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“Filling gaps and removing traps
for sustainable resource management”

***Balanites aegyptiaca*: A Multipurpose Tree Species for Forest Based Industry Development in Sudan**

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Abstract

Sudan is endowed by a great diversity of tree species, nevertheless the utilisation of wood resources has traditionally concentrated to a few number of species. Most of the indigenous hardwood tree species in Sudan are used as charcoal, firewood and fuel wood due to the lack of information about their properties. Despite the richness of Sudan for most of the basic factors required to establish forest based industries, it still almost entirely depend on imports to satisfy its needs for industrial products such as pulp, paper, and fiberboard. There is an urgent need to evaluate the available local raw materials as potential sources for forest based industries. This would not only reduce imports, but it would also provide an economic incentive to the forestry and industrial sectors of Sudan.

The present study was carried out to investigate some wood properties of *Balanites aegyptiaca* and to assess its suitability for pulp, paper and flooring industries. This species is widely distributed and easily grown on large areas in Sudan. The wood materials were collected from four states in Sudan namely: Blue Nile state, Northern Kordofan state, Southern Kordofan state and White Nile state. Some anatomical, physical and mechanical properties were investigated. In anatomical investigations, fiber length, diameter, lumen diameter as well as double wall thickness were measured from which the Runkel ratio, slenderness ratio and coefficient of suppleness (or flexibility coefficient) were obtained. Concerning physical and mechanical investigations, wood basic density and hardness strength were determined respectively.

The results revealed that the anatomical, mechanical and physical wood properties of *Balanites aegyptiaca* may qualify for pulp, paper and flooring industries. The results of this study could enhance the establishment of such forest based industry in Sudan.

Keywords: *Balanites aegyptiaca*, development, forests based industries, Sudan