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Effect of different fermentation duration of Malaysian cocoa beans on volatile compounds

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Fermentation is an important process in cocoa that enable the formation of flavor precursor. The process is influenced by various factors, in which will eventually determine the final flavor quality of dried cocoa beans. Therefore, this study was to evaluate the effect of different fermentation duration using a shallow box on the volatile compounds of the dried cocoa beans. The fermentation was conducted at the cocoa research and development center, Bagan Datuk using 150 kg of fresh cocoa seeds. During fermentation, 15 kg of wet beans was randomly taken out at 0, 24, 48, 72, 96 and 120 hours of duration and subsequently sun-dried until the moisture content reduced to 7.5%. The volatile compounds of cocoa powder prepared from samples were extracted by solid phase micro extraction using 65 μm polydimethylsiloxane-divinylbenzene coating fiber and analyzed in Gas Chromatography system equipped with mass spectrometer detector. The study identified a total of 126 compounds in the 6 samples of dried cocoa beans which classified into 20 groups. Esters, acids, hydrocarbons, ketones and pyrazines were presented as the main volatiles with more than 10 compounds in each group. Cocoa beans which fermented for 48 hours using shallow box exhibited highest number of volatiles which associated with cocoa specific aroma such as ethyl laurate, phenethyl acetate, ethyl cinnamate, methyl cinnamate, isoamyl acetate, octanoic acid, a-ethylidene benzeneacetaldehyde, benzeneacetaldehyde and phenylethyl alcohol.

Biography

Khairul Bariah Sulaiman is working at Malaysian Cocoa Board for almost 15 years. Currently she is pursuing PhD in Food Processing at Universiti Sains Malaysia.

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