



# Exposing maize landraces to molasses grass reduces their attractiveness to stemborer pests

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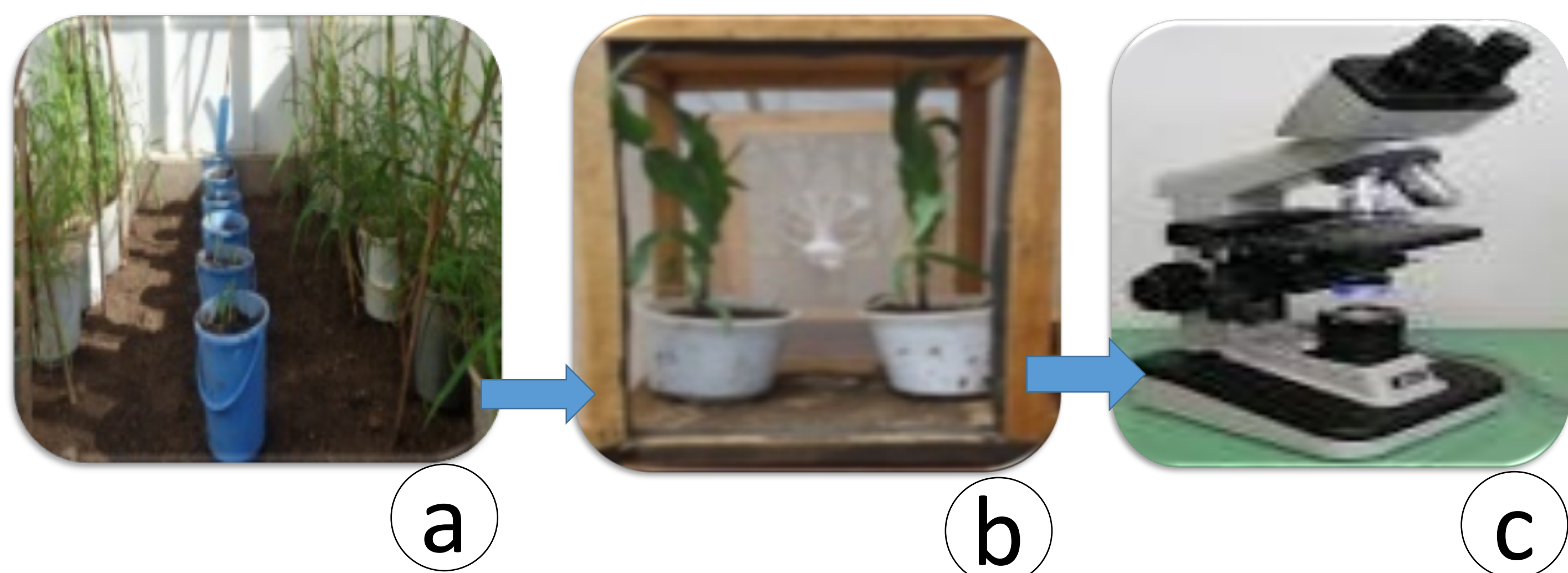
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## INTRODUCTION

The spotted stemborer, *Chilo partellus* Swinhoe (Lepidoptera: Crambidae) is a major insect pest of maize, a staple food and cash crop in sub-Saharan Africa, causing yield losses of up to 88% (Kfir *et al.*, 2002). Stemborer control using insecticides is not only uneconomical to smallholder farmers in the region, but may also have undesirable consequences on the environment and human health (Bruce, 2010). Intercropping maize with molasses grass (*Melinis minutiflora*) has been shown to reduce stemborer infestation (Khan *et al.*, 2000). This study aims to understand and exploit plant-to-plant communication, in order to develop eco-friendly stemborer management strategies.

## METHODS

Maize landrace and hybrid varieties were grown in-between rows of molasses grass (Fig. 1a). The maize seedlings were removed when three weeks old, and used in choice test at 0hr (immediately after removal), 24h, 48h, 72h, 96h and 1 week. Control plants of respective maize varieties were planted in a separate screen house under similar conditions, but without *M. minutiflora*. A choice test was conducted between exposed and non-exposed maize varieties using oviposition cages (Fig. 1b). The number of eggs laid on the experimental plants were counted under a light microscope (Fig. 1c).



**Plate 1** Experimental setup: (a) maize–molasses grass intercrop; (b) oviposition cage; (c) light microscope.

## IMPACT

Intercropping maize landraces with *M. minutiflora* may elicit defence response on neighboring maize landrace plants, which repels gravid *C. partellus* moths. Identifying and introgressing the defence trait into elite commercial hybrid maize varieties may pave the way for development of novel and ecologically sound crop protection strategies.

