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IBSD helps delineate Microbial Diversity & Metabolite Profiles of Palm Wine of Ivory Coast

A combined metagenomic and metabolomic approach was applied to describe the microbial community structure and metabolites profile of fermented saps from three palm species (*Elaeis guineensis*, *Raphia hookeri*, *Borassus aethiopum*) in Côte d'Ivoire (Ivory Coast). Lactobacillaceae (47%), Leuconostocaceae (16%) and Acetobacteriaceae (28%) were the most abundant bacteria and *Saccharomyces cerevisiae* (87%) the predominant yeasts in these beverages. The microbial community structure of *Raphia* wine was distinctly different from the others. The main differentiating metabolites were putatively identified as gevotroline hydrochloride, sesartemin and methylisocitrate in *Elaeis* wine; derivative of homoserine, mitoxantrone in *Raphia* wine; pyrimidine nucleotide sugars (UDP-D-galacturonate) and myo-Inositol derivatives in *Borassus* wine. The enriched presence of gevotroline (an antipsychotic agent) and mitoxantrone (an anticancer drug) in palm wine supports its therapeutic potential. This work provides a valuable insight into the microbiology and biochemistry of palm wines (the most commonly consumed traditional alcoholic beverage in Western Africa) and a rationale for selecting functional microorganisms for potential biotechnology applications.

Palm wine, the most commonly consumed traditional alcoholic beverage in Western Africa, harbours a complex microbiota and metabolites, which plays a crucial role in the overall quality and value of the product.

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