

## Effects of UV-B Radiation on the Growth of *Ulva Pertusa* Kjellman Seedling

**Authors :** HengJiang Cai, RuiJin Zhang, JinSong Gui

**Abstract :** Enhanced UV-B (280-320nm) radiation resulting from ozone depletion was one of the global environmental problems. The effects of enhanced UV-B radiation on marine macro-algae were exposed to be the greatest in shallow intertidal environments because the macro-alga was often at or above the water during low tide. *Ulva pertusa* Kjellman was belonged to Chlorophyta (Phylum), Ulvales (Order), Ulvaceae (Family) which was widely distributed in the western Pacific coast, and the resources were extremely rich in China. Therefore, the effects of UV-B radiation on the growth of *Ulva pertusa* seedling were studied in this research. *Ulva pertusa* seedling appearances were mainly characterized by rod shapes and tadpole shapes. The percentage of rod shapes was  $90.68\% \pm 2.50\%$ . UV-B radiation could inhibit the growth of *Ulva pertusa* seedling, and the growth inhibition was more significant with the increased doses of UV-B radiation treatment. The relative inhibition rates of *Ulva pertusa* seedling length were 16.11%, 24.98% and 39.04% respectively on the 30th day at different doses (30.96, 61.92 and 123.84 Jm-2d-1) of UV-B radiation. *Ulva pertusa* seedling had emerged death under UV-B radiation, and the death rates were increased with the increased doses of UV-B radiation treatment. Physiology and biochemistry of *Ulva pertusa* seedling could be affected by UV-B radiation treatment. The SOD (superoxide dismutase) activity was increased at low-dose UV-B radiation (30.96 Jm-2d-1), while was decreased at high-dose UV-B radiation (61.92 and 123.84 Jm-2d-1). UV-B radiation could inhibit CAT (catalase) activity all the while. It speculated that the reasons for growth inhibition and death of *Ulva pertusa* seedling were excess ROS (reactive oxygen species), which produced by UV-B radiation.

**Keywords :** growth, physiology and biochemistry, *Ulva pertusa* Kjellman, UV-B radiation

**Conference Title :** ICOSE 2016 : International Conference on Ocean Science and Engineering

**Conference Location :** Vancouver, Canada

**Conference Dates :** August 04-05, 2016