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Science as an instrument of approximation to agroecological knowledge in Serrinha (Brazil)

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A B S T R A C T

This project seeks to stimulate students of the 9th grade of elementary education in actions with activities based on the stimulus to research to the teaching of sciences in the municipality of Serrinha-BA, territory of sisal. The methodology to be used will be based on the action research, comprising the following course: mobilization of the subjects; Diagnosis seeking to evidence experiences, experience, knowledge, and trajectory of students in scientific literacy; Execution of workshops; Procedural and final evaluation. Thus, it is hoped that this project will build and disseminate practices for a creative and contextualized scientific education, in a perspective that also involves, integrates, and encourages teachers and local communities around the popularization of science as a Reflective, dialogical, and educational.

Keywords: Teaching; Investigation; Scientific Literacy.

A ciência enquanto instrumento de aproximação ao conhecimento agroecológico: Relato de experiência em Serrinha – Bahia

R E S U M O

O referido projeto busca estimular discentes do 9º ano do ensino fundamental em ações com atividades pautadas no estímulo à pesquisa ao ensino de Ciências no município de Serrinha-BA, Território do Sisal utilizando enfoque agroecológico. A metodologia utilizada foi baseada na pesquisa ação, compreendendo o seguinte percurso: mobilização dos sujeitos; diagnóstico buscando evidenciar vivências, experiências, conhecimentos e trajetória dos estudantes na alfabetização científica; execução das oficinas; avaliação processual e final. Assim, estamos desenvolvendo ações que visam construir e difundir práticas para uma educação científica criativa e contextualizada, numa perspectiva que também envolva, integre e estimule professores e comunidade local em torno da popularização da Ciência como um fazer reflexivo, dialógico e educativo, tendo como subsídio a multidimensionalidade abordada na agroecologia.

Palavras-Chaves: Ensino; Investigação; Alfabetização Científica.

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1. Context

Agroecology is a multidisciplinary science that seeks through various techniques and practices a sustainable relationship in the agroecosystems.

> Com base em vários estudiosos e pesquisadores nesta área (Altieri, Gliessman, Noorgard, Sevilla Guzmán, Toledo, Leff), a Agroecologia tem sido reafirmada como uma ciência ou disciplina científica, ou seja, um campo de conhecimento de caráter multidisciplinar que apresenta uma série de princípios, conceitos e metodologias que nos permitem estudar, analisar, dirigir, desenhar e avaliar agroecossistemas. (Coporal & Costabeber, 2002, p. 14).

Agroecology is currently potentially empowering science teaching, especially when it is a school that works with primary school students located in the countryside.

The "Science at School Project" is a workshop teaching project, apply at the Nossa Senhora das Candeias Municipal School in Lamarão and the Serrinha Campus in Bahia. The themes: "Microscopic Techniques: plant and animal cell analysis," "Techniques for raw water collection," and "Techniques for water analysis" are examples which the students thinking about of quality of the water and consume.

The water collection realizes in a rural community's water body near the school brings technical knowledge closer to the popular. The valorization of the place where they live, and the community's water body's maintenance and preservation awareness were the workshop's main objectives.

2. Experience Description

The methodology for the project's execution was through workshops, which had practical and dynamic activities focused on science teaching, each with a predetermined theme. Considering the project's general objective (which consists of inserting students in science teaching practices oriented to their context), we choose the workshops because they were practical activities oriented and inserted to the context in which the students—allowing them to observe the science present in their daily lives and relating it to actions that guide the diversity of knowledge in agroecology.

The activities had the participation of students from elementary school selected by the school. highlight the workshops below and descriptions:

(i) Techniques for collecting raw water:

The workshop "techniques for collecting raw water" was held in the school community and consisted of understanding the step-by-step process of collecting water and storing it. The first moment presents the water's characteristics and importance in class and the materials used for the collection. The second moment, everyone went to a weir near the school and collected the water for analysis. Some parameters, such as pH and temperature, were analyzed on-site. It is worth mentioning that the project team carried out the water body's entrance and water collection and ensuring the students' safety.

Figure 01. Students with a sample of the weir water.

