

Molecular Detection of Megalocytivirus in Live Bearing Tropical Fresh Water Ornamental Fish

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The global ornamental fish industry, valued at over \$10 billion annually, heavily depends on vibrant captive-bred freshwater species as popular aquatic pets. Sri Lanka has emerged as a leading hub for ornamental fish farming and exports; however, disease outbreaks pose significant threats to the industry. *Megalocytivirus*, a member of the *Iridoviridae* family, causes widespread mortality in both marine and freshwater ornamental fish, especially in Asian regions. Despite documented cases of *Megalocytivirus* infection in ornamental fish cultured in Sri Lanka and exported to Australia, its impact on live-bearing ornamental fish within Sri Lanka remains poorly understood. Therefore, this study aimed to evaluate the presence of *Megalocytivirus* in live-bearing freshwater ornamental fish species in the Western Province (WP) of Sri Lanka. A comprehensive survey collected 144 live-bearing freshwater ornamental fish, including guppies, platys, swordtails, and mollies, with two specimens from each species obtained from 18 aquaria within the WP. Gill samples pooled from each aquarium underwent polymerase chain reaction (PCR) analysis using universal primers targeting all *Megalocytiviruses*. Surprisingly, none of the collected samples showed amplification of the expected 777 bp target, indicating either a low viral load or absence of active infections during sampling. Possible contributing factors to these findings include seasonal fluctuations, inhibitory substances, or genetic variability affecting primer binding efficiency. The study's limitations, such as its modest sample size and brief duration, highlight the need for future investigations with larger samples and extended study periods to enhance statistical robustness and generalizability. The absence of *Megalocytivirus* in apparently healthy ornamental fish populations presents optimistic prospects for the industry's sustainability and trade. Nonetheless, integrating alternative detection methods alongside PCR could yield a more comprehensive understanding of *Megalocytivirus* prevalence, enabling the development of more effective disease management and prevention strategies to ensure the long-term health and viability of the ornamental fish sector.

Keywords: Ornamental fish, Megalocytivirus, Aquarium fish, Live-bearing

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