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Effects of Tapping Tools and Tapping Dates on Gum Yield of *Acacia polyacantha* subsp. *campylacantha* in South Kordofan, Sudan

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Abstract

Acacia polyacantha Willd. subsp. *campylacantha* (Hochst. ex A. Rich.) Brenan is a multipurpose forest species in South Kordofan and locally known as kakamut. The up to 15 m height tree is mainly distributed along rivers and valleys where the water table is fairly high. The wood is hard and durable. The edible gum of this species is locally used in different ways. Despite its uses, very little scientific information is available about the taping possibilities of the kakamut tree.

A two factor randomised complete block experiment with three replications was set up in Umfakarin (12°05' N, 31°20' E), Tooma (12°00' N, 31°01' E) and Lagawa (11°50' N, 29°11' E) forest reserve. The first factor was the tapping tool, which was tested in four levels (control, makmak, axe and sonkey). In the control no tapping was applied, and only the natural gum exudation was recorded. The second factor was tapping dated at two different times (October 15 and November 15). The yield of each tree was determined by weighing the gum after each picking. Each experimental unit consists of 10 kakamut trees giving a total number of 240 trees for each experimental site.

The results clearly indicated that the gum yield can be improved by tapping *A. polyacantha* subsp. *campylacantha*. Overall average gum yield from natural exudation was only 28.37 g tree^{-1} at the three different study sites. However, the tapping with makmak, axe and sonkey caused an overall average gum yield of 187.67, 169.74, and 160.33 g tree^{-1}, respectively. At all three study sites the makmak proved to be the best tapping tool with a significantly higher gum yield. The date of the tapping did not show a clear effect on the gum yield production of kakamut trees.

In conclusion, the results indicate that the yield of kakamut gum can be increased by tapping, and the makmak is the best tapping tool.

Keywords: Acacia, gum arabic, Sudan, tapping technique

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