Outline for Local Adaptation in 3 Olympia Oyster Populations in the Puget Sound

Introduction

1. Local Adaptation
   1. Definition and explanation of Local Adaptation
   2. Importance of Local Adaptation
   3. Known Cases of Local Adaption
   4. Bivalve Cases of Local Adaptation
2. Olympia Oysters
   1. Life History including habitat and range
   2. Stressors Experienced by Oysters
   3. Known Acclimation and Adaptive Mechanism
3. Tissue and Cell Adaptation
   1. Known cases of population level mechanism adaptation
   2. Bivalve acclimation
   3. Possible adaptation of mechanisms
4. Heat Shock Proteins
   1. HSP70 Function
   2. Importance in acclimation
   3. Hypothesized differences in enzyme activity
5. Cell Damage Response
   1. Glutathione Peroxidase function
   2. Importance in acclimation
   3. Hypothesized differences in enzyme activity
6. Metabolism
   1. Glycogen Phosphorylase
   2. Importance in acclimation
   3. Hypothesized Differences in Enzyme Activity
7. Molecular Tools
   1. mRNA function
   2. How to measure mRNA using qPCR
   3. Hypothesized differences in Expression

Materials/Methods

1. Experiment
   1. Animal Info
   2. Holding Conditions/Tank Setup
   3. Explanation of Experiment
2. Sample Preparation
   1. Sample Handling
   2. RNA Isolation
   3. cDNA Creation
3. PCR/qPCR
   1. Target Primers
   2. PCR protocol
   3. qPCR protocol

Results

Discussion