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Understanding the ecological consequences of invasive species on the host plant selection by native insect herbivores

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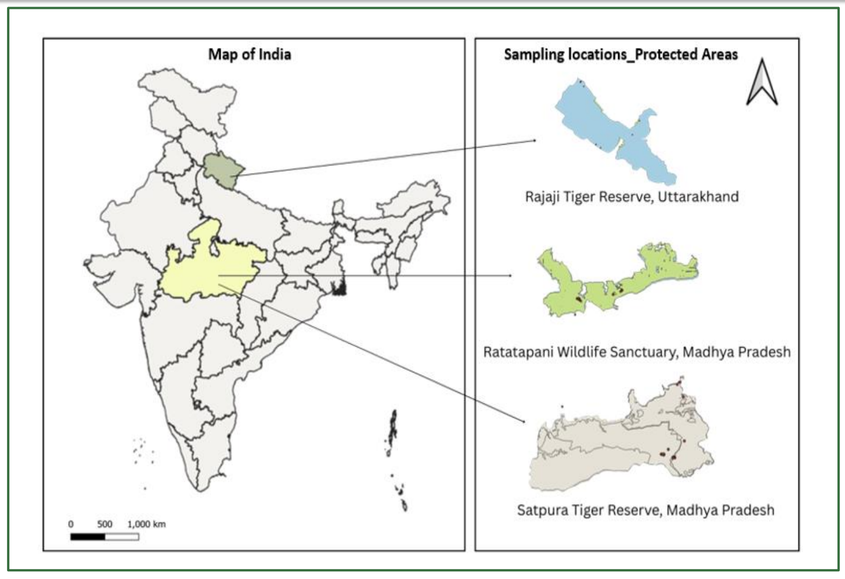
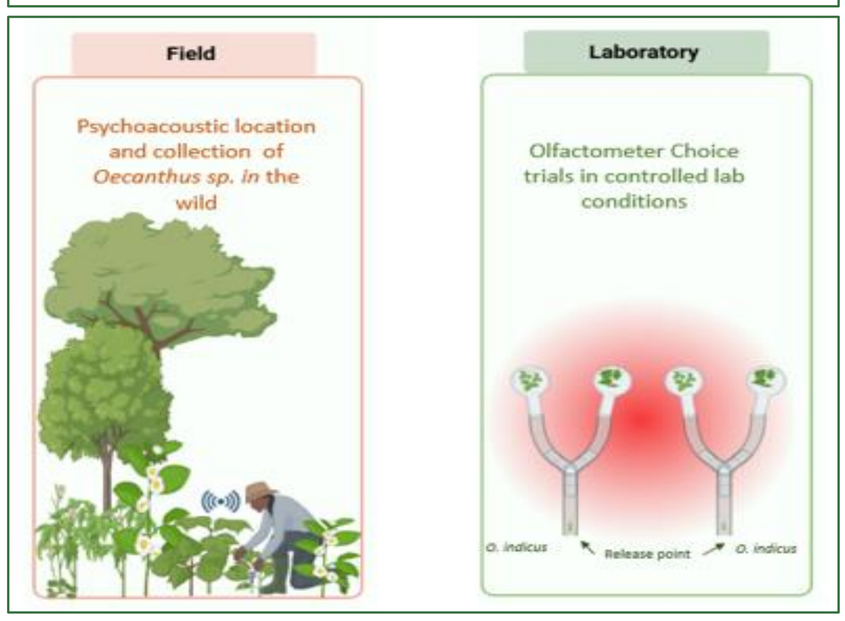
INTRODUCTION & AIM

- Invasive plant species significantly threaten global biodiversity by altering **ecosystem structure** and **species interactions.**
- Plant invasions also shift **plant-insect interactions**.
- The outcomes of these interactions range from **host range expansions** to the formation of **evolutionary traps** where herbivores are attracted to novel hosts but suffer reduced fitness.
- Volatile Organic Compounds (VOCs) emitted by plants can greatly affect insect preference for host plants.

Aim: The study attempted to understand the host plant use of *Oecanthus indicus* (Order: Orthoptera; Family: Gryllidae) in the field and assess their behavioral olfactory responses to VOCs emitted by invasive host plant species (*Lantana camara & Hyptis suaveolens)* under controlled laboratory conditions.

