

GROWTH PERFORMANCE OF SANDFISH (*Holothuria scabra*) JUVENILES FED WITH DIFFERENT PLANT-BASED DIETS DURING THE INDOOR NURSERY PHASE

W.A.C.K. Rupasinghe¹, R.H.G.R. Wathsala¹, P.A.D.D.A. Priyan²,
W.D.L.P. Walpita², A. Anojan² and D.C.T. Dissanayake³

¹Department of Animal and Food Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.

²National Aquaculture Development Authority, Olaithoduvai, Mannar, Sri Lanka.

³Department of Zoology, University of Sri Jayawardenepura, Gangodawila, Nugegoda, Sri Lanka.

The growing demand and attractive prices are accelerating the overuse of high-value sandfish (*Holothuria scabra*) have led to overexploitation worldwide. Consequently, farming sandfish has become essential for providing a sustainable alternative to wild harvesting and conserving natural populations. Effective, economically viable, and locally sourced diets during the nursery phase are crucial for ensuring sufficient juvenile production in hatcheries and promoting sustainable farming and ranching practices. This study investigated the impact of five plant-based diets: T1 (100% *Sargassum fluitans*), T2 (100% *Thalassia hemprichii*), T3 (25% T1 + 75% T2), T4 (50% T1 + 50% T2), and T5 (75% T1 + 25% T2) on the growth and survival of sandfish juveniles during the indoor nursery phase. Forty-five-day-old sandfish juveniles (0.045 ± 0.0034 g) were stocked in rectangular indoor cement tanks (3 m×1 m×1 m) at a density of 100 individuals m⁻² and three replicates for each treatment. The juveniles were fed once daily for 21 days. The water quality parameters were measured daily, and the individual weight of 30% of the experimental animals in each tank was recorded weekly. Results showed that the average daily weight gain (0.007 ± 0.0002 g d⁻¹) and specific growth rate ($6.93 \pm 0.23\%$ d⁻¹) were significantly higher in juveniles fed the T1 diet compared to the other diets ($p < 0.05$). Further, 99% survival rate was observed across all experimental tanks. Water quality parameters, including temperature (27°C–28°C), pH (8.3–8.5), salinity (33–34 psu), and ammonia (0.04–0.08 mg L⁻¹), remained within acceptable ranges for sandfish farming. The results confirm that a 100% *Sargassum fluitans* diet can be successfully used as juvenile feed during the indoor hatchery phase, offering a sustainable and effective option for sandfish aquaculture.

Keywords: Growth rate, *Sargassum fluitans*, Survival rate, *Thalassia hemprichii*