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Analysis On The Reproductive Health Of Female Indian Mackerel (*Rastrelliger kanagurta*) From Two Wet Markets In Shah Alam

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Structured Abstract

Background: The Indian mackerel (*Rastrelliger kanagurta),* inhabits the Indian Ocean and Indo-West Pacific. It is vital to South and Southeast Asian fisheries but is vulnerable to overexploitation. The study aims to assess the reproductive health of female Indian mackerel in Malaysia, focusing on morphometric measurements, gross anatomy, histological analysis of the reproductive system, and stomach content analysis. This research is crucial for sustainable fisheries management and aligning with Sustainable Development Goals. It addresses the gap in knowledge about the reproductive dynamics of the species, which is essential for its ecological and economic sustainability.

Methods: Indian Mackerels were collected from two wet markets in Shah Alam, cleaned, measured, and dissected to examine internal organs and body condition. The Gonadosomatic Index (GSI) was calculated using ovary weight relative to body weight. Stomach contents were analyzed by identifying prey items and their frequency. Histological analysis involved tissue processing, sectioning, and staining with H&E to assess ovarian structure and oogenesis. Statistical analysis included descriptive statistics and regression to understand morphometric relationships and calculate the mean GSI.

Results: This study found that the two populations had different morphometric parameters. Total length, fork length, and standard lengths, as well as head length and body depth were observed to be significantly higher among the fish from Market B, indicating that growth conditions might have been favourable at the fishing location for Market A. Market B had a better length-weight coefficient; and therefore, better growth pattern. Gross anatomy revealed higher health status of the specimens in both market. Market B indicated healthier fish with higher Gonadosomatic Index (GSI), showing increased reproductive input. Based on histological examination of the ovaries revealed that the fish was engaged in batch spawning since there was active vitellogenesis and oocyte development was going on continuously.

Conclusion: In conclusion, the findings of this study revealed varied morphometrics, reproductive patterns, and diets influenced by environment and fishing. Key findings like gonadosomatic indices underscored seasonal reproductive trends, vital for sustainable management. Future studies should broaden sample sizes and geographical coverage to enhance conservation strategies and deepen insights into their ecological roles.

Keywords: Reproductive health, Gonadosomatic Index (GSI), Indian mackerel, Rastrelliger sp.

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