METHODS





RESULTS & DISCUSSION

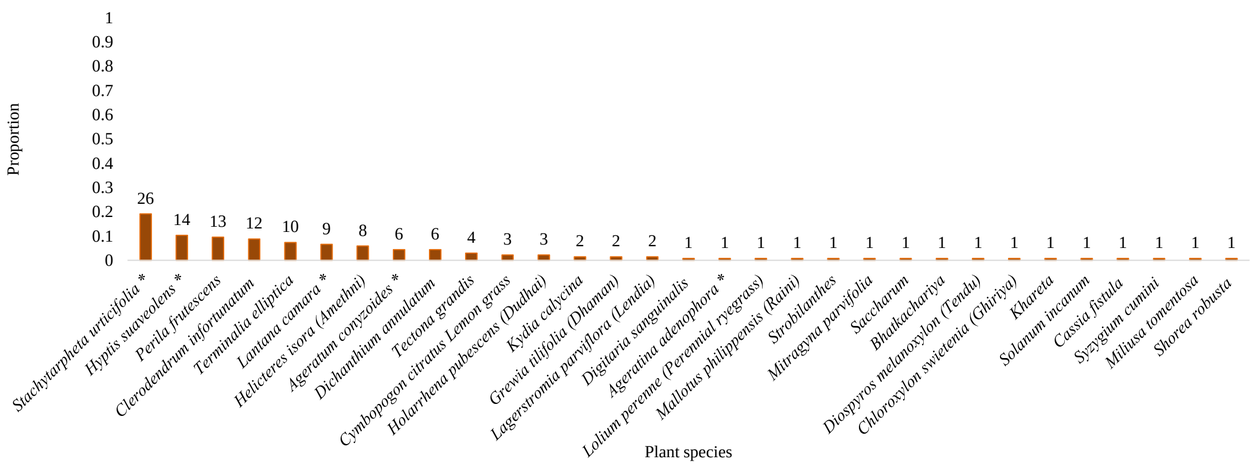


Fig. 1: Shows the array of host plants used by *O. indicus* in the field (* invasive species)

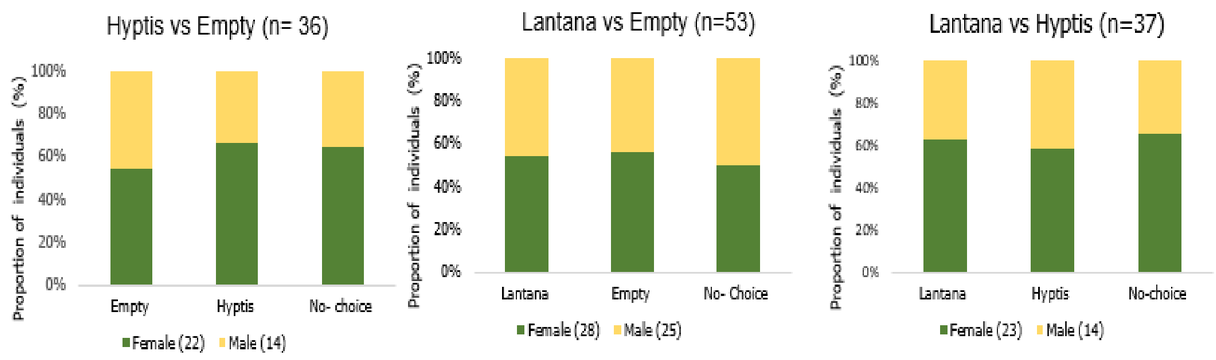


Fig. 2: *O. indicus* choice trials with invasives: *H. suaveolens* and *L. camara*

- It exhibits generalist feeding habits.
- The incorporation of invasive plant species in the diet breadth shows a **host range expansion.**

- Females demonstrated stronger preferences; reproduction-specific behaviors like choosing oviposition sites.
- In contrast, males usually presented higher "No-choice" rates, indicating less selective pressure or different ecological functions

CONCLUSIONS/FUTURE WORK

- Specific volatile compounds acting as kairomones play a crucial role in **host selection**.
- Future studies will focus on identifying and analyzing these volatiles to determine their impact on choice behavior.

REFERENCE

Sun, K. K., Yu, W. S., Jiang, J. J., Richards, C., Siemann, E., Ma, J., ... & Ju, R. T. (2020)

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