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The Effect of two Different Rainfall Zones in Wood Properties of *Balanities Aegyptiaca* Growing in Sudan

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Abstract

Modern research on wood has substantiated that the climatic condition where the species grow has significant effect in wood properties. Understanding the extent of variability of wood is important because the uses for each kind of wood are related to its characteristics; furthermore, the suitability or quality of wood for a particular purpose is determined by the variability of one or more of these characteristics. With the great variation on the climatic zones of Sudan, great variations are expected in wood properties between and within species. This variation need to be fully explored in order to suggest best uses for the species.

The present study demonstrates the effect of rainfall zones in some physical and anatomical wood properties of *Balanities aegyptiaca* growing in Sudan. For this purpose, thirty healthy trees were collected randomly from four states located in two zones (zone one with 273mm rainfall and zone two with 701 mm rainfall annually). From each sampled tree, 2 stem discs of 3 cm thickness were cut at 10 % and 90 % from stem height. The investigated wood properties were: wood basic density, hardness strength, fibres and vessels dimensions.

The study result reveals significant differences between zones in wood density, hardness strength as well as in vessels diameter, lumen diameter and wall thickness. From these results, *Balanities aegyptiaca* seems to be well adapted with the change in rainfall and may survive in any rainfall zone. However, the detected significant variation in wood properties lead to expected variation also on its suitability for industrial utilisation. The thing which needs to be fully explained to promote the optimal uses of wood resource in Sudan.

Keywords: *Balanities aegyptiaca*, rainfall zones, variation, wood properties