ABSTRACT

This study aims to determine the relationship between the nutritional content of grouper fish (Epinephelus fuscoguttatus-lanceolatus) and water quality in floating net cages (KJA) in Lhokseumawe City. The nutritional content parameters analyzed include moisture content, ash content, protein, fat, and carbohydrates, while the water quality parameters observed include temperature, salinity, pH, dissolved oxygen (DO), turbidity, phosphate, and nitrate. Sampling was conducted at three different stations, each with three healthy fish weighing 300–500 grams. Data analysis used the Principal Component Analysis (PCA) method to examine the relationships between variables. The results showed that the highest protein content was found at Station 2 (59.38%) and the lowest at Station 3 (39.61%). Conversely, the highest fat and carbohydrate levels were found at station 3, at 7.08% and 36.78%, respectively. Water quality parameters such as salinity and turbidity positively contributed to fish protein content, while high DO, nitrate, and phosphate levels were associated with decreased protein content and increased fat content. PCA identified salinity and turbidity as the dominant factors supporting optimal nutrient content. These results indicate that water quality plays a crucial role in determining the nutritional composition of farmed fish.

Keywords: Cantang grouper, floating net cages, nutrient content, PCA, water quality.