

**THE SOIL APPROACH IN CHILDREN'S BOOKS: A BIBLIOGRAPHICAL
REVIEW**

**A ABORDAGEM DOS SOLOS EM LIVROS INFANTIS: UMA REVISÃO
BIBLIOGRÁFICA**

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RESUMO

O solo é componente natural que sustenta a propagação da vida na Terra, assim, deve-se compreendê-lo para sua conservação. O presente trabalho é uma revisão bibliográfica acerca da abordagem da pedologia em livros com faixa etária infantil, visto que é necessário entender como essa ciência é apresentada e explicada desde a infância. Com essa revisão, foi possível observar que a quantidade de livros existentes com essa temática ainda está em crescimento.

Palavras-chaves: solo; educação em solos, Geografia e ensino

ABSTRACT

Soil is a natural component that sustains the propagation of life on Earth, so it must be understood for its conservation. This paper is a literature review about the approach of pedology in books with children's age group, since it is necessary to understand how this science is presented and explained from childhood. With this review, it was possible to observe that the amount of existing books with this theme is still growing.

Keywords: soil; soil education, Geography, and teaching

INTRODUCTION

According to Lima and Lima (2007, p.11), "Soil is the foundation of life, and all terrestrial organisms depend on it directly or indirectly. It is a natural body that takes a long time to form, does not reproduce, and 'dies' easily." In this context, its importance goes far beyond what many of us can perceive in our daily lives. This complex and dynamic system is the foundation that supports the life of plants, animals, and consequently, our own existence. This is evidenced in Falcão Sobrinho et al, 2023, addressing physical-natural themes in Geography teaching.

Firstly, soil is the primary source of essential nutrients for plants. Through a recurring process of organic matter decomposition, soil provides vital minerals such as nitrogen, phosphorus, and potassium, which are crucial for healthy plant growth. Plants, in turn, play a crucial role in oxygen production, carbon dioxide absorption, and the formation of food chains that sustain all life on Earth. Therefore, soil should be better studied in textbooks (Silva et al., 2008).

Furthermore, soil plays a fundamental role in regulating the water cycle. It acts as a natural reservoir that stores rainwater, gradually releasing it to rivers, lakes, and groundwater. This water regulation is essential for maintaining healthy ecosystems and providing potable water for human communities.

Unfortunately, soil is subject to various threats, such as erosion, pollution by pollutants, and degradation caused by unsustainable agricultural practices. Therefore, preserving and conscientiously managing the soil are imperative to ensure its long-term health.

Preserving the soil requires the adoption of sustainable practices across various sectors, from agriculture to urban development (Costa Falcão & Falcão Sobrinho, 2023). Proper soil management, the promotion of sustainable agricultural practices, and awareness of the importance of soil are crucial steps to ensure its integrity, as shown in the passage by Favaretto and Dieckow (2007):

"Normally, we associate soil conservation solely with erosion control. However, soil conservation goes beyond erosion control. Soil conservation is, by definition, the combination of land management and land use methods that protect the soil against physical, chemical, and biological depletion" (FAVARETTO; DIECKOW, 2007, p. 126).

Thus, it can be perceived that when working on soil study during childhood and throughout education (Costa Falcão, 2014; Costa Falcão & Falcão Sobrinho, 2014), one should consider all these aforementioned combinations. Therefore, in this bibliographic research, the analysis focused on these aspects and how they were developed in the literary works studied, which will be discussed further.

MATERIALS AND METHODS

The present study is a bibliographic research, as the focus is to categorize and analyze data, in this case, literature focusing on pedology, which were previously written and published (GERHARDT; SILVEIRA, 2009). To do this, it is important to list a small part of the existing works that address the pedological theme, which can be seen in the following table taken from Oliveira et al. (2023):

