Production of Low-Cost Sanitary Pads From Waste Banana Trunks

Onyenwe, Mary Claret (School: Government Science and Technical College)

Many of the women and young girls in the low-income communities of Nigeria and sub-Saharan Africa can not afford conventional sanitary pads during their monthly menstrual cycle. This study investigates the use of banana trunk fiber as an absorbent material for sanitary pad production. Hence, there is a need for a cheaper, sustainable, and better alternative that is hygienic. Banana trunk is a very good absorbent if well processed. The fiber possesses several health properties, such as high absorbency and biocompatibility, and the properties may support protein breakdown (as reported in literature). 30kg of banana trunks, beaten to remove the water content, washed with tap water, and dried, produced 1.5 kg of banana fiber. 1 kg of dried fiber was shredded into smaller pieces and soaked for 90 minutes in a palm bunch ash solution produced by dissolving 2 kg of palm bunch ash in 4 liters of tap water filtered with a sieve. The soaked fiber is then boiled at 100 °C for about 60 minutes. This is washed and rinsed, followed by the forming using a forming frame and deckle of dimensions 0.17m by 0.25m by 0.01m in water treated with moringa seed powder extract. Moringa seed extract has been reported to have antimicrobial properties. The formed fiber is then dried, measured, and the pads are cut to dimensions of approximately 24 cm × 7 cm, sterilized, sealed with white fabric layers, and assembled into a prototype sanitary pad model for laboratory evaluation. Absorbency was conducted using an extract from dried hibiscus flower prepared in the following concentrations: 10g/ml, 20g/ml, and 30g/ml. The results indicated that the banana fiber material demonstrated rapid absorption compared to conventional sanitary pads under the same conditions.

Awards Won: