

Seasonal Variation in Physiological Properties of Mideodeok (*Styela clava*)

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Abstract

Styela clava, locally known as mideodeok in Korea, is a leathery sea squirt that thrives well in spring season. In this study, the changes in physiological properties of mideodeok harvested during the months of January, March and May from two southern seas of South Korea (Geoje and Tongyeong) were evaluated and compared. Proximate, mineral, amino acid, fatty acid, and carotenoid compositions of both tunic and muscle were determined. The muscle protein levels in both Geoje and Tongyeong samples were found highest in the month of January (5.0% and 4.9%, respectively) while tunic proteins were highest in March. Lipid contents decreased from a maximum level in January to a minimum in May. Dry matter fluctuation were observed in the Geoje sample (2.8-3.8% and 3.5-3.9% for the muscle and tunic, respectively) while Tongyeong muscle and tunic decreased from 3.1% to 2.8%, and 3.8% to 3.3%, respectively. Muscle glycogen levels were at its peak during the month of March. Aspartic acid, glutamic acid, leucine, lysine, and arginine were the predominant amino acids present, with values ranging from 0.40-0.42g/100g, 0.50-0.59g/100g, 0.24-0.35%, 0.29-0.35%, and 0.26-34%, respectively. The total amino acids concentrations dropped significantly during the month of May in all samples. Eicosapentanoic acid (EPA) and docosahexanoic acid (DHA) were the predominant fatty acid present. Percentages of EPA and DHA in the muscle were between 20.0-22.3% of the total lipid and 16.5-17.9% of the total lipid, respectively. The major minerals present were sodium, calcium, potassium and magnesium with values ranging from 1244.0-1471.1mg/100g, 129.1-193.4mg/100g, 39.0-77.9mg/100g, and 42.0-68.3mg/100g for muscle, respectively and 1128.7mg/100g, 112.5-273.3mg/100g, 49.5-110.6mg/100g, and 42.8-83.3mg/100g for tunic, respectively. Carotenoid contents were found highest during the month of March with values ranging from 37.9-60.7mg/100g for Geoje and 37.2-48.7mg/100g for Tongyeong muscle samples.

References

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