Comparison of Nannochloropsis oculata Productions Cultivated in Two Different Systems: Outdoor Red Tilapia (Oreochromis sp.) Culture Tank and Indoor Pure Culture

ABSTRACT

Production of Nannochloropsis oculata or a marine eukaryotic unicellular phytoplankton was the focus of this study. The cultivation of outdoor red tilapia (Oreochromis sp.) in the tank and indoor was compared in producing phytoplankton. Initial density of N. oculata for both culture systems was 0.5 × 106 cell/ml. Findings showed the highest density of N. oculata was attained from tilapia culture system at 9.6x106 cell/ml harvested at day 7 while in pure culture system was 8.5 x106 cell/ml harvested at day 4. Contamination was dominated by protozoa (Gymnodinium sp.), range of 4.80-36.67 × 103 individual cells/ml and 0.00- 41.10 × 103 individual cell/ml at both tilapia culture and pure culture systems respectively. Levels of ammonium, nitrite and nitrate in tilapia culture systems had significantly lower ($P < 0.05$) concentration. In contrast, total bacteria including vibrio yellow colonies showed higher concentration in tilapia culture system but remained insignificant ($P > 0.05$) for vibrio green colonies in both systems. This study concluded Tilapia culture system is as effective as pure culture system to produce N. oculata based on production and quality.