
MEASURING ALGAL GROWTH IN AGAR FOR USE ON THE INTERNATIONAL SPACE STATION

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Through a NASA Hunch grant, we are attempting to grow algae in a semi-solid agar media for oxygen production on the International Space Station (ISS). Novel growing conditions are necessary to sustain algal cultures in the microgravity environment of space. The results show that algae can be grown on earth, embedded in agar, with a uniform growth pattern. A 3% agar growth media is cooled to 47OC and inoculated using a saturated liquid culture. The inoculated agar is poured into impact-resistant Nalgene® containers. Once solidified, the agar is exposed to near-IR (infrared) and near-UV (ultraviolet) lights for 13 hour light / 11 hour dark cycles. Within a Nanoracks one unit aluminum box, we are able to fit 3 Nalgene® containers, two of which have algae and one does not. An exact duplicate of this experiment will be launched to the ISS in July 2015 to compare algal growth in microgravity with algal growth in the lab. The long-term goal of this project addresses the use of algae to produce oxygen from carbon dioxide on the ISS.