

Effect of Spontaneous Ripening and Drying Techniques on the Bioactive Activities Peel of Plantain (*Musa paradisiaca*) Fruit

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Abstract : The need to provide more information on the perceived bioactive status of the peel of plantain fruit informed the design of this research. Matured Plantain fruits were harvested, and fruits were allowed to ripen spontaneously. Samples of plantain fruit were taken every fortnight, and the peels were removed. The peels were dried using two different drying techniques (Oven drying and sun drying) and milled into powdery forms. Other samples were picked and processed in a similar manner on the first, third, seventh and tenth day until the peels of the fruits were fully ripped, resulting in eight different samples. The anti-oxidative properties of the samples using different assays (DPPH, FRAP, MCA, HRSA, SRSA, ABTS, ORAC), inhibitory activities against enzymes related to diabetes (alpha-amylase and glucosidase) and inhibition against angiotensin-converting enzymes (ACE) were evaluated. The result showed that peels of plantain fruits on the 7th day of ripening and sundried exhibited greater inhibitions against free radicals, which enhanced its antioxidant activities, resulting in greater inhibitions against alpha-amylase and alpha-glucosidase enzymes. Also, oven oven-dried sample of the peel of plantain fruit on the 7th day of ripening had greater phenolic contents than the other samples, which also resulted in higher inhibition against angiotensin converting enzymes when compared with other samples. The results showed that even though the unripe peel of plantain fruit is assumed to contain excellent bioactive activities, consumption of the peel should be allowed to ripen for seven days after maturity and harvesting so as to derive maximum benefit from the peel.

Keywords : functional ingredient, diabetics, hypertension, functional foods

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