APPLICATION OF DNA EXTRACTION AND SEQUENCING ON PHYTOPLANKTON POPULATIONS IN GALÁPAGOS

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Overview

- Why Galapagos?
- Sample collection
- Sequencing protocol
- Results
- Interesting observations
What are phytoplankton?

- Chlorophytes
- Diatoms
- Dinoflagellates
- Cyanobacteria

Image: https://line.17qq.com/articles/cplpnppcv.html
Geography of the Galapagos Islands

Sample Collection
Spatial Distribution of Nutrients, Chlorophyll and Temperature
<table>
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<th>Protocol Step</th>
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<tr>
<td>DNA extraction</td>
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<tr>
<td>Polymerase Chain Reaction</td>
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<td>Gel Electrophoresis</td>
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<td>PCR clean up</td>
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<td>Quantification using qubit</td>
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<td>Send to sequencing facility</td>
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Results

Taxonomy

- Amoebozoa
- Chloroplastida (includes green algae)
- Rhodophyceae
- Cryptophyceae
- Centrohelida
- Excavata
- Haptophyta (includes coccolithophores)
- Incertae Sedis
- Opisthokonta
- Picozoa
- Alveolata (includes Dinoflagellates)
- Rhizaria
- Stramenopiles (includes Diatoms)
- SAR
- Others
Red Tide dominated by dinoflagellates

- Near station 2
- *Polykrikos kofoidii* (heterotrophic)
- *Scrippsiella lachrymosa*
Localized upwelling around Kicker Rock

- Stations 26/27
- High nutrient & chlorophyll concentrations
- Dominated by rhizaria & stramenopiles

Isla Genovesa, an isolated environment

- Station 14
- Bird-breeding location
- Dominated by chlorophytes

Image: https://www.pinterest.com/pin/503840277035614614/
Thank you!

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