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Production of fufu: An African traditional dish

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Cassava is a root crop that is cultivated and consumed majorly in developing countries. Sub-Saharan Africa is the chief producer and consumer of the same. Cassava is known to be tolerant to drought and its tubers have high cyanide content, which is toxic to health. It is propagated by stem cutting and can be harvested between 7 months to 3 years after planting. Additionally, the roots are the main source of carbohydrates. Cassava products can be consumed as roasted granules, steamed granules, flour or fermented wet pastes. The fermented wet pastes, referred to as fufu, are widely consumed in the eastern and western parts of Nigeria and other parts of West African nations, such as Ghana and Sierra Leone. Currently, there is no mechanised process for the production of fufu which has thus limited its widespread consumption in other parts of the world. After harvesting, the cassava tubers are peeled manually using hand knives. Peeling the tubers helps ensure that the product is free from cyanide as the peels contain this poisonous compound. After the cassava tubers have been peeled, they are washed with clean water. The tubers are then cut manually into chunks of various sizes using hand knives. This is followed by the soaking of the cut tubers in drums or earthen pots of water for four to six days. During this period, fermentation is actively occurring; the tubers soften, the pH decreases and the cyanide present in the cassava tubers lowers significantly. Moreover, organic acids, such as lactic acid, butanoic acid, propanoic acid and acetic acid produced during this fermentation process contribute to the characteristic flavour of the fermented cassava tubers. Additionally, certain bound minerals, such as magnesium and calcium are released during the fermentation. Further, microorganisms, such as Bacillus subtilis, Klebsiella sp., Candida tropicalis, Lactobacillus plantarum and Leuconostoc mesenteroides are known to be responsible for this fermentation. Bacillus subtilis first engages in fermentation, closely followed by the lactic acid bacteria (Lactobacillus plantarum and Leconostoc mesenteroides). The yeast, Candida tropicalis, is then involved in the fermentation process as the pH decreases. When sufficiently softened, the tubers are removed from the pot, broken by hand and the fibres are sieved out using a sieve cloth. The fibre as a by-product of this process is dried and used as livestock feed. The starch suspension is allowed to sediment in a large container for up to 24 hours. When the sedimentation has been achieved, the water is decanted into an empty vessel and discarded, while the clean filtrate with starch is transferred into a cotton bag and compressed using heavy stones to remove the excess water. This collected wet paste is referred to as fufu. Before consumption, the wet paste is boiled in an open pan and stirred with a wooden rod until a strong paste is formed. Therefore, further research to optimise the process of the cleaning and fermentation of cassava will aid in introducing the popular African dish, fufu, to various countries across the globe.

Keywords: Fufu, Cassava, Africa, Lactic Acid, Fermentation, Cyanide

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