

ABSTRAK

Indonesia is the largest pineapple producer in the world, rank 4th with a production of 2,196,456 tons in 2022. Pineapple plants have a composition of 90% leaves, 1% shoot buds, and 1% stem. So far, pineapple plant waste will be burned by farmers after harvest, resulting in CO₂ gas emissions that worsen global warming. Pineapple leaf waste contains 69.6% - 71% fiber, making it possible for extraction. Pineapple leaf fibers have long, fine, and strong properties, making them potential for textile raw materials combined with ZnO as a UV protection agent. Pineapple leaf fibers serve as weft yarns and cotton fibers as warp yarns, then processed using non-machine loom process. The testing of fabric characteristics was conducted using tensile test and capillarity tests. The tensile test results show that the 50:50 composition has the highest tensile strength in the weft direction, which is 220.725 N, meeting the lower limit of SNI 08-0276-2009 for textile fabrics, and has the highest capillarity among the fabric with non machine loom process, which is 0.036 cm/s. The UV resistance capability was tested using a color fading test with a spectrophotometer, which showed that ZnO has UV resistance in pineapple leaf fiber fabric with a K/S value of 0.61, thus having the potential to be developed into UV-resistant textile fabric.

Keywords: natural fiber, non-machine loom, tensile test, UV protection