Eco-Pads: Engineering Sustainable Sanitary Pads Integrated With Jamaica Dyed Banana Fiber That Monitor Feminine Reproductive Health

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According to UNICEF (2021), 500 million women worldwide lack access to menstrual products, clean water, sanitation, and hygiene facilities. Women in developing countries have difficulty obtaining disposable menstrual products due to financial and availability barriers. This is an issue that needs to be addressed since the lack of hygiene products may cause women to resort to unsafe alternatives. Therefore, this research aimed to engineer a reusable menstrual pad that can monitor feminine health. To do this we conducted the following methods. First, we treated the banana fiber with sodium hydroxide and hydrogen peroxide. Next, we mordanted the treated fibers using mesquite extract. Lastly, we dyed the mordanted fibers using Jamaica extract. On the other hand, the eco-pads were made by inserting the treated and dyed banana fibers inside a cotton menstrual pad, acting as the absorbent. We performed color and pH analyses using a colorimeter. The results showed that the coloration of the engineered eco-pads showed 90% consistency. The color fastness test also showed that after 8 consecutive washes, the pads did not show any staining. This is significant as supported by the calculated R2 value of 0.9415. Lastly, after conducting a pH analysis, we were able to devise a pH tracking chart which indicates that darker brown to gray indicates imbalance in feminine pH. Keywords: Eco-pad, feminine pH, banana fiber, bio-mordant.

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