



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY**

Name(s) Siya Iyer	Project Number S1807
Project Title Improving Algal Biofuel Production with Nanotechnology	
<p style="text-align: center;">Abstract</p> <p>Objectives The objective of this study was to find different tools to improve algae's light utilization and production of oil.</p> <p>Methods Algae was grown in flasks, with added titanium dioxide nanoparticles and nitrogen. A light meter was used daily to measure the amount of light each culture absorbs. The mass was measured by pouring the culture through a coffee filter and leaving it to dry. Oil was then extracted by grinding it into a paste then mixing and pressing it to record the amount of oil collected.</p> <p>Results The algae grown under the condition of the titanium dioxide nanoparticle was compared to nitrogen enhanced algae and algae grown under normal conditions. The algae performed best with 10 mg of added nano-titanium dioxide.</p> <p>Conclusions The algae grown under the conditions of 10 mg of nano-titanium dioxide performed the best as it produced the most oil. The titanium dioxide nanoparticle is photoreactive and acts as a catalyst to stimulate algal growth. This greatly improved the algae's light utilization and production of oil, making a more efficient alternative biofuel.</p>	
Summary Statement I created an efficient way using nanotechnology to improve algae's light utilization and production of oil.	
Help Received None. I designed and performed the experiment myself.	