Table 1 - Children's books that address soils

Book	Central Theme
BALIEIRO, F. C. A surpreendente história não contada da biodiversidade do solo e nosso bem-estar. Brasília, DF: Embrapa, 2022.	Soil biodiversity
CAPECHE, C. L.; STUCHI, J. F.; PAGLIACCI, M. P. A casa da vida: eu sou um solo vivo. Brasília, DF: Embrapa, 2021.	Soil biodiversity
PEREIRA, C. S.; REZENDE, L. E. F.; RIBEIRO, L. O.; OLIVEIRA, J. G. R. A biodiversidade do solo: um mundo sob nossos pés. Pará de Minas - MG: VirtualBooks, 2021.	Soil biodiversity
OLIVEIRA, D.; MANGANOTTE, M. B.; MACHADO, A. R.; CERMINARO, A. C.; SILVEIRA, L. A.; CARVALHO, M. F.; PATUCCI, N. N.; CHRISTMANN, P. João Torrão: Um pedacinho de solo. São Paulo: FFLCH/USP, 2018.	Soil formation, functions and conservation
SILVA, A. C., OLIVEIRA, J. G. R. O aniversário do Vermelhito. Pará de Minas, MG: VirtualBooks, 2021.	Soil functions
SILVA, A. C., OLIVEIRA, J. G. R. Para que o solo serve?. Pará de Minas, MG: VirtualBooks, 2021.	Soil functions

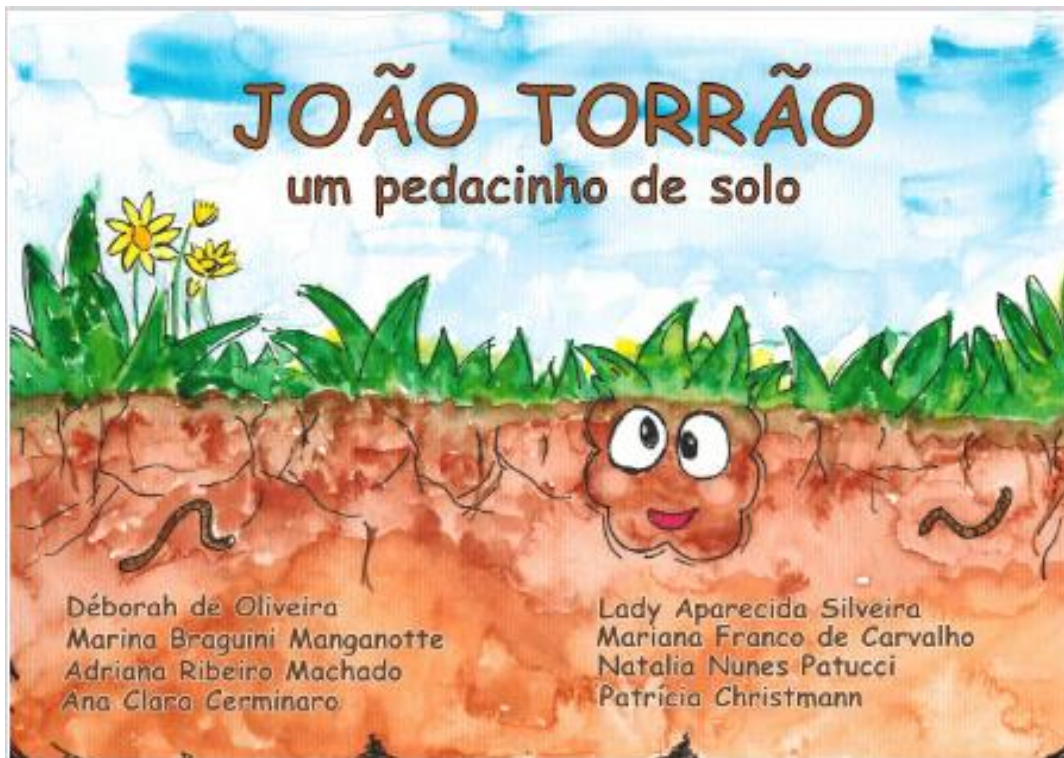
MIKOSIK, A. P. M.; SOUZA, D. M. H.; OLIVEIRA, D. R. S. GATTI, V. A casa da minhoca onde nasce a mandioca. Curitiba: CRV, 2022.	Soil functions
RESENDE, A. V.; BARROS, A. C. S.; FAVARIN; A. M.; BORGHI, E.; GONTIJO NETO, M. M.; CASTRO, M. A. A terra não é sujeira. Sete Lagoas: Embrapa Milho e Sorgo, 2017.	Soil functions
VITAL, A. F. M.; SANTOS, R. V. Xô salinidade, deixa meu solo em paz. Campina Grande: EDUFCEG, 2022.	Soil salinization

