Effects of Worker-Soldier Termite Ratio on the Mortality Rate Exposed to Chlorfluazuron Baits

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Introduction

- Termites are social insects
- Placed under Blattodea order; also known as eusocial cockroaches
- Have a role in nutrients cycling; decomposer of organic matters
- Perceive as pest; invading buildings, houses and causes damages to crops
- Temperature, relative humidity and moisture effect the behaviour of termites
- Baiting method; environmental friendly in controlling termites

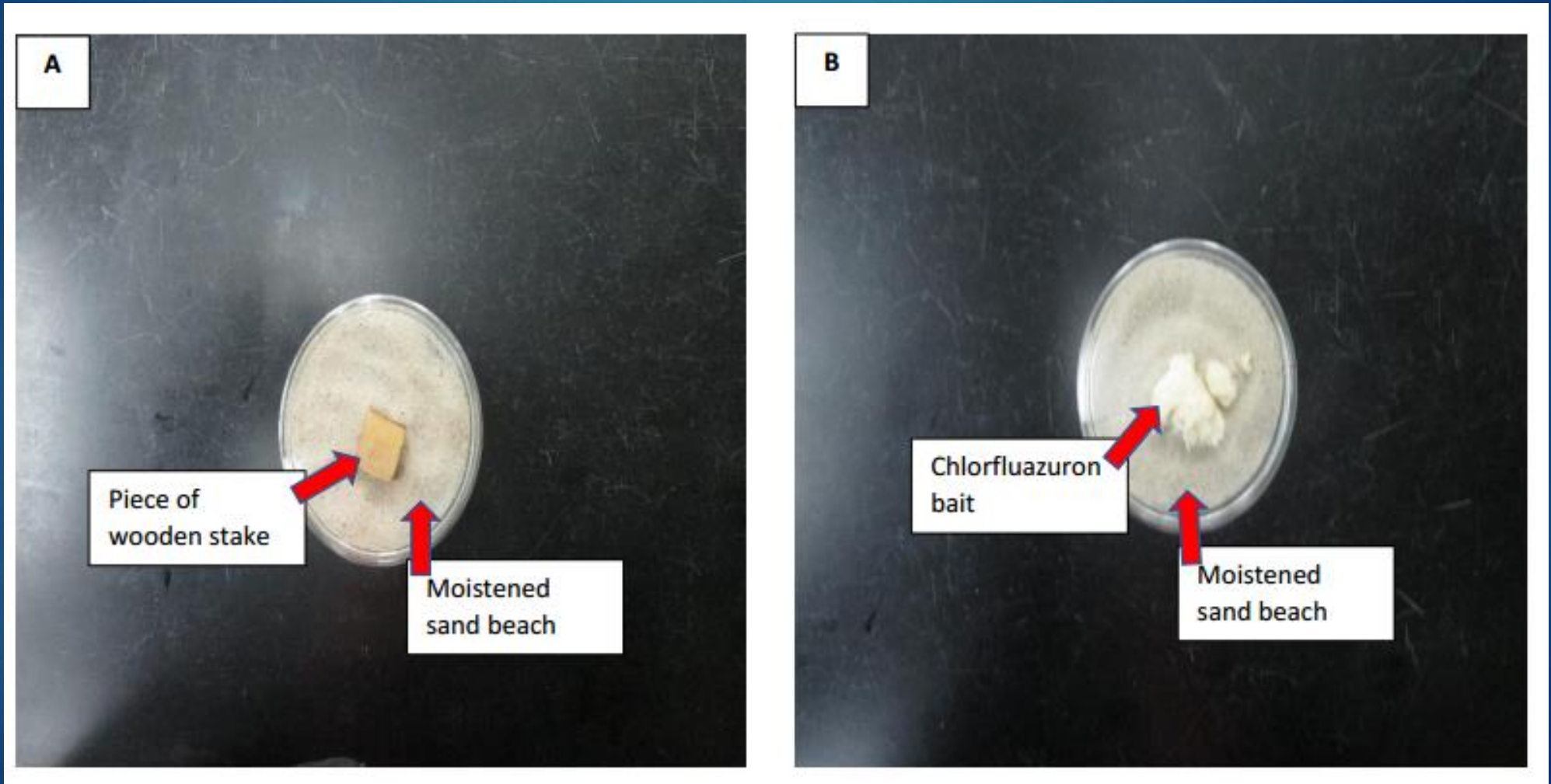
OBJECTIVES

1

- To discover the effect of termite ratio on the mortality rate of subterranean termite when exposed to chlorfluazuron bait in laboratory setting.

