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MUSAPAPEL: ASSESSING THE EFFECTIVENESS OF THE EXTRACTION OF BANANA LEAVES WAX FOR A HYDROPHOBIC PAPER

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ABSTRACT

The increasing plastic pollution has led to the search for sustainable alternatives. The research investigates how banana leaf wax performs in creating hydrophobic paper as a sustainable alternative. Previous studies dedicated their attention to synthetic hydrophobic coatings yet studies about natural hydrophobic alternatives such as banana leaf wax have received minimal focus. The Hydrophobic Paper aims to provide a biodegradable material that has the ability to repel water that can be used as a raw material that has the hydrophobic property and at the same time being biodegradable. The researchers selected 80 different students from the STEM Strand. Quantitative research design was used in this study and the data is collected through google forms. Slovin's formula was implemented to calculate the total respondents from STEM 11 under Academic Track in Tuy Senior High School. Additionally, the Musapapel was made through the extraction of banana leaf wax along with the use of an external hydrophobic coating that is integrated through its application in paper. The research demonstrated that banana leaf wax improves paper resistance to water while providing a sustainable and biodegradable material suitable for multiple uses. The findings revealed that

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implementing the extraction of banana leaf wax has an effect in terms of the environment, economy, and feasibility and that using hydrophobic paper is effective in terms of durability, sustainability, and eco-friendliness. It has been found out that the challenges associated with the implementation of the extraction of banana leaf wax for a hydrophobic paper is low wax yield, high production cost, and compatibility with paper production. On the other hand, it has been found out that there is a significant relationship between the implementation of banana leaf wax for a hydrophobic paper and the effectiveness of using hydrophobic paper.