



Tropentag, September 15-17, 2021, hybrid conference

“Towards shifting paradigms in agriculture
for a healthy and sustainable future”

Assessment of Fiber Characteristics and Suitability of Ten Hardwood Species Grown in Sudan for Paper Production

HANADI MOHAMED SHAWGI GAMAL¹, MAJDALDIN RAHAMTALLAH ABUALGASIM MOHAMMED²,
ASHRAF MOHAMED AHMED ABDALLA¹

¹University of Khartoum, Fac. of Forestry; Forest Products and Industries, Sudan

²National Center for Research, Natural Resources and Desertification Inst., Sudan

Abstract

Sudan is considered one of the rich African countries with great diversity of tree species; it encompasses about 3156 species belonging to 1137 genera and 170 families. However, Sudan is almost entirely dependent on imports to satisfy its needs for pulp and paper despite its richness in different hardwood species which could be good sources of pulp production. There is an urgent need to evaluate the locally available raw materials as potential sources for pulp and paper industry. The present study was carried out to investigate the fiber characteristics of ten hardwood species growing in Sudan as well as to assess their fiber variation and suitability for pulp and paper making. The study species include: *Ailanthus excelsa*, *Albizia amara*, *Balanites aegyptiaca*, *Boswellia papyrifera*, *Diospyros mespiliformis*, *Eucalyptus camaldulensis*, *Euphorbia tirucalli*, *Ficus sycomorus*, *Sterculia setigera*, *Tamarix aphylla* and *Ziziphus spina-christi*. The wood materials were collected from the low rainfall woodland savannah in Sudan, from two states namely: South Kordofan State and Sennar State. Fibers dimensions and their derived values were investigated and used to consider the suitability of the selected species for pulp and paper making. Significant variations have been detected in fiber characteristics among the ten studied species. Depending on the study results, eight species out of ten species have been ranked as good source for pulp and paper making. The remaining two species (including *Balanites aegyptiaca* and *Diospyros mespiliformis*) have been ranked as poor source for pulp and paper making; however, mixing their wood with soft-wood is suggested to improve their properties.

Keywords: Fibers Characteristics, hardwood Species, Paper Production, Sudan