

ABSTRACT

The present study was undertaken to understand the lipid changes in gonad, muscle and liver tissues of tropical double spotted queenfish (*Scomberoides lysan*; Pisces: Carangidae) in relation to sexual maturity and spawning. Total lipid, cholesterol (CS), phospholipid (PL) and triacylglycerol (TAG) were determined in tissues with respect to maturity stages of both sexes as well as months. Samples were periodically caught from landing centres around Jaffna peninsula from January 2010 to December 2011. Fish length, weight, sex and maturation status were recorded. Content of total lipid, CS, PL and TAG in tissues were determined in the laboratory. Extracted total lipid from the liver tissues of all fish was higher than that of muscles. Range of muscle lipid content predicts that *S. lysan* fall under 'low fat fish' category across the entire study period and thus, it is one of the healthiest food fish for human consumption. Correlations between total lipid content in tissues and standard length of fish as well as body weight are significant. The values of total lipid, CS, PL and TAG in the ovary increased to 2-5 fold throughout the ovarian maturation and decreased to 2-8 fold after spawning, whereas in liver and muscle tissue, it increased up to maturation and decreased during spawning. Similar dynamics were observed in males. The main lipid constituents in the liver and muscle of mature fish were TAG and PL respectively. Total lipid and lipid constituents in gonads showed higher value, whereas muscles and livers showed lower value in June and September, which represent the spawning time. It is evident that the values of lipid in tissues of *S. lysan* were influenced by the cycle of maturation and time of spawning. This information is useful for the determination of the fishing season for *S. lysan*, when it is not reproductively active and has high nutritional value in terms of lipid. The present study provides fundamental information to successful formulation and implementation of policies, strategies and plans in fisheries management and future aquaculture trials.

Key words: Cholesterol, phospholipid, *Scomberoides lysan*, triacylglycerol, total lipid