Use of PICS bags for the control of *P. truncatus* and *Dinoderus* spp. *on stored cassava chips: First results*

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Abstract

A trial was carried out in Benin, West Africa to test the effectiveness of PICS Bags for controlling post harvest insects, of cassava chips and to evaluate the cost/benefit of this technology. Firsts results after 2 months of storage showed that losses were significantly higher in Polypropylene bag (PPB) the main traditional method used by traders and farmer (3.03±0.09% per Kg) than PICS bag with 1.48±0.06% per Kg. When PICS bag were artificially infested with 50 adults of *P. truncatus* losses were still low (1.67±0.01% per Kg). Traders and consumers appreciated the high quality of cassava chips from PICS bags, and they said that those from PP Bags were not marketable.

Introduction

In West Africa, dried cassava chips are mainly used for human consumption. *Prostephanus truncatus*, *Dinoderus minutus* caused important damages and losses (40□50%) in storage (Hell et al. 2006). Triple□bagging of the cowpeas, proved to be a cost effective storage method for cowpeas without use of chemicals (Moussa et al. 2009). This study aimed to test the effectiveness of triple bagging for the storage of cassava chips and to evaluate the cost effectiveness. 30 kg of cassava chips were stored either in polypropylene bags (control) or PICS bags half artificially infested with 50 *P. truncatus* and under natural infestation. Samples from these three treatments after 2 months of storage were used to test traders and consumer perception of dried cassava chip quality and to determine the price they were willing to pay for these high quality chips.

Result

Prostephanus truncatus density was higher in PICS bag under artificial infestation. *Dinoderus spp*. density was significantly lower in PICS bags than PPB and had not increased significantly during storage. Losses were significantly higher in PPB than PICS bags after 2 months of storage (Table 1). Traders and consumers surveyed were very impressed with the high quality of the cassava chips samples from PICS bags (and accepted to pay more for this product) whereas they assessed that the control sample from PP Bag was not marketable. This was due to the high level of damage and losses by pest on cassava chips stored with the traditional storage method (PPB) .

Table 1. Mean number of insects and losses (%) per Kg after 2 months of storage

Treat.	*P. trunctus*		*Dinoderus* spp.		Losses (%)	
	0 mo.	2 mo.	0 mo.	2 mo.	0 mo.	2 mo.
PICS NI	0.07 ± 0.01 a	0.09 ± 0.01 Aa	0.94 ± 0.24 a	1.08 ± 0.03 Aa	1.11 ± 0.10 a	1.48 ± 0.06 Aa
PICS I	0.07 ± 0.01 a	0.30 ± 0.02 Cb	0.94 ± 0.24 a	0.99 ± 0.04 Aa	1.11 ± 0.10 a	1.67 ± 0.01 Ab
PPB	0.07 ± 0.01 a	0.21 ± 0.02 Bb	0.94 ± 0.24 a	2.06 ± 0.12 Bb	1.11 ± 0.10 a	3.03 ± 0.09 Bb

Treat = treatments; mo = months; PICS NI= PICS without artificial infestation
PICS I – PICS with artificial infestation, PPB = woven Polypropylene Bag

Fig.1: Survey at Dantokpa market (Cotonou)

Fig.2: Trial bags on IITA storage room

Fig.3: Cassava chips samples on right PP Bag, middle and left PICS bag

Conclusion

The first results after 2 months of storage, showed that cassava chips stored in PICS bag had low levels of insect infestation with a 100% reduction of losses as compared to chips in conventional polypropylene bags. However these are early results and the stored cassava chips will be evaluated for 8 months.

References

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