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Peat Moss (*Sphagnum*) as a Sustainable Alternative for Period Products †

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Abstract: Throughout history, bryophytes have been utilized in various contexts for its remarkable properties. Indigenous tribes, for example, recognized the absorbent nature of bryophytes and employed it as a diaper material to ensure cleanliness and comfort for infants. Similarly, during the Middle Ages and the First World War bryophytes found application as toilet paper and in wound dressings due to its absorbency and ability to control bleeding. In contemporary society, the environmental impact of traditional menstrual products, such as tampons, has become a growing concern. These products generate significant waste as they are designed for single-use and often contain plastics and harmful chemicals. Tampons are often also flushed down the toilet causing blockages in the sewers with other hygiene products which are meant to be thrown away in a bin. The prevalent use of non-biodegradable single-use tampons in menstruation practices worldwide has prompted significant environmental concerns. Drawing from historical applications of bryophytes in the medical sphere, our initial experimentation aims to analyze their hygroscopic capabilities. Additionally, bryophytes exhibit a spectrum of advantageous properties, including antioxidative, antimicrobial, and anti-inflammatory attributes, while retaining structural integrity during water absorption. This research aims to underscore the feasibility of bryophytes *(Sphagnum*) as viable materials for sustainable menstrual products, advocating for a reduction in the consumption of single-use menstrual items to address their adverse environmental repercussions. In addition, this research focuses on the investigation of two *Sphagnum* species as potential eco-friendly substitutes for the manufacture of tampons and examines their mechanical and hygroscopic properties according to ISO 12571:2021. It also discusses the feasibility of using Sphagnum for menstrual products and highlights the urgent need for sustainable alternatives.

Keywords: period products; bryophytes; sphagnum; sustainable menstrual products; hygroscopic capabilities; moss; bio-based materials; recycling; sustainability; circular economy;

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