



Tropentag, September 15-17, 2021, hybrid conference

“Towards shifting paradigms in agriculture
for a healthy and sustainable future”

Proximate and Antioxidant Composition of Cocoyam Chips Flavored with Three Different Spices

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Abstract

Nigeria produces the largest amount of cocoyam (*Colocasia esculenta*) in the world; however, it is considered an underutilised food crop because of its limited use and most importantly, it is considered a food for the poor. Chips is one of the crunchy snacks with satisfying texture and taste; and is widely eaten by adults and children in Nigeria. The commonly consumed chips are developed from plantain and potatoes. The purpose of this study was to develop flavoured cocoyam chips, thereby increasing the utilisation of this underutilised crop. Seven spice solutions (ginger, garlic, turmeric, ginger+garlic, ginger+turmeric, garlic+turmeric, ginger+garlic+turmeric) were prepared by dissolving ginger, garlic and turmeric powders either singly or in equal combinations in warm water. Cocoyam slices were soaked in the spice solutions for 5 minutes, removed from the solution and drained before frying in vegetable oil. The control sample was prepared by frying salted cocoyam slices. All the samples were subjected to proximate, vitamin C and antioxidant analysis following standard procedures. The control sample showed a significantly higher ($p < 0.05$) protein, ash, fat and fibre content (2.8%, 5%, 32.5% and 15.5%, respectively) than the ginger-spiced (2.5%, 3.5%, 22.5% and 6% respectively), garlic-spiced (1.4%, 3.7%, 30.0% and 5.1% respectively), turmeric-spiced (2.7%, 2.7%, 30.7% and 9.3%, respectively) cocoyam chips or any of the other cocoyam chips flavored with combination of spices. However, all spice-flavored cocoyam chips had significantly higher phenol and flavonoid content compared to the control sample. The results showed that flavouring of cocoyam chips with these spices is beneficial in terms of reduced fat and increased antioxidant content thus indicating the benefits consumer may derive from consumption of cocoyam chips

Keywords: Underutilised, Chips, Cocoyam, spices