other issues, the community health agent (CHA) has a very important role in welcoming, as he is a member of the team that is part of the community, which allows for easier communication, providing direct contact with the team.

Hence the idea of building a course that would train health professionals - CHA regarding the construction process of the community garden, giving the community knowledge that would allow it to use home organic waste for the well-being of all.

Objective of the Study

The objective of the work was training for community health agents with the theme of the community garden.

Theoretical Reference

Organic vegetable garden

The organic garden is characterized by the production without pesticides, using natural techniques for fertilization and soil protection and for the maintenance of fertility, such as composting from organic residues, dead cover, green fertilization and crop rotation among others (Figure 1) [8].

Figure 1: *Organic garden. onte: [9].*

Organic fertilizer

Organic fertilizer is that obtained from material of vegetable or animal origin, such as manure, flour, bagasse, peel and the rest of decomposed vegetables or still in the stage of decomposition. Such materials undergo decomposition and can be produced by man or through composting (Figure 2) [10].

Figure 2: *Organic fertilizer. Fonte: AGROSOMAR, 2019 [11].*

Composting

Composting is a process that can be used to transform different types of organic waste into fertilizer and when added to the soil, it improves its physical, physical-chemical and biological characteristics [12].

Compost is a fundamental element in recycling as it improves soil quality, reduces contamination and environmental pollution, encourages citizenship by contributing to the reduction of waste, improves soil fertilization, as its activity returns substances necessary for protein production of.

The process occurs naturally in the environment, being referred to as the degradation of organic matter, as the term composting refers to this change, but it is associated with the manipulation of the material by man, who through the observation of what happens in nature has developed techniques to accelerate decomposition and produce organic compounds that quickly meet your needs, in this way, the term organic compound can be applied to the composted, stabilized and sanitized product that is beneficial for plant production [13].

The interesting thing about this process is that it is a simple and low cost method for sanitary and ecologically adequate treatment, therefore, it can be implemented regardless of the socioeconomic condition of the family. People can purchase ready-made composters over the internet, depending on the size of their families and the production of household waste, or they can make their own composters with just boxes of plastic, earth and dry organic material. In addition, it is a compact and easy to use system that does not cause a bad smell, as well as does not attract unwanted insects and animals [14].

Methodology

This is a constructive methodological research based on the development of a protocol for the creation of a community garden within UBS's in the city of São Luís-MA. The research was based on searches for scientific articles in the Google Scholar databases published in the period from 2010 to 2019. For this purpose, the following descriptors were used: organic waste, community health agents and community garden.

Eight (8) articles were found on the topic of organic waste in the communities, but there were no publications regarding the management of organic waste in UBS's. All materials were analyzed and 03 (three) of them were used as a basis for the construction of the proposed protocol.

Based on the articles that served as a subsidy for the creation of the process, the preparation of the protocol took place in 2 stages:

1. Information was first sought on the types of organic waste generated in a community;
2. In sequence, a training course was proposed taught within the B-ica of Saúde by the Nurse and the Manager, and in the physical space of the Health Unit;
3. For the theoric module on composting, concepts were worked, factors that affect the process (moisture, oxygenation, temperature, nutrient concentration, particle size and soil PH), container handling, use in agriculture and its benefits;
4. After the lesson, a cycle of discussions was opened in order to clarify the doubts raised by the participating agents;
5. Finally, for the practice module, the construction of a compost was carried out where residues of plant origin (crop residues) and animal (manure) were used.

Table 1 shows the step by step of the course given to community health agents.

Step by step of the proposed course	Course content and distribution	The course will consist of 12 classes distributed in 3 modules
Module 1	1. Organic matter and agricultural exploitation of waste; ● Agricultural use of organic matter;	● The importance of organic matter for fertility; ● And taking advantage of agricultural waste.
Module 2	1. The composting process: what is composting; ● Different forms of composting; ● And main raw materials used.;	● Recommended conditions for composting; ● The efficiency of the composting process.
Module 3	● The use of the compound.	● The use of the compound; ● 100% vegetable compound; ● Extract and compound.

Table 1: *Modules of the course for community agents of São Luís, 2021.*

Source: The Author.

Tools required for deployment (Table 2).