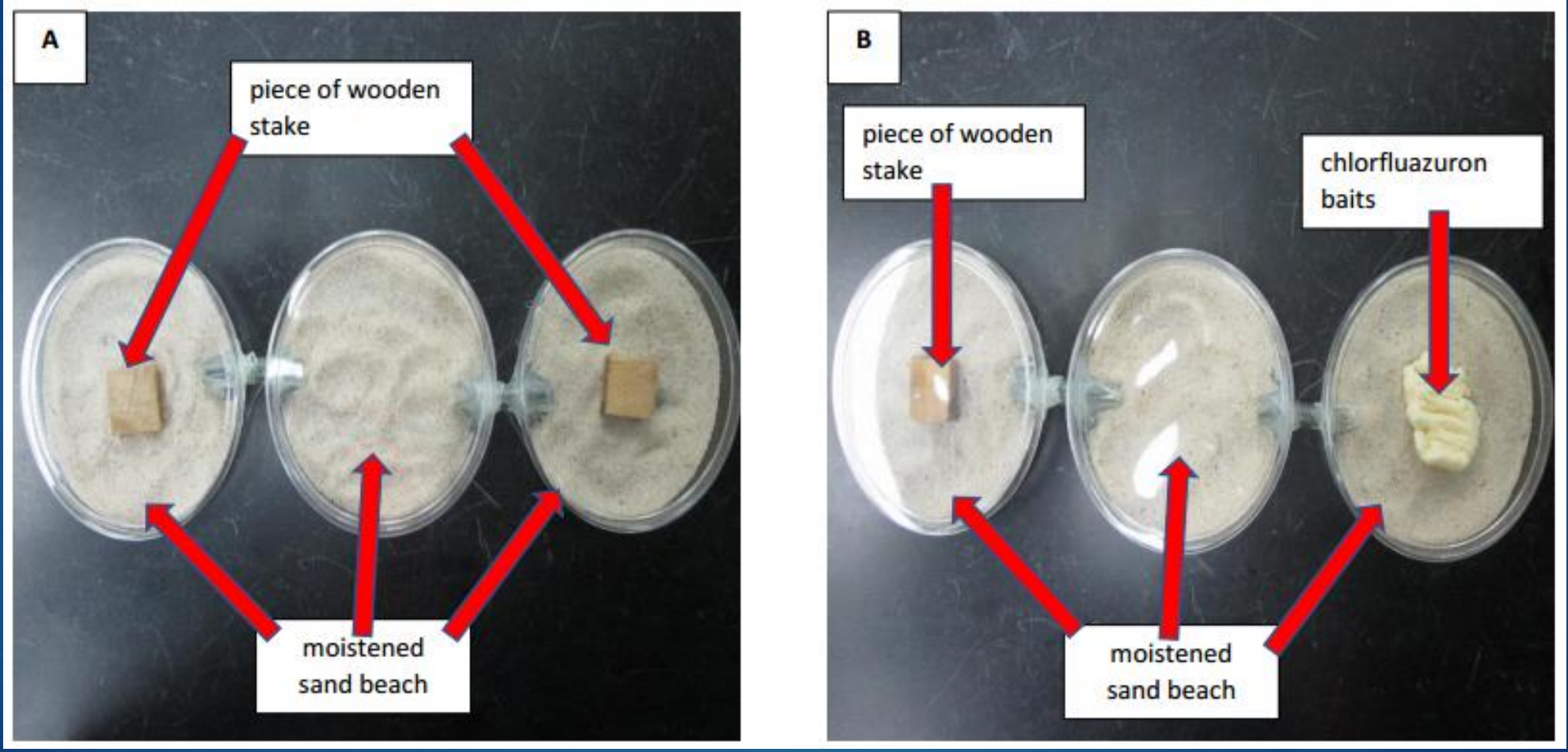
Methodology

- no-choice bioassays

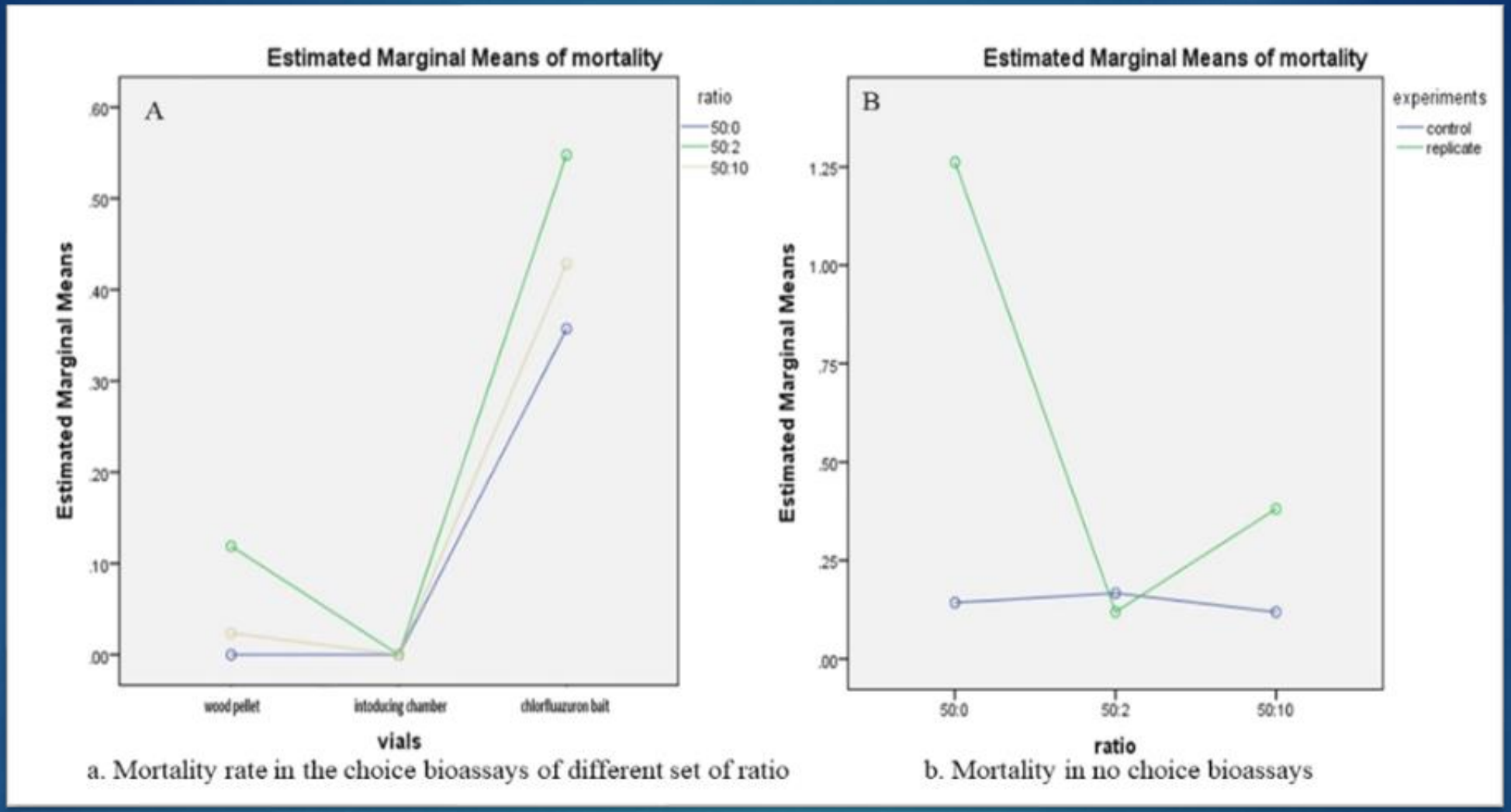


Methodology

- choice bioassays



Result



a. Mortality rate in the choice bioassays of different set of ratio

b. Mortality in no choice bioassays

Ratio 50 workers to no soldiers recorded highest mortality rate compared to the other two ratios.

This is because when there are no soldiers, workers tend to be more focus on consuming the baits and less burden as the workers do not need to feed the soldiers

Discussion

Termite ratio

- have ideal termite ratio
- shifting caste composition

Bait preferences

- baits > woods

1

- When there are no soldiers, workers will consume more bait and indirectly explained the higher mortality rate in 50:0 termite worker to termite soldier ratio.

2

- However, ratio 50:10 worker to soldier ratio recorded the second highest mortality

3

- Soldiers are responsible for guarding the colony and its nest mates (Ghaly and Edwards, 2011) but need to be feed by termite workers (Kuswanto et al., 2015) as they cannot feed on their own

Conclusion

Termites work best in ideal ratio to maintain optimum termite activity

- Distinct termite ratios result in different situations for workers and soldiers to interact in

Termite interaction (workers: soldiers) ratio of 50:0 and 50:02 is regarded the ideal ratio for termite mutual interaction stability.

- In order to retain their social responsibilities and work as a single colony unit, termites will always follow the optimal set of termite caste composition