Hemioniscus balani: Effects of Multiple Infections

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Ecology, Evolution, and Marine Biology
Parasites make up 60% of all Animals

Much to be discovered
Host and Parasite

*Chthamalus fissus*  
(C. fissus)  

*Hemioniscus balani*  
(H. balani)

Host  
(Barnacles on mussel)

Parasite  
(Containing eggs)
Uninfected Host vs. Infected Host

H. balani
Hypotheses

• As % host infected increases multiple infection will increase
• Larger barnacles make optimal hosts
• There will be competition
  – In multiple infections one parasite will be the dominant egg producer
Focusing on the Parasite Within the Barnacle
When Prevalence Increases Multiple Infection Increases

\[ y = 0.1711x - 0.078 \]
\[ R^2 = 0.9208 \]

Sample Size: 12,457
Infection Correlation to Host Size

![Graph showing the correlation between the length of hosts and the probability of infection and reproductive success. The graph includes two curves: one for probability reproductive and another for probability infected. The sample size is 598.](image-url)
Egg Production Related to Number of Infections

Sample Size: 63

Infection Type

- Single
- Multiple

# Parasite Eggs

- Single: Lower number of parasite eggs
- Multiple: Higher number of parasite eggs
Competition Occurs when Multiple Infections Exist

Sample Size: 26

Parasite Characteristics

% Parasite Eggs

Dominant

Submissive

Parasite Characteristics
Conclusions

• More hosts infected, multiple infections more likely
• Intermediate host size (≈4mm) optimal
• Number of infections does not affect net egg production
• Data suggests strong evidence for competition
Further Research

• Host location correlated to infection rate

• Other species infected by the parasite