

## **Abstract**

**Purpose** – This study aims at extracting and characterizing palm leaf fibers from *Elaeis guineensis* species of palm trees found in Ethiopia.

**Design/methodology/approach** – The fibers were extracted using three methods: manually, through water retting and chemically with sodium hydroxide. Physical parameters of the extracted fibers were evaluated, including tensile strength, fiber fineness, moisture content, degradation point and functional groups. Its cellulose, hemicellulose and lignin contents were also analyzed.

**Findings** – The results showed that the palm leaf fibers have a comparable fiber strength (170-450 MPa), elongation (0.95-1.25 per cent), fiber length (230-500 mm) and moisture regain (8-10 per cent) to jute, sisal and flax and thus can be used for technical textile application.

**Originality/value** – The fibers extracted using the water retting method had better properties than the other extraction methods. Its fiber length of 307 mm, cellulose content of 58 per cent, strength of 439 MPa and elongation of 1.24 per cent were the highest for all the extracted fibers. When compared with other fibers, palm leaf fiber properties such as tensile strength (439 MPa), elongation (1.24 per cent), moisture content (7.9- 10.4 per cent and degradation point (360-380°C) were consistent with those of jute, sisal and ramie fibers. Hence, palm leaf fibers can be used for technical textile applications such as composite reinforcement.