

Effects of light intensity and UV radiation on the growth of *Dunaliella tertiolecta* in Ocean Cultivation

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Culture of marine microorganisms in the ocean for biofuel production seems to have huge advantages in many aspects over conventional biofuel production. Almost successful biofuel production must only rely on the ultimate energy source of the sun light. Ocean can supply larger area with less effects on the circumstances. However, since there would be no economic method to control light intensity, which is the most important parameter for algal growth, a carefully-designed floating photobioreactor will be claimed in order to utilize the sun energy efficiently without photoinhibition. Some types of photobioreactors (PBRs) were designed and constructed for culturing *D.tertiolecta* in the Young-Heung Island. The maximum productivity of each type of PBR was in the range between 0.07 g/L/day and 0.12 g/L/day. When an extra UV cutoff film is overlaid on high-transmitting bag, the growth of the cells inside the PBRs was enhanced. The results clearly showed the well-known fact that the light is the most important parameter for algal culture even on near shore area and the PBRs for ocean culture must be designed carefully to exploit the maximum potential of the natural sunlight.