

**A STUDY ON VARIENCES IN SENSORY AND  
PROXIMATE PROPERTIES OF *Oreochromis  
niloticus* WITH THEIR SEX, SIZE AND  
INHABITING RESERVOIR IN BADULLA  
DISTRICT**

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by

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## ABSTRACT

Nile tilapia (*Oreochromis niloticus*) is one of the commonly captured and highly preferred fish species in inland fisheries and also popularised as tastiest fish among the other freshwater fishes. However, there was a common belief among fisher communities as well as consumers, that the taste of tilapia is varying from reservoir to reservoir. It is obvious that condition of the existing reservoir and available food items can affect quality and taste of the fish. Further, sensory qualities, ash and moisture content of fish flesh can be affected by age, sex, fat content, environmental factors and dietary ingredients. The present study aimed to determine the relationship of sensory, proximate and meat qualities of Nile tilapia with sex, inhabiting reservoir and size of the fish. It also aimed to identify gut contents of fish samples collected. Male and female fishes from two size ranges were collected from three different reservoirs (Sorabora, Rathkinda, Nagadeepa) in Badulla district. First the gut was immediately separated and preserved in 4% buffered formalin until subjected to gut content analysis. Fish samples were taken in to the Aquaculture laboratory of Uva Wellassa University and stored under -20°C. Initially, moisture content, ash content, crude protein, pH, cooking loss and water holding capacity of fish fillets were analysed. Parallely, a sensory test was conducted using cooked tilapia flesh with 30 untrained panellists to identify the sensory properties i.e. taste, colour, appearance, odour, tenderness, juiciness, oiliness and overall acceptance. According to sensory evaluation, female fish in Sorabora reservoir with the size range of 300-500 g, recorded the highest score for overall acceptance. However, male fish collected from the same reservoir with the same size range obtained highest score for taste. Female fishes collected from Rathkinda reservoir in 300-500 g size range scored the lowest overall acceptance. Ash and moisture content of the fish samples collected showed significant difference ( $p < 0.05$ ) with size and the inhabiting reservoir. Cooking loss showed a significant difference with inhabiting reservoir. Phytoplankton was identified as the dominant group present in the gut content of all the individuals analysed. Filamentous algae were the prominent organism in gut contents of fish samples collected from Sorabora reservoir and three identical zooplankton genera were also observed. However, further analysis is needed to evaluate the factors for variance in sensory and meat quality traits of fish samples.