



SCIENTISTS PUBLISH FIRST IN-DEPTH ANALYSIS OF ALGAE PARASITE IMPACT ON SCALABLE ALGAE BIOFUEL PRODUCTION IN PLOS ONE JOURNAL

New Research Identifies Key Challenge of Algae Crop Protection in Open-Pond Systems; Paves Way for Innovative Development of Sustainable Management Systems and Yield Improvement

SAN DIEGO, February 20, 2013 – As part of an ongoing effort to improve commercial scale algae biofuel production, a group of scientists, led by crude oil producer [Sapphire Energy, Inc.](#), today announced the completion of a collaborative study which identified the morphology, ultrastructure, and life history of *A. protocoecum*, one of the most difficult to manage algae parasites. Their findings are detailed in “Characterization of *Amoebophilum Protocoecum*: An Algal Parasite New to the Cryptomycota Isolated from an Outdoor Algal Pond Used for the Production of Biofuel,” published today in the online scientific journal PLOS ONE. The article provides a comprehensive study of the parasite challenge facing crop protection for scaled algae cultivation in open-pond systems. These results will provide a broader understanding and promote the development of sustainable management strategies for biofuel production.

This article was prepared in collaboration by Robert C. McBride, Ph.D., Salvador Lopez, MSc, Craig Behnke, Ph.D., and Philip A. Lee, Ph.D., of Sapphire Energy; Peter M. Letcher, Ph.D., and Martha J. Powell, Ph.D., of the Department of Biological Sciences at the University of Alabama; and Robert Schmieder, Ph.D., of the Department of Computer Science and Computational Science Research Center at San Diego State University.

“Identifying and overcoming crop protection challenges, from pest control to environmental factors, is critical to ensuring successful, scalable algae farming, and has long been a part of the research and development objective of Sapphire Energy,” said Alex Aravanis, MD, Ph.D., chief science officer at Sapphire Energy. “This collaborative study demonstrates the power of synergy when academic and industrial scientists work together for a common goal, and lays the groundwork for the better understanding and creation of innovative strategies that will facilitate algae biofuel production at commercial scale.”

The complete manuscript may be viewed at: <http://dx.plos.org/10.1371/journal.pone.0056232>.

About Sapphire Energy

San Diego-based Sapphire Energy is pioneering an entirely new industry – Green Crude production – with the potential to profoundly change America’s energy and petrochemical landscape for the better. Sapphire’s products and processes in this category differ significantly from other forms of biofuel because they are made solely from photosynthetic microorganisms (algae and cyanobacteria), using sunlight and CO₂ as their feedstock; are not dependent on food crops or valuable farmland; do not use potable water; do not result in biodiesel or ethanol; enhance and replace petroleum-based products; are compatible with existing infrastructure; and are low carbon, renewable and scalable. Sapphire has an R&D facility in Las Cruces, New Mexico, and is currently operating the first Integrated Algal BioRefinery in Columbus, New Mexico. For more information, visit www.sapphireenergy.com or



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Supporting images available at: <http://bit.ly/Xn7rgJ>