

# Investigating the Impact of Geographical Location & Host Specificity on Spore Size Variations in *Kudoa thyrssites*



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## Aim

The central aim of this research is to provide an initial exploration into the factors driving the variations in spore sizes and attempt to place these findings within a wider ecological and evolutionary perspective.

## Context

*Kudoa* is a big concern for the fishery and aquaculture industries due to its impact on quality and economic factors, but not a lot is known about the parasite and its lifecycle.

Wider understanding of the parasite and infection parameters is needed.



Figure 2. Geographic distribution of *Kudoa*-infected fish sites, revealing regional prevalence patterns of the parasite.

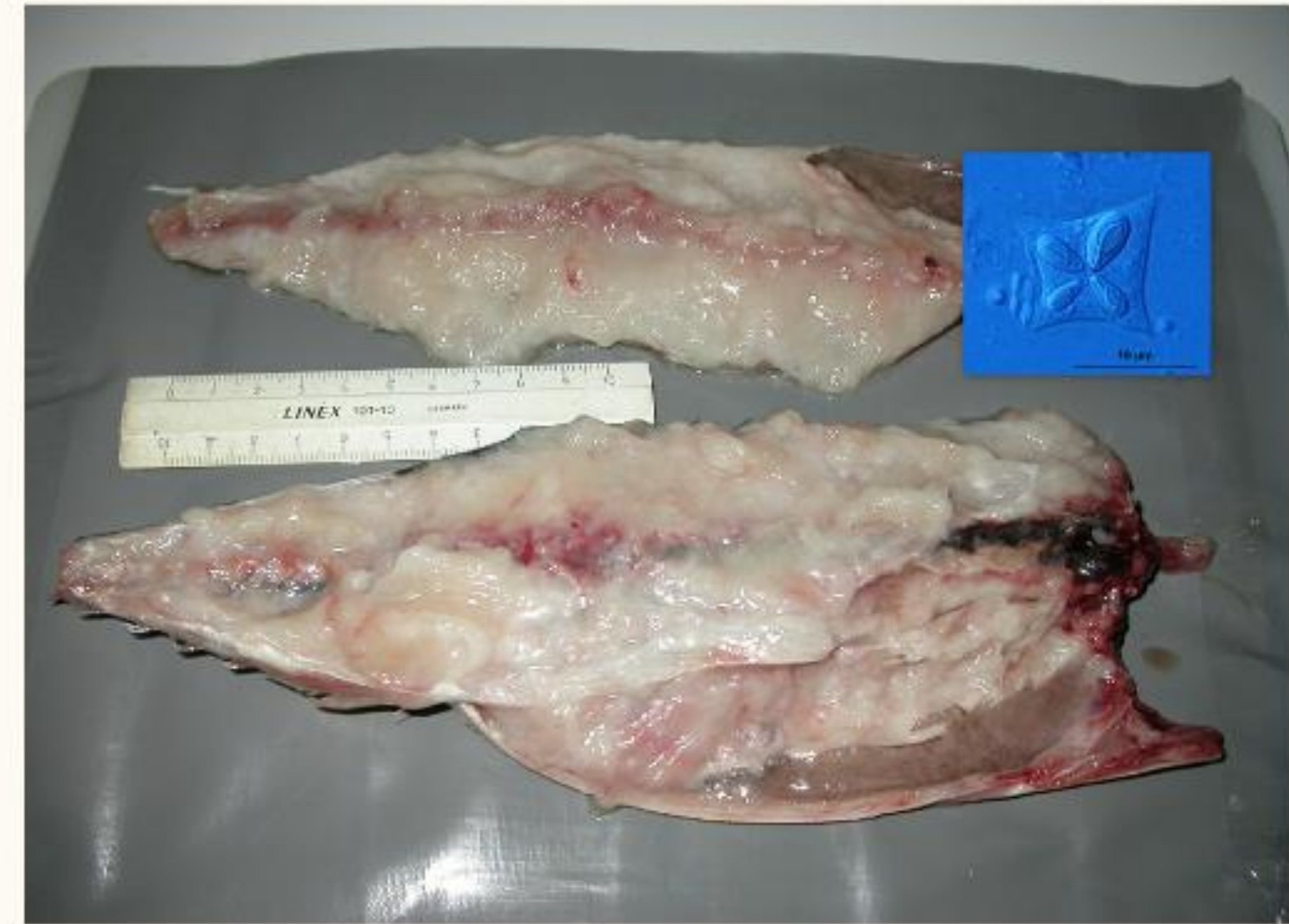


Figure 1. "Soft flesh" in mackerel (*Scombrus scombrus*) and *K. thyrssites* spore.

## Method

Data from Guilietti et al. (2019)

## Results/Discussion

Our study has identified significant differences in *K. thyrssites* spore size across different geographic locations, potentially shaped by regional environmental factors like water salinity and temperature. The variation in fish species, with their distinct immune responses and evolutionary adaptations, might also influence these spore size differences.

