Title: **Valorization of pineapple leaves: Effective conversion of agro waste to textile materials**

Author Names: Mohammad Abdul Jalil, Md. Reazuddin Repon, Sigita Jurkonienė, Aminoddin Haji, Syed Zubair Hussain, Sharof Shukhratov

Abstract: The demand for sustainable and environmentally friendly practices by reducing the usage of virgin materials and minimizing the environmental impact associated with textile production has increased. However, due to the subjectivity of reuse and recycling for waste management, developing textiles with sustainable and quality yarn characteristics remains a challenge. The main goal of this experiment is to produce a new sustainable blended open end (OE)-rotor yarn by using pineapple leaf fiber (PALF) and recycled waste fiber (RWF). OE-rotor yarns are made in various proportions from RWFs generated from clothing wastes and bleached PALF at 20%, 50%, and 80%, respectively. To provide a more accurate evaluation, the properties of 100% PALF OE-rotor yarns versus PALF-RWF blended OE-rotor yarns are compared. The evaluation of various physical properties led to the discovery that rotor yarns with up to 80% RWF-PALF blended yarns had an acceptable number of physical attributes. The findings were encouraging given that the created yarns from RWF with PALF blended are less expensive than the yarns produced from standard raw materials. It also has a dual-benefit for the manufacturers that it allows them to make money from the waste while also addressing zero waste management and disposal challenges.

Keywords: Sustainable textiles Pineapple leaf fiber (PALF) Recycled waste fiber (RWF) OE-rotor yarn Fiber blending Circular textile economy

https://scijournals.onlinelibrary.wiley.com/doi/full/10.1002/ese3.1751