

THE EFFECTIVENESS OF LOCALLY PRODUCED PROTEIN BAIT IMPROVED WITH PAPAIN IN CAPTURING FRUIT FLIES OF MANGO

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INTRODUCTION

Fruit flies attack many fruits species and cause economic yield losses in West African countries. Major fruit flies associated with mango damage in Nigeria and most West African countries belong to the genus *Ceratitis*, especially *C. cosyra* and *C. capitata* (Figs. 1 & 2). With the advent of *Bactrocera dorsalis* (Fig. 3), there seem to be some level of dominance by this alien species and consequent economic injury due to their invasive nature. The present study seeks to test for the effectiveness of locally made protein bait from autolysed brewery waste (BW) to which different concentrations of crude papain were added in local traps; with the aim of developing affordable and sustainable baiting system for resource poor farmers. The presented results were part of CORAF's regional project funded by EU under ECOWAS.

TREATMENTS

$X_1 = 188.5$ ml BW + 11.5ml papain mixed in 1300ml of water ; $X_2 = 200$ ml BW in 1300ml of water ; $X_3 = 191$ ml BW + 9.0 ml papain in 1300ml of water. One pellet of *Torula* yeast in 200ml of water (T_0) served as the check. A 7 ha orchard planted to Tommy Atkin mango variety in Nasarawa state of Nigeria was partitioned into 3 blocks (replicates). The 4 different baits at 300ml/trap were allotted randomly to mango trees 50 m apart in each block. The baits were replaced every 7 days after removal and counting of trapped fruit flies.

RESULTS

Population dynamics of fruit flies showed that T_0 attracted more fruit flies throughout mango season (April - July), but these were not significantly different from locally made X_1 (Figs. 4 and 5)



Fig. 1. *Ceratitis cosyra*



Fig. 2. *Ceratitis capitata*



Fig 3. *Bactrocera dorsalis*

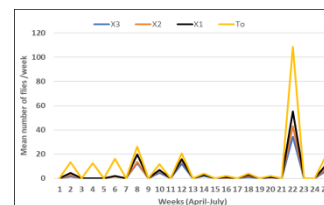


Fig. 4. Population dynamics of fruit flies in an orchard with baits of brewery waste enhanced with different concentrations of papain compared to *Torula* bait

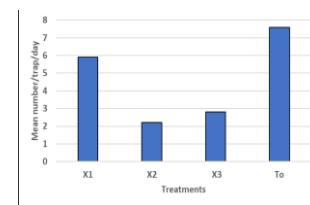


Fig. 5. Number of fruit flies captured in different protein baits traps in an orchard in between April and July

CONCLUSIONS

The study showed that locally made bait mixed with papain was effective in trapping fruit flies infesting mango and compared favorably with *Torula* bait (T_0). The locally made BW (X_1) was effective enough to be recommended to farmers.