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Abstract: 11141

**ALGAL SYMBIONTS INCREASE DNA DAMAGE IN CORAL
PLANULAE EXPOSED TO SUNLIGHT**

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This study investigated the effects of high PAR and UV on symbiotic and non-symbiotic planulae of the coral *Acropora tenuis*. Aposymbiotic planula larvae of *A. tenuis* were infected with homologous zooxanthellae. To test the hypothesis that algal symbionts make coral larvae more susceptible to high photosynthetically active radiation (PAR) and ultraviolet radiation (UVR), symbiotic and non-symbiotic planulae of *Acropora tenuis* were exposed to natural sunlight (high PAR and UVR) at an ambient temperature of approximately 27°C for four days. DNA damage of the host cells was detected using a Comet Assay (single cell gel electrophoresis). Coral cells from symbiotic planulae had longer comet tails than those from non-symbiotic planulae, indicating that cells in symbiotic larvae had more DNA damage than those in non-symbiotic larvae. This result suggests that symbiotic algae are a source of oxidative stress in larvae under conditions at the ocean surface.

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IMPACT OF CLIMATE CHANGE ON ECOSYSTEMS

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An ecosystem is an interdependent, functioning system of plants, animals and microorganisms. Without the support of the other organisms within their own ecosystem, life forms would not survive, much less thrive. Such support requires that predators and prey, fire and water, food and shelter, clean air and open space remain in balance with each other and with the environment around them.

Climate is an integral part of ecosystems and organisms have adapted to their regional climate over time. Climate change is a factor that has the potential to alter ecosystems and the many resources and services they provide to each other and to society. Human societies depend on ecosystems for the natural, cultural, spiritual, recreational and aesthetic resources they provide. In various regions across the world, some high-altitude and high-latitude ecosystems have already been affected by changes in climate.

These changes can cause adverse or beneficial effects on species. For example, climate change could benefit certain plant or insect species by increasing their ranges. The resulting impacts on ecosystems and humans, however, could be positive or negative depending on whether these species were invasive (e.g., weeds or mosquitoes) or if they were valuable to humans (e.g., food crops or pollinating insects). The risk of extinction could increase for many species, especially those that are already endangered or at risk due to isolation by geography or human development, low population numbers, or a narrow temperature tolerance range.

The observations of this studies are to review the four major issues on climate change and its effects such as, geographical location, health impacts, greenhouse gas concentrations based on climate variability and finally to explore the IPCC report for its adaptation and mitigation for future environmental protection under climate policy.