Tools	Utensils	Inputs
Hoe	Gloves	Organic compounds
Mattock	String/ Bead	Organic fertilizer
Rastelo/Cinho	Plastic tray	Humus
Fri / sacho	Big plastic tray	
Garden spoon	Tray for seedling production	
Scarifier	Hose	
Wheelbarrow	Sprinkler	
Transplanter	Spray	
Pruning shears		

Table 2: *Tools for the execution of the technical course for community health programs of São Luis, 2021.*

Source: The Author.

Results and Discussion

08 community health agents, 01 hospital manager and 01 nurse participated in the training. The training took place in a week of immersion with the qualification.

For training, documents directed to such activity were used. Thus, from the authors studied, it was observed the difficulty faced by the population in promoting actions that can contribute to the correct use and disposal of organic waste. It is worth noting, in table 3 below, that we present search results for some publications regarding the importance of implementing home gardens and how they can contribute positively to family and sustainable education.

Title	Author/Year	Objective	Results
Domestic Gardens: An analysis of the reasons for growing vegetables in Cárceres MT-Brazil	Silva, Seabra Junior, Magalhães and Barelli (2010) [15]	Investigate the reasons that led to the implementation of domestic gardens from the addition to the domestic garden project by implementing in the area covered by the family health strategy.	Implementation of domestic gardens and the factors that contribute to the family's support to the project developed along with the family health strategy.
Contribution of environmental perception of regulars about squares and parks in Brazil	Dorigo and Lamano-Ferreira (2015) [1]	Raise the contribution of environmental perception studies in green areas, such as squares and urban parks.	The grant environments have the opportunity to contact nature generating well-being in the perception of the population.
The human right to a dignified diet: How family farming and domestic gardens help in this right	Almeida, Sá and Anna (2018) [3]	Propose and seek sustainable ways to solve the food security deficit in Brazil through family farming and domestic gardens.	Family farming and the creation of domestic gardens, based on the composting technique, have been shown to be innovative and sustainable ways and with great potential to combat internal hunger in the country.

Table 3: *Characterization of the articles analyzed, according to author, year of publication, title and main results. Source: The Author.*

Considering that organic fertilization allows the PH to decrease, organic colloids are predominantly electromagnetic, the organic anions present were $Fe(OH)_2$ with iron and $AI(OH)_2$ with aluminum. Such immobile complexes, with Fe and AI, immobilized by organic material, increase the availability of PH.

In this way, after the formation of the beds it was possible to carry out the planting of seedlings or seeds with the aid of a ruler making grooves with a depth of 0.5 cm. After the placement of seeds in the furrows, a generous watering was carried out.

It was also defined the need for watering twice a day in the following five days, which should take place in the morning and in the late afternoon, so that the monitoring of the process would take place until the time of harvest was reached.

The organic garden manual was also made available, which has more details on all the processes to achieve success in the garden.

It can be seen, therefore, that the purpose of home gardens, composting plants and related socio-environmental projects is not only to reformulate the look of waste produced, but to encourage healthier food through domestic production, even if small, in addition to spreading more sustainable practices. between families.

Final Considerations

In view of the different perspectives presented to environmental education, it is clear that the formation of an attitude of reflection is fundamental to guarantee the success of educational practice.

The teaching of environmental education to health professionals can be used in order to raise awareness among people regarding the impacts of their actions on a daily basis, aiming to favor a reflexive posture that leads them to adopt new values and attitudes, a since environmental education is also necessary to alleviate the problem of environmental degradation caused by the accumulation of garbage.

When working with "garbage" it must be realized that in reality it is a raw material that comes mainly from non-renewable resources and that can be used as organic compounds in planting vegetables. This fact allows us to understand that the contents of chemistry can also be worked with the help of the organic garden, enabling agents to analyze through the acquired knowledge the importance of this space as a field of living study, in which the performance of man on the environment is performs, so that he experiences his connection in the web of interactions with other living beings.

An advantage of this process is the possibility of proposing the course for community health agents, because in addition to learning about the theme addressed, they will be able to contribute directly to the community, making the population aware of the possibility of reusing organic waste for their own benefits and the environment.

The other advantage is that, in addition to families producing food free of pesticides and other chemicals that are harmful to health, the handling of home gardens allows people to learn more about food and its properties, and this makes them aware of the importance and definition new planting techniques and units with the vegetable garden, which can be used as a tool to reduce hunger and provide quality food.

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