

SPHAGNUM ANTISETTICO : TOPICAL ANTISEPTIC FROM SPHAGNUM MOSS WITH AN BEGONIA EXTRACT FOR WOUND CARE

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Abstract

Sphagnum moss a type of moss commonly found in moist environments, typically in tropical regions. Peat contains both solid and liquid fractions and was used in treating skin conditions due to its antiseptic properties. It was added to ointments and medicinal soaps until the late 1960s (Jacek Drobnik, Adam Stebel, 2017). Similarly, the Begonia multangula plant, which has been extensively studied, has shown antibacterial properties that can be used as an antiseptic for wound care. To find an alternative antiseptic that is easy to use, we tested these two plants, which have been researched for their beneficial properties in treating and healing wounds.

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Sphagnum moss, Antiseptic properties, Wound care

Introduction

Sphagnum moss is a type of moss commonly found in moist environments, particularly in tropical regions. Its unique properties have made it a subject of interest for various applications, especially in the field of medicine. Historically, peat derived from Sphagnum moss was utilized in treating skin conditions due to its antiseptic properties. This traditional knowledge highlights its potential as a natural remedy for wound care, a practice that was prominent until the late 1960s. Complementing this, Begonia multangula, a plant known for its antibacterial properties, has also shown promise in treating skin conditions and wounds. The combination of these two natural resources presents a significant opportunity to develop an effective and natural antiseptic solution. Wound care remains a critical aspect of healthcare, as untreated wounds can lead to severe infections and complications. Antiseptics play a vital role in preventing microbial growth and facilitating wound healing. However, the demand for alternatives to synthetic antiseptics has risen due to concerns over side effects and the development of microbial resistance. Sphagnum moss and Begonia multangula offer natural solutions, with properties that make them ideal candidates for further exploration in this field.

The current study aims to investigate the efficacy of a topical antiseptic formulation, Sphagnum Antisettico, derived from Sphagnum moss and Begonia extract. By combining the unique properties of these two plants, the research seeks to provide a sustainable and effective alternative for wound care. The study focuses on the preparation, testing, and evaluation of the antiseptic's properties, including its ability to absorb moisture, inhibit bacterial growth, and promote skin repair. The methodology employed in this study involves extracting active compounds from Sphagnum moss and Begonia stems through a series of steps, including drying, grinding, and mixing with solvents. The formulation also includes apple cider vinegar, a known

antimicrobial agent, to enhance the product's effectiveness. By combining these components, the study leverages the synergistic effects of natural extracts to create a potent antiseptic. Initial results from this research have demonstrated promising outcomes, with Sphagnum Antisettico showing superior performance compared to standard wound care materials. Its exceptional water-absorbing capacity, coupled with its antibacterial and antifungal properties, makes it a valuable addition to wound care treatments. Additionally, the inclusion of Begonia extract, rich in compounds such as luteolin and quercetin, further enhances its therapeutic potential. This study underscores the importance of exploring natural resources for innovative healthcare solutions, offering insights into the development of safe and effective antiseptic products.

Methods

Ingredients :

1. Sphagnum moss
2. Water
3. Begonia stem
4. Apple cider vinegar

Methods :

- a. Place dried sphagnum moss into a container, then pour boiling water over it until the moss is fully submerged. Seal the container tightly and let it sit
- b. Filter the mixture to obtain the sphagnum moss extract, then wash the stems thoroughly before use.
- c. Cut it into small pieces to facilitate the extraction process.
- d. Dry in a shaded and well-ventilated area until completely dry.
- e. Once dry, crush the stems into a fine powder using a blender.
- f. Place the plant powder into a suitable container and pour in enough hot water.
- g. Cover the container and let it sit for several hours.
- h. Strain the extract to separate the solid residue from the liquid.
- i. Mix the sphagnum moss liquid with the begonia stem liquid and Apple cider vinegar

Result and Discussion

Based on the research conducted, Sphagnum Antisettico can effectively treat wounds. We tested it on children, men, and women with minor wounds. Sphagnum Antisettico has excellent water-absorbing properties, which helps maintain skin moisture for a longer period. The leaves contain thickened cells arranged in ring or spiral patterns, known as idioblasts, which form a network among other cells. These cells are living, elongated, and rich in chlorophyll. Sphagnum Antisettico possesses antibacterial and antifungal properties from the sphagnum moss, which aids in treating minor wounds. Additionally, Sphagnum Antisettico contains micronutrients essential for hormone formation, enzyme activity, and regulating immune and reproductive system functions. Minor wounds occur When there is a tear in the skin's surface, it exposes underlying tissue and increases the risk of bacterial infection. Minor wounds can be treated using Sphagnum Antisettico due to its remarkable ability to absorb three times more fluid compared to standard cotton gauze, its acidic nature, and its capacity to slow bacterial growth. Begonia extract, known for treating skin conditions, contains compounds like luteolin and quercetin. Luteolin is thought to exhibit antibacterial effects by inhibiting the DNA gyrase enzyme, which is crucial for DNA replication and transcription in prokaryotic cells. Quercetin, a flavonoid, can protect against dyslipidemia and cardiovascular diseases. This research provides insight into the

additional function of Sphagnum moss as an antiseptic for treating minor wounds. Healthy skin, which is desired by everyone, represents a significant opportunity to develop Sphagnum as a safe antiseptic with no adverse side effects. This is because Sphagnum contains properties that are beneficial for treating minor wounds. Based on the research outlined above, the researchers conclude that Sphagnum, or peat moss, can be used as an antiseptic for treating minor wounds on the body. Sphagnum also offers benefits such as maintaining skin moisture, as well as protecting and repairing body cells. Antiseptics, as chemical agents, have a significant impact on microbes. Antiseptics affect microbes through their protein components, which disrupt cellular structures and damage cell walls. They interfere with enzyme systems, cause protein denaturation, and damage nucleic acids, impacting the cell's ability to replicate and synthesize enzymes. The effectiveness of an antiseptic is influenced by factors such as concentration, pH, and solvents. At slightly higher concentrations, fungicidal effects are generally stronger than bactericidal effects. For instance, at pH 6, chlorhexidine is ten times more effective than at pH 9, and benzoic acid and its esters are more active at acidic pH levels. Other factors affecting antiseptic effectiveness include the microbial load more microbes require longer times to be eradicated. Sphagnum is resistant to decay due to its phenolic compounds in cell walls and contains antimicrobial substances that inhibit microbial and fungal growth. Phenol is a series of homologous compounds containing a hydroxyl group directly attached to an aromatic ring. Phenol falls into the category of alcohols due to the presence of the OH group, making it the simplest aromatic compound in this group.

Conclusion

Peat moss and *Begonia multangula* can be utilized as alternatives for making antiseptics due to their main components, which have antiseptic and antibacterial properties.

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