Determination of Fibre Properties of *Agave Americana* Leaves as a Textile Fibre from Mbaruk, Nakuru District

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*Agave americana* is an exotic plant, which is widely cultivated in the world for aesthetic purposes. It belongs to the family *Agavaceae* and in most varieties the leaf has a white or yellow marginal or central stripe from the base to apex. The Kenyan *A. americana* fibre has not yet been investigated as a textile fibre. The study aimed to investigate the potential of the fibre extracted from the *Agave americana* plant, and its quality for use as a textile fibre. This is essential since the United State (US) government has opened its market to Kenyan textiles products and other goods through the African Growth Opportunity Act (AGOA). The Agoa Act requires that the beneficiary countries start growing other varieties of vegetable fibres to make fabrics instead of relying only on imported yarns and fabric and locally grown cotton. The soil conditions where the leaves were harvested was analysed and determined. The *Agave americana* fibres were extracted from the plant leaves and the physical and chemical properties determined. For the purposes of this study plant samples were purposively collected and subjected to retting process to obtain the fibres. The fibres were then randomly assigned for the experimental tests. The data analysis was both qualitative and quantitative. From the analysis the prevailing soil type is sandy clay loam and was also acidic. The fibres obtained were flexible, smooth and lustrous and had similar burning characteristics like other known cellulosic fibres. The fibres are significantly long with a mean length of 65.2cm and a mean diameter of 0.15mm. This implies that the fibre has good spinning quality. The fibre has a tenacity of 2.94g/d (35.96cN/tex) when dry and 2.3g/d (20.60 cN/Tex) when wet. Generally natural fibres are hydrophilic in nature and this was evident with the *A. americana* fibre with a moisture regain of 9.98% and moisture content of 9.19%. Yarns were spun from the fibres, dyed and samples of textile articles were made. The fibre disintegrated when exposed to strong acid and alkalis, but was resistant to weak acids and alkalis. From the findings of this research the fibre was found to qualify as a potential source of textile fibres and this could provide a secondary source of raw materials for textile products. Similarly the allied activities of cultivating and processing the plant could be a potential source of employment opportunities and income generation for many Kenyans. In Kenya the plant is grown as an ornamental outdoor and indoor plant and as a fence.