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Evaluation of hermetic bag technology to preserve shea nuts in rural Ghana

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ABSTRACT

Shea nut is a key nutritional and economic food crop produced in rural shea growing communities in Africa. Storage losses are major constraints in the shea nut value chain, with substantial amount of shea nut lost prior to its processing and marketing. Hermetic storage bags have proven to be a viable option for the effective storage of grains in sub-Saharan Africa due to their simplicity, low cost, and efficacy. However, little is known on the effectiveness of hermetic storage bags in the storage of shea nuts. In this study, three different storage bags: hermetic bags, jute sacks, and polypropylene bags were used to store shea nuts with an initial moisture content of 7.3% (w.b.) over a six-month storage period. Each of the storage treatment was made up of 12 bags of 20 kg shea nuts of which samples were taken from 3 bags after every 6 wk. The quality of the stored shea nuts was assessed based on moisture content, insect infestation and damage, and mold presence and aflatoxin contamination. Temperature and relative humidity of the ambient condition was monitored versus the microclimatic conditions in the storage bags over the storage period. Carbon dioxide concentration in the hermetic bag was also monitored over the storage period. It was expected from the study that hermetic storage would provide a viable option for the quality preservation of shea nuts, and recommendation for their adoption.

Keywords: Shea nuts, Hermetic storage, Quality preservation, Technology adoption, Sub-Saharan Africa