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The effect of fermentation on the nutritional quality and the shelf-life stability of fourteen different acha (*Digitaria exilis*) varieties

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This study focuses on the effect of fermentation on fourteen different acha grain varieties used to produce fermented starch and non-fermented grain flour. The nutritional compositions were studied using standard methods of analysis. The results revealed that fermentation improves protein values of all acha types significantly between 2-4%. The protein values range from 11.95% to 13.96% for the fermented starch and 7.79% to 11.56% in the non-fermented grain flour respectively. The shelf-life study after four and six weeks for the products that was carried out shows that four weeks storage provides the highest stable shelf-life conditions. Therefore all the varieties can be processed and kept for four weeks and still maintain the nutritional value. Based on this study, fermentation could be used to improve the nutritional content of acha grain product.

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