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Wood chemistry completes natural durability as criteria for shorting best provenances in the improvement of teakwood quality: case of five provenances from Ivorian Séguié's trial

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In order to determine the best provenance for continuing breeding program in Côte d'Ivoire, five provenances of teak planted in 1970 at Séguié's trial (Agboville, in the south of Côte d'Ivoire), were compared. Fifteen trees (three trees per provenance) composed the sample. Decay resistance and the chemical content especially, non-structural carbohydrates, total phenolics and quinone compounds were employed as parameters. Decay resistance was assessed against Antrodia sp. using the AFNOR Standard EN 350-1. The content of non-structural carbohydrates was determined using an enzymatic method and that of total phenolics and individual quinone were quantified by HPLC. High inter-provenance variabilities were found. All studied provenances were at least durable and cannot allowed to short the best provenance. However, the use of the wood contents in phenolics, individual quinone, and non-structural carbohydrates) among the five studied provenances. It is followed by the Tanzanian Mtibwa provenance 17. Our results indicate that the chemical content is an important criterion which completes common phenotypical and technological parameters. Consequently, it must be taken into account for teak high genetic resources selection. In Côte d'Ivoire, breeding program could be continued by using high resources such as the Indian Nellicutha provenance 17.

Keywords: Teak, provenance trial, natural durability, quinone, phenolic, Côte d'Ivoire

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