It's important to note that spore size can affect disease severity in parasites. For example, in the zygomycete fungus *Mucor circinelloides*, larger sporangiospores were linked to increased virulence. This suggests that in some cases, larger spores could lead to more severe infections.

Despite these insights, our current understanding does not definitively connect spore size variations in *K. thyrssites* with the severity of disease in fish hosts. This lack of conclusive evidence underscores the importance of further research in this area. Future studies should aim to explore the relationship between spore size and pathogenicity in *K. thyrssites*, which would enhance our understanding of how this parasite interacts with its host species in different environmental settings.

## Boxplot Comparisons

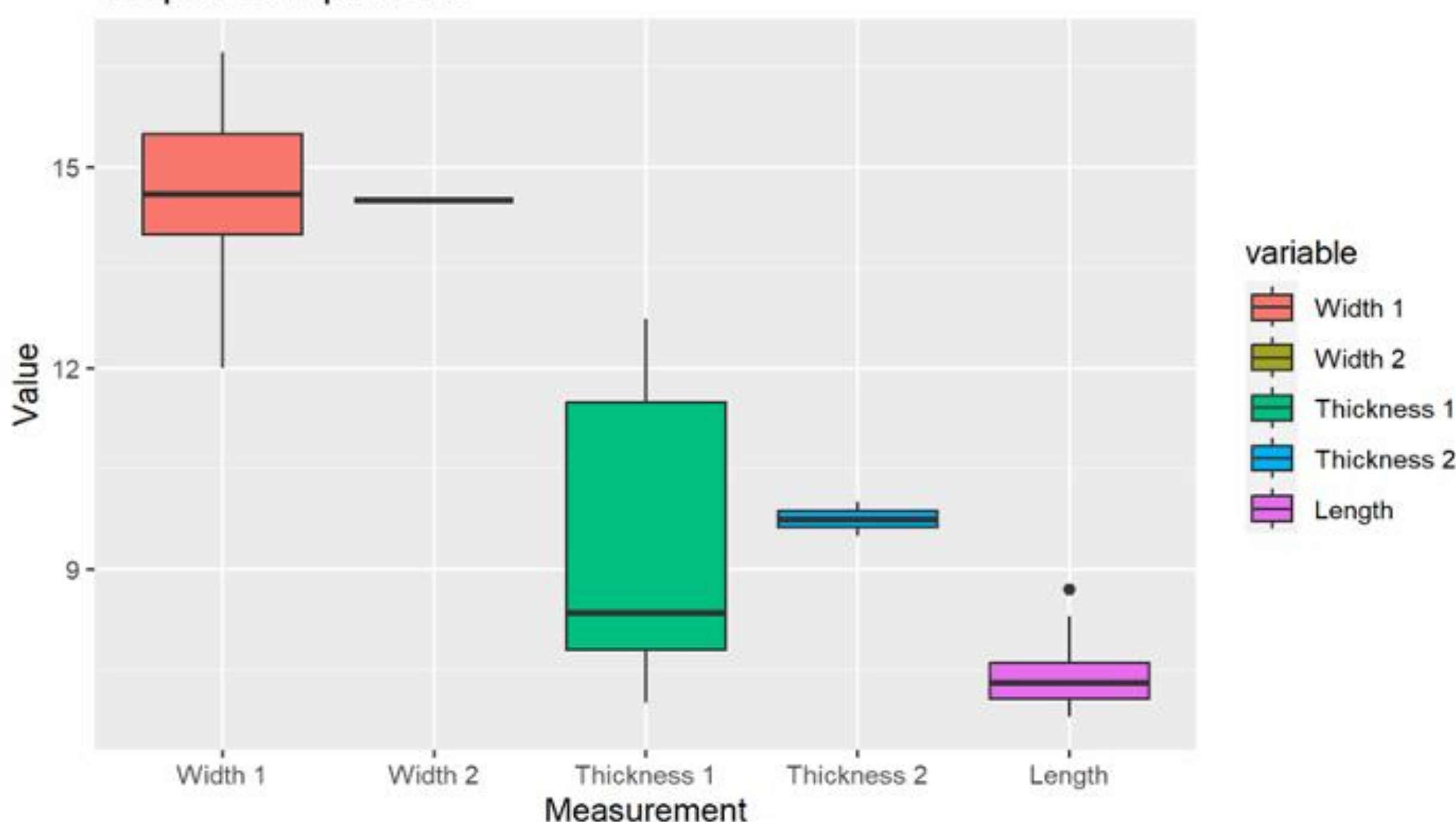


Figure 3. Comparison between width, thickness and length of spore measurements of *K. thyrssites* (in  $\mu\text{m}$ ).

## REFERENCES

Guilietti, L., Soler-Jiménez, L. C., & Whipps, C. M. (2019). A tale of two fish: comparative analysis of the morphological diversity of *Kudoa* species (Myxosporidia: Multivalvulida) in two marine fish families in Baja California, Mexico. *Parasitology International*, 70, 1-8.



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