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Fecundity and egg size variation in Nile Tilapia *Oreochromis niloticus* (Linnaeus, 1757) collected from Uyan Wewa and Nilwala Athuru Ela in Sri Lanka

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Abstract

The inland fisheries sector in Sri Lanka was developed through the introduction of exotic tilapia, particularly Nile tilapia. This study was aimed to determine the relative and absolute fecundity and compare the egg size variation of Nile tilapia in Uyan Wewa (reservoir) and Nilwala Athuru Ela (canal) in Matara district. Approximately thirty (30) Nile tilapia samples were collected from each site. The total body length and body weight of fish were measured, and the length-weight relationship of fish was calculated for two sites. Ten randomly selected female fish were used to determine the fecundity and egg size variation. Fecundity was determined using gravimetric method and the short and long axes of eggs were measured to determine the egg diameter and egg volume. The independent sample t-test was used to compare the results between two sites. Results indicate that the mean total length of Nile Tilapia in Uyan Wewa was 20.04 ± 0.32 cm while was that was 18.62 ± 0.23 cm in Nilwala Athuru Ela. The mean body weight of Nile tilapia in Nilwala Athuru Ela (133.0 ± 2.6 g) was significantly higher than that of Uyan Wewa reservoir (125.6 ± 3.6 g). The student t-test showed that there were negative allometric growths in both sites. The mean absolute fecundity (991 ±35) was significantly higher in Nilwala Athuru Ela than that of Uyan wewa (789 ±62). A similar pattern was observed in relative fecundity, and it was 7.3±0.1 g^{-1} in the canal and 6.2±0.2 g^{-1} in the reservoir. The mean egg diameter and egg volume of Nile tilapia in Nilwala Athuru Ela shows the highest values (1.05±0.79mm and 0.63±0.11 mm^3 respectively) while egg diameter and egg volume of fish collected from Uyan Wewa were 0.95±0.19 mm and 1.46±0.26 mm^3 respectively. Independent sample t-test proved that total fecundity, relative fecundity, egg diameter, egg volume of fish collected from two sites were significantly different ($p<0.05$). According to the results, the absolute and relative fecundity and egg diameter of Nile tilapia in Nilwala Athuru Ela was significantly higher than that of Uyan Wewa.

Keywords

Nile tilapia, gravimetric method, absolute fecundity, canal, reservoir