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Development of an electronic moisture meter for abaca fiber

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ABSTRACT

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An electronic, portable, cheap and easy-to-operate moisture meter was developed and fabricated using the resistivity–conductivity principle of operation which states that the presence of moisture in the fiber conducts electrical current from one terminal end to the other. Its circuitry followed that of the modified wheatstone bridge and used an LM 324 Op Am Integrated circuit.

Results of the calibration studies showed highly significant relationships between the meter reading and the oven drying method even at the fiber pressure of only 100 g/cm^2 (estimated at 4 kg pressure at the test probe handle). Further studies using fiber samples of zero and 14-blade serrations revealed highly significant relationships between the moisture reading and the oven drying method with an R-value of 0.986 and 0.976 and trendline equations of $y = 2.34 + 1.07x$ and $y = 0.8376x$, respectively. This means that the meter is still capable of reading moisture content of abaca fiber at different classifications with greater accuracy and reliability.

Potential end-users' acceptability evaluation of the meter revealed higher acceptability rating from the farmers than the traders.

Keywords: moisture meter, abaca moisture, fiber moisture, moisture content

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