Adaptada de Oliveira *et al.* (2023)

These works were created by researchers linked to soil science, meaning there is a scientific basis in the creation of children's books. Each of these stories addresses a specific theme or function of soil, making the learning process more dynamic and categorical, while presenting pedology in a more playful manner. From this list, two works were selected for analysis, which are: 1) "João Torrão: Um pedacinho de solo" (João Torrão: A Little Piece of Soil); 2) "O aniversário do Vermelhito" (Vermelhito's Birthday).

The book "João Torrão: Um pedacinho de solo" (Figure 1), authored by Déborah de Oliveira, Marina Braguini Manganotte, Adriana Ribeiro Machado, Ana Clara Cerminaro, Lady Aparecida Silveira, Mariana Franco Carvalho, Natália Nunes Patucci, and Patrícia Christmann, in its 1st edition in 2018, presents three chapters, each addressing a different thematic axis. In the first chapter, the authors discuss soil formation factors, horizons, and their constitution. In the second chapter, the authors emphasize the importance of soil for food production, especially in human nutrition. In the third chapter, the problems that occur with soil due to human action are exposed, such as impermeabilization, pollution, wildfires, and erosion. At the end of the chapters, experiences and playful materials are provided to assist in the content assimilation.

Figura 1 - Capa do Livro: João Torrão: um pedacinho de solo



OLIVEIRA *et al.*, 2018.

The story "O aniversário do Vermelhito" (Vermelhito's Birthday) (Figure 2), authored by Ana Carolina da Silva and Jully Gabriela Retzlaf de Oliveira, in its 1st edition of 2021, has as its central theme the function of soil as a producer of food and fuels. The work narrates a surprise party celebrating Vermelhito's birthday, a character representing a deep, clayey red soil – the latosol, and explains the origin of the ingredients used in the production of the "minhocolate" cake: wheat flour, egg, milk, cocoa powder, soybean oil, and sugar. Furthermore, the work clearly emphasizes the need to care for and preserve the soil as a precious environmental element for sustaining life on Earth.

Figura 2 - Capa do Livro: O aniversário do Vermelhito.



SILVA; OLIVEIRA, 2021.

To conclude, it is essential to bear in mind that these works are just a tiny fraction of productions by teachers and researchers in the pedological field. They approach the topic of Soils in a didactic and playful manner, demonstrating the objective relationship between the reader and the soil.

RESULTS AND DISCUSSION

Through these children's stories, it became possible to establish a dialogue with soil science from early childhood, propagating scientific knowledge in a more educational and playful way. By disseminating this knowledge, it is possible to create other stories aimed at reaching a different audience, such as young people and adults, relating pedological and geographical subjects in a more critical manner to make readers more critical and questioning.

Ultimately, encouraging children, young people, and adults to learn about soil is essential for creating citizens who understand the importance of soil in everyone's life, as well as the means to preserve it.

CONCLUSIONS

Children's books that address the theme of soil science offer a unique opportunity to awaken children's interest in the natural world around them. By exploring the complexity and importance of soil in an accessible and engaging way, these works not only convey scientific knowledge but also promote environmental awareness from an early age.

By following captivating characters on soil-related adventures, these books manage to convey scientific concepts in a playful and educational manner. Furthermore, they stimulate children's curiosity about the vital role of soil in sustaining life, food production, and environmental preservation.

By encouraging a deeper understanding of soil science, these books contribute to the formation of conscientious and responsible citizens, inspiring respect for nature and encouraging active participation in planet preservation. Thus, children's books about soil science not only educate but also sow the seeds for a sustainable future, where children become advocates for the environment.

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