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Peer Review

Review of: "Aedes Distribution and Meteorological Effect on Ovitrap Index in Coastal Area of Besut, Terengganu: An Entomological Study"

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After careful review of this manuscript, I find that while it addresses an important topic in vector surveillance, it falls short of the standards expected in high-impact international journals. The study examines the relationship between meteorological factors and Aedes mosquito distribution in coastal Malaysia, but both conceptual and methodological weaknesses undermine its potential contribution. I recommend revision based on the detailed critique below.

Title

It contains redundancies and imprecise language. For instance, the phrase "Meteorological factors such as temperature and rainfall played a great role" should be rephrased to reflect the actual statistical findings more precisely.

Abstract

The abstract contains imprecise language and redundancies. For example, the statement "Meteorological factors such as temperature and rainfall played a great role" should be revised to more precisely reflect the statistical findings. The abstract should specifically mention the optimal temperature range (30-32°C) that was identified for Aedes breeding and provide the exact correlation coefficients between temperature and the Ovitrap index.

Introduction

The introduction provides basic background information but lacks depth in literature analysis. The statement "They have become the primary vectors for the transmission of these diseases" merely repeats

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the previous sentence without adding value. The authors need to better establish why their research fills a gap beyond simply stating "there is no well-published study." A stronger theoretical framework connecting meteorological factors to vector abundance specifically in tropical coastal environments would strengthen this section considerably.

Specifically:

1. The authors should incorporate recent systematic reviews on climate-vector relationships, such as Franklinos et al. (2019, *Environmental Research Letters*), which comprehensively examines how temperature affects vector competence.
2. When discussing Malaysia's seasonal climate patterns, the authors should explicitly link these patterns to expected Aedes population dynamics with supporting literature. For example, they could reference Ewing et al. (2016, *Proceedings of the Royal Society B*), which models how seasonal temperature fluctuations affect Aedes development rates.
3. The sentence "Temperature plays a direct role in influencing the development rate" could be strengthened by including specific threshold temperatures for egg hatching, larval development, and adult survival from studies like Mordecai et al. (2017, *PLOS Neglected Tropical Diseases*).
4. The research gap statement needs to clearly articulate why understanding mosquito-climate relationships in this specific coastal environment is important for local dengue control efforts.

Methods

The methodology section contains several weaknesses that compromise the study's reproducibility:

1. The ovitrap procedures are described too vaguely. What exactly does "Counting and identifying process on day 7" entail? The authors should describe the actual identification techniques used.
2. The statistical approach lacks justification. Why was Pearson correlation specifically chosen? Were potential confounders considered? Were the data tested for normality before applying parametric tests? For statistical analysis, I recommend: Testing data for normality using Shapiro-Wilk or Kolmogorov-Smirnov tests before applying Pearson correlation. Considering time series analysis since mosquito abundance often shows seasonal patterns. Exploring multiple regression models to account for potential interactions between temperature and rainfall. Including lag-time analysis, as mosquito populations may respond to meteorological factors with delays of 1-4 weeks.
3. The description "Data were collected from the Besut Meteorological Department database" gives no information about measurement frequency, parameters collected, or data aggregation methods.

4. The sampling strategy needs justification. Why 30 premises and 60 ovitraps? While a protocol is referenced, the statistical power calculations should be included.

Results

1. Figure 3 combines too many elements, making interpretation difficult. This visualization should be simplified or split into multiple figures.
2. The indoor/outdoor distribution of mosquitoes needs precise quantification rather than just saying "the majority of both Aedes aegypti and Aedes albopictus were found in outdoor areas."
3. The findings in Table 1 relating meteorological parameters to mosquito abundance deserve more thorough interpretation in the text.
4. There's inconsistency between the abstract's "2,383 larvae of Aedes aegypti" and the results section's "2,383," 52%"—these should be harmonized.

Discussion

When stating "Aedes aegypti was found as a dominant species in our study involving the coastal area of Kuala Besut," the authors don't analyze what this dominance means for disease transmission risk or control strategies. The authors don't address the surprising finding that Aedes albopictus was found exclusively outdoors (100%), which differs from some existing literature on this species' behavior. The temperature effects discussion largely confirms previous work without exploring implications for future climate scenarios. The weak rainfall-Ovitrap Index correlation deserves deeper analysis, especially given stronger relationships reported elsewhere.

Conclusion and Recommendations

The conclusion is too brief and doesn't fully integrate the findings. While the recommendations section offers practical suggestions, they lack specificity. The statement "focus on environmental management, source reduction, and biological control" needs development into concrete, actionable recommendations derived directly from the study findings.

References

The manuscript would benefit from incorporating more recent research (post-2020) on climate change impacts on vector-borne diseases to enhance relevance.

Language and Structure

Grammar issues and awkward phrasing appear throughout the manuscript, hampering clarity. Examples include "The ovitraps were collectedd," "Heavy rainfall is correlated with widespread egg hatching and a surge in mosquito numbers," and "Temperature plays an important role in determining Aedes distribution." Professional editing would substantially improve readability.

Declarations

Potential competing interests: No potential competing interests to declare.