Team Name:

Pond Doctors

Team Schools/Organizations:

California State University Monterey, Seaside, CA
California State University San Jose, San Jose, CA
Cabrillo College, Aptos, CA
Moss Landing Marine Laboratories, Moss Landing, CA

Abstract:

There is no unifying standard practice for monitoring algae health in industrial-scale algae growing ponds. Genes are expressed as RNA and many genes in algae respond to stressful conditions by altering RNA expression. Quantitative reverse-transcription polymerase chain reaction (qRT-PCR) is capable of measuring and quantifying the RNA response of a particular gene by using qRT-PCR probes that target that gene. PondDoctor is a proposed suite of qRT-PCR probes that will target genes (biomarkers) in algae associated with conditions that can be harmful to algae crops such as nitrogen limitation or too much light exposure. These qRT-PCR probes will be a simple to use, yet effective diagnostic tool for monitoring the health of algae crops in growing ponds. PondDoctor will give algae growers a tool to better understand the needs of their crop and appropriately respond to their crops' needs; this can lead to an increase in crop quality and quantity used for manufacturing algae-based biofuels.