ABSTRACT

Traditional system ponds are ponds that still use a simple management system in their activities. However, shrimp cultivation in traditional ponds sometimes arises problems such as shrimp are easily stressed, reduce immunity, and even a low oxygen supply can lead to cultivation failure or decreased shrimp production. Phytoplankton can be found in the euphotic zone, namely on the entire surface of the water to a certain depth with a light intensity that still allows photosynthesis to occur. The intensity of sunlight received by the waters will vary depending on the season, time of day, geographical conditions and water conditions. The difference in the intensity of sunlight received by the water will affect the abundance of phytoplankton. This study aims to determine the dynamics of phytoplankton abundance influenced by photoperiods of sunlight in triradioactive shrimp ponds, Gandapura district, Bireuen district. The research was conducted from July to August 2024 in Ie Rhop Village, Gandapura District. Phytoplankton identification was carried out at the Water Quality and Feed Nutrition Laboratory of the Aquaculture Study Program, Faculty of Agriculture, Malikussaleh University. This research method is a survey method to obtain primary data obtained directly in the field in the form of sampling and measuring water quality in the form of pH, DO, temperature, salinity, light intensity and brightness. This study uses statistical analysis of parametric and non-parametric comparative tests as well as Tukey's follow-up tests. The results of this study show that phytoplankton in traditional shrimp ponds in Gandapura sub-district consist of 3 classes and 11 species with abundance, diversity and dominance indices showing significant differences. Meanwhile, the uniformity index did not show any significant difference. The effect of photoperiod sunlight on phytoplankton abundance has a determination coefficient (R^2) of 0.43, which means that the high relationship of sunlight to phytoplankton abundance with a value of 43% and the remaining 57% is influenced by other variable factors.

Keywords: abundance, light intensity and phytoplankton.