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Contribution of predominant yeasts to the occurrence of aroma compounds during cocoa beans fermentation.

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Abstract

Cocoa flavor is the most important organoleptic property according to chocolate consumers. Raw cocoa beans sourced from Ivory Coast are not known for their fine aroma quality. In the global framework of raw cocoa quality improvement, this study dealt with the determination and control of the conditions of the aroma compound formation and aimed to determine the potential contribution of yeast associated to the fermentation to the formation of sensory profiling for cocoa beans. Using the method of SPME-GC-MS, the potential for flavor contribution of some predominant yeasts isolated from cocoa fermentation assays performed around of Abidjan and then grown on Sabouraud-chloramphenicol medium was determined. Also, the flavor precursor compounds of final corresponding raw cocoa beans samples prepared according to specific post-harvest processing were analyzed. A total of around ten species of yeast involved in cocoa fermentation but among them, six strains were namely identified as *Saccharomyces cerevisiae*, *Candida tropicalis*, *Pichia kudriazevii*, *Pichia galeiformis*, *Galactomyces geotrichum* and *Wickerhamomyces anomalus*. These identified yeasts produced a total of 33 aroma compounds grouped into four families such as esters, alcohols, acids and others. Among all yeasts involved in fermentation performed in Abidjan, *P. kudriazevii*, *S. cerevisiae*, *G. geotrichum* and *W. anomalus* could be considered as the most important contributors to the formation of cocoa specific aroma compounds. These cocoa aroma producing capacities of yeast isolates could be used to improve the sensory profiling raw cocoa beans or other fermented food stuffs. Furthermore some specific yeast isolates could be used as biological markers to predict the determining of chocolate sensorial

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