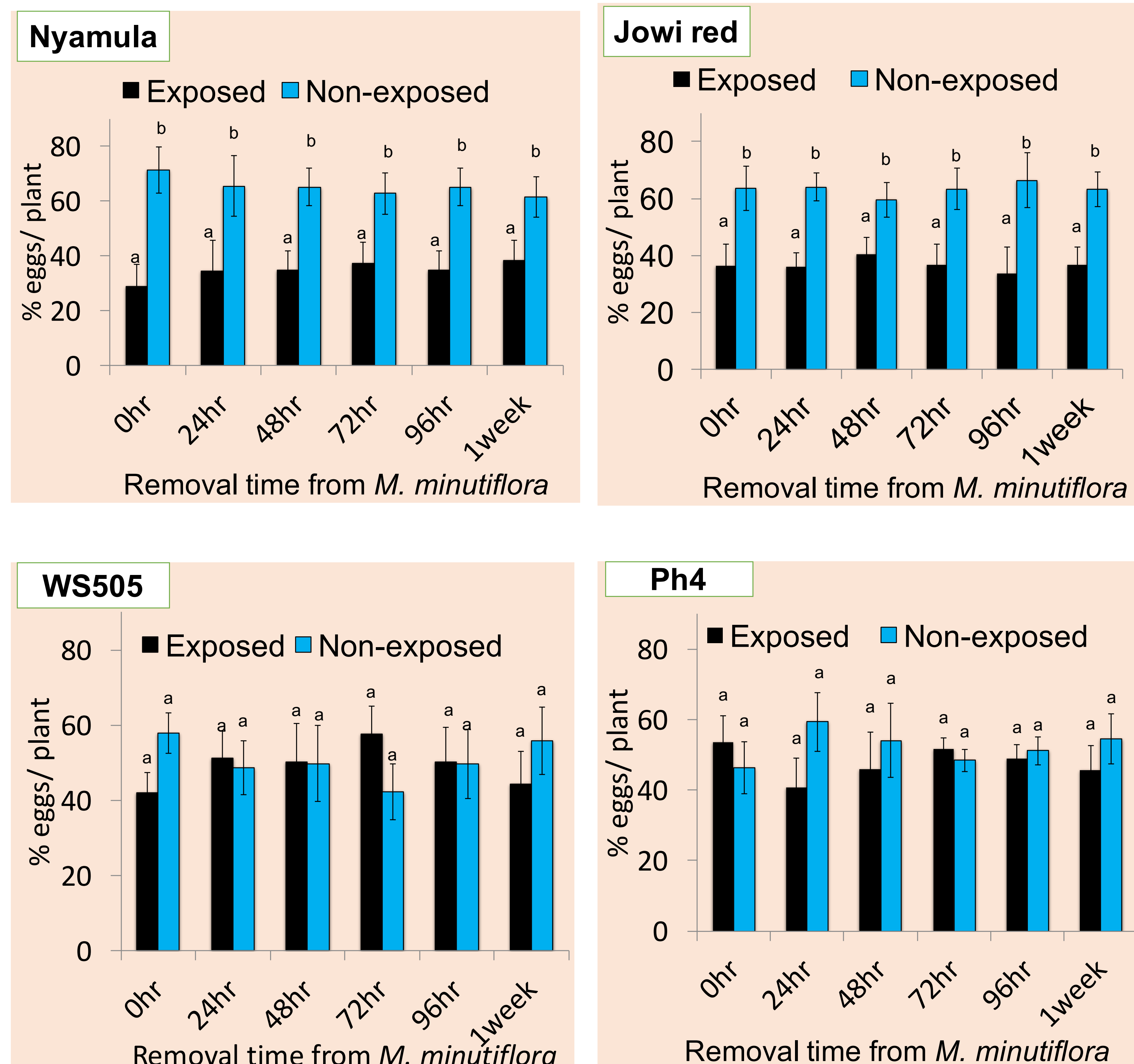
## CONCLUSION

- Maize landraces intercropped with molasses grass deter *C. partellus* oviposition and retain the moth resistance for at least a week after removal from the molasses grass.
- The commercial maize varieties failed to induce direct defence as a result of exposure to *M. minutiflora*.

## OBJECTIVES

- To evaluate oviposition behaviour of *C. partellus* on different maize varieties exposed to *M. minutiflora*.
- To select maize varieties with inducible direct defence traits when intercropped with molasses.

## RESULTS



**Figure 1** Mean ( $\pm$ SE) percentage of *Chilo partellus* eggs laid on exposed and non-exposed maize varieties in two-choice test

- The proportions of eggs laid on exposed maize landraces, Nyamula and Jowi-red, were lower on all the six treatments compared to non-exposed varieties.
- There was no difference in *C. partellus* oviposition preference to exposed and non-exposed commercial hybrid maize varieties, WS505 and PH4.

## REFERENCES

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