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AQUELE 1% É MORINGA: PURIFICANDO ÁGUAS PARA INGESTÃO E ALIMENTAÇÃO A PARTIR DO TRATAMENTO COM A MORINGA OLEÍFERA

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ABSTRACT
Moringa oleifera is a plant of the Moringaceae family, better known as moringa, it is also popularly called white acacia, horse radish tree, cedar, moringueiro and corner okra. The leaves and pods are used in human food (as in salads, teas or seasoning). It stands out for being a natural and alternative coagulant used in the purification, clarification and elimination of particles and microorganisms present in water. The present project proposed the use of seed powder to treat the water used in the school. The experiment was carried out in the laboratory of EEEP Francisco das Chagas Vasconcelos, where samples of tap and drinking water were treated with moringa seed. The turbidity, ph and total coliforms of the samples were analyzed and then the comparison of these indicatives was made. After the treatment, it was noticed that the water was very clean and clear compared to natural, due to the presence of proteins with low molecular weight, when added, the powder is dissolved and acquires positive charges that attract negatively charged particles forming dense flakes that sediment. In addition, the seed also contains proteins that help in clotting, and have a high power to inhibit microbiological activities.
Keywords: water, purification, treatment, sustainability

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RESUMO:
Moringa oleífera é uma planta da família Moringácea, mais conhecida por moringa, também é popularmente chamada de acácia-branca, arvore rabanete de cavalo, cedro, moringueiro e quiabo-de-esquina. As folhas e vagens são utilizadas na alimentação humana (como em saladas, chás ou tempero). Destaca-se por ser um coagulante natural e alternativo usado na purificação, clarificação e eliminação de partículas e micro-organismos presentes na água. O presente projeto propôs a utilização do pó da semente para tratamento da água utilizada na escola. O experimento foi realizado no laboratório da EEEP Francisco das Chagas Vasconcelos, onde foram tratadas as amostras de água da torneira e do bebedouro com a semente de moringa. Foi analisado a turbidez, ph e coliformes totais das amostras e em seguida feito o comparativo desses indicativos. Após o tratamento percebeu-se que a água ficou muito limpa e clara em relação a natural, devido a presença de proteínas com baixo peso molecular, ao ser adicionado, o pó é dissolvido e adquire cargas positivas que atraem partículas negativamente carregadas formando flocos

densos que sedimentam. Além disso, a semente também contém proteínas que ajudam na coagulação, e possuem um alto poder de inibir as atividades microbiológicas.
Palavras chave: água, purificação, tratamento, sustentabilidade

INTRODUCTION

Moringa oleira is a plant of the Moringaceae family, better known as moringa, it is also popularly called white acacia, horse radish tree, cedar, moringueiro and corner okra. The leaves and pods are used in human food (as in salads, teas or seasoning). The tree itself is not very robust, but it develops branches that grow to about 10 m in length and can reach 12 meters in height. Its main wealth lies in the very high nutritional value of its leaves and fruits, which brings several antioxidant benefits. They contain a lot of vitamins A, B, C and E and their antioxidant properties can help us take care of our overall health. We can highlight some benefits among others: Fight against cancer; Diabetes; controls cholesterol; improves the immune system; Burns body fat; improves mental functions such as memory and learning ability. The discovery of the use of Moringa oleífera Lam seeds for water purification, at a lower cost than conventional chemical treatment, constitutes an alternative of the highest importance (SILVA, 2005).

A great curiosity about the seed is that it acts in the purification of water for consumption. This provides help to riverside populations who often cannot purify the water they drink, and end up contracting diseases. As the plant is easy to access and grow, it also brings many benefits during the dry season for communities that are supplied with water trucks, as this water does not always receive the necessary care, and the antimicrobial seed can be the solution to the problem. Given the above, the objective of this work is to contribute to the quality of water consumed in schools and to make known to the school community the benefits of the seed that exists in our region, but is not explored because the community does not know its true healing potential.

MAIN GOAL

Purify the water from the school's drinking fountain for a better quality of life. Reducing the risk of any contamination by microorganisms and preventing any discomfort that students may feel.

Specific objectives

• Build a natural, easily accessible and low-cost treatment plant.

• Analyze microbiological parameters before and after moringa treatment.

• Take this purification technique to schools in the rural area of the municipality.

METHODOLOGY

1st Stage: study

To carry out the work, the students gathered for a moment of research, reading and discussions about Moringa. Then, a survey was carried out in the community to find out if the plant existed in the municipality and if the population was already aware of it.

2nd Stage: collections

Knowing the existence of the plant in the region, the students collected the seed and brought it to the EEP Francisco das Chagas Vasconcelos laboratory, where some experiments were carried out with water.

3rd Stage: Analyzes

The good quality seeds were separated and then ground to a powder, this powder was added to a 1 liter bottle of water and left to rest for 24 hours. The experiment had the participation of three students and was carried out in the school's chemistry laboratory.

RESULTS

According to experiments carried out in the school's laboratory, it was observed that the heaviest particles present in the sample1, descended to the bottom of the bottle, leaving the water visibly cleaner. During the process, a homemade microscope was used to verify microorganisms present in the water and the most interesting thing was to prove that the water treated with the seed powder showed a significant reduction in microbiological activity. This piqued the students' curiosity even more. The study is recent, there is a lot to be analyzed, but the research continues and its main objective is to contribute to the improvement of the quality of life of the rural population, helping not only in the treatment of water purification, but exploring all the benefits that the seed can bring.

SOCIAL RELEVANCE OF THE PROPOSAL

The discovery of the seed in the municipality aroused the curiosity of EEEP students Francisco da Chagas Vasconcelos, who soon began their studies and began to carry out the

first experiments with water used for consumption. Initially, the study was carried out and then the analyzes with water from the school's drinking fountain, the studies were motivated by the quality of the water that generated significant impacts on the change of consciousness of the students. The research developed in the school community, aroused interest for research and opened space for debate and, greater awareness about water quality and its importance in everyone's health.

IMPACT ON THE DISSEMINATION OF KNOWLEDGE AT SCHOOL

A significant change in the color of the water treated with moringa was observed. This work will be carried out on a continuous basis, with weekly seed preparation meetings, observation using a home microscope, sample analysis and discussion of the **results.**

FINAL CONSIDERATIONS

It is concluded that moringa seed has numerous health benefits and its antioxidant properties can help us take care of health. It is an easy-to-grow plant and native to our region. The study motivates us to research more on the subject and take this information to the school community. Opening opportunities for discussions and research that can bring great benefits to our city. The project aims to expand this knowledge and share it with a wider audience, through seminars presented at other schools and at the municipal fair.

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