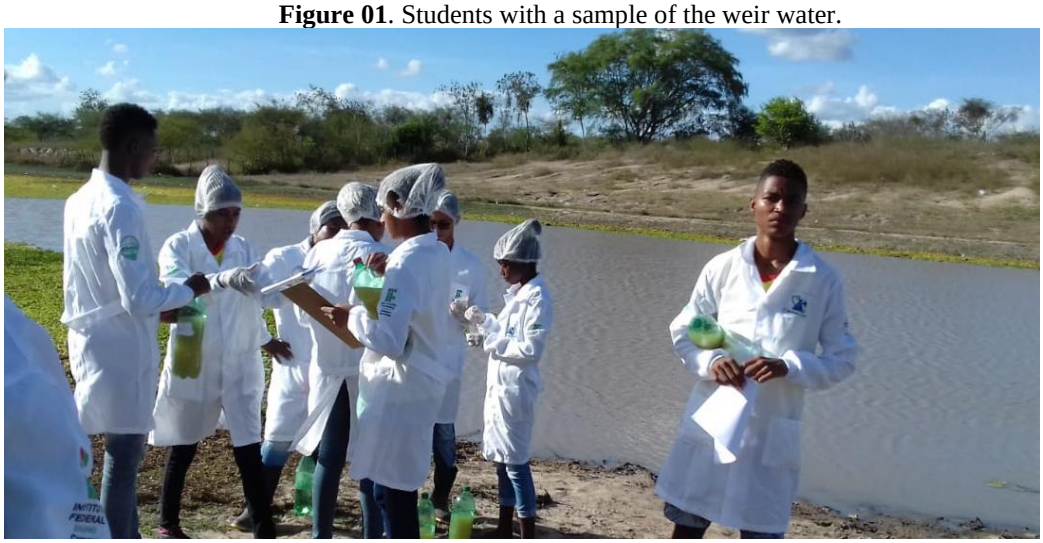

Photo: Maíra Pinheiro

(ii) Techniques for water analysis:

The "water analysis techniques workshop" was held at the Instituto Federal Baiano - Serrinha campus chemistry laboratory. Initially, the water's physical-chemical parameters would be analyzed, the electrical conductivity, color, dissolved oxygen, pH, and turbidity. Subsequently, divided the students into groups, and each one was responsible for analyzing three samples. The groups made each parameter triplicate to reduce the margin of error. Each received a table to note each parameter's values and finally compare the values obtained with the CONAMA 357 legislation.

Figure 02. Student fractionating sample for analysis.

Photo: Maíra Pinheiro

(iii) In the workshop "Knowing the soil":

In the workshop "Knowing the soil," questions such as: "how is the soil formed?", "What is the soil made of?" "How did it come about?" guided the development of the workshop as well as the discussions held. The workshop's objective was to make the students understand the soil characteristics, practices for conservation, and what should be avoided not to degrade it. The students had the opportunity to observe the different soil circumstances, with the help of samples better to understand the discussions, as the example, to visualize the difference caused by rain between a soil with vegetation.

Figura 03. Representation of soil with vegetation, without vegetation, and with dry vegetation.

Photo: Maíra Pinheiro

3. Results

It was possible to perceive the students' involvement in the activities, which they developed with the workshops' performance, the proposed activities. Understand in a practical way the parameters observed in the samples' analysis, besides providing the students with a space to dialogue about science and Agroecology, is to such knowledge, both in practice and theory. It is also worth mentioning the workshop "Knowing the soil" that sought to contextualize the discussion about soil, dealing with the types of soil, their formation, and the techniques to manage and preserve productive soil related to agriculture.

In the workshops' execution, the aim was to bring academic knowledge closer to the context in which the students are inserted, making a relationship with their daily practices. Thus, the three workshops were oriented following some of the principles of formal education in Agroecology, such as item 10 of the principle of Transformation: "Formation referenced, taking the experience of the communities as problematizing content for the teaching process learning," and item 1 of the principle of Diversity: "Recognition of the territory where they are inserted, considering all its complexity and ecosystem and social diversity (...)".

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