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Effect of feeding herbal enriched *Artemia* on the growth performance and stress resistance of guppy fry (*Poecilia reticulata*)

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Artemia is one of the commonly used live-feed in hatchery production in aquaculture industry. The nutrient composition of *Artemia* can be enhanced by bioencapsulation using various sources. The present study was conducted to evaluate the growth performance and stress resistance of guppy fry (*Poecilia reticulata*) fed on *Artemia* enriched with different herbal ingredients ie: green kankung (*Ipomoea aquatica*) or carrot (*Daucus carota*). Herbal ingredients were mixed with oil to make the enrichment solution and II instar stage of *Artemia* (36 hr after hatching) was used for the enrichment. Two days old guppy fry was fed with unenriched *Artemia* (UE), *Artemia* enriched with carrot juice (CJ) or *Artemia* enriched with kankung powder (KP) for 21 days and the growth, survival and stress resistance of fry were evaluated. These comparisons were tested using one-way ANOVA. After a feeding trial of 21 days, the total length was significantly higher in fry in CJ treatment (14.59 ± 0.84 mm) followed by fry in KP treatment (13.83 ± 0.16 mm) and fry in UE treatment (12.14 ± 0.83 mm). Fry fed on CJ and KP enriched *Artemia* showed higher mean final weight (0.0279 ± 0.0048 g, 0.0263 ± 0.0012 g) and % Specific Growth Rate (SGR) (6.98 ± 0.063 , 6.39 ± 0.99) respectively compared to the fry fed on unenriched *Artemia* (0.0167 ± 0.009 g, 4.64 ± 0.064 g). Fry in all treatments showed 100% survival rate by the end of the experiment period (21 days) and were subjected to stress resistance test. Cumulative Mortality Index (CMI) for salinity stress test was significantly different in the three treatments. Highest CMI (960) value, therefore lower salinity resistance was observed in the fry fed with KP enriched *Artemia*, and the lowest CMI (0) value and the highest salinity resistance was observed in fry in CJ treatment group. Further fry in CJ (CMI 400) and KP (CMI 320) treatments showed higher thermal resistance compared to fry in UE treatment (CMI 720). The present study reveals that *Artemia* enrichment using carrot juice can be used to enhance growth and stress resistance of guppy fry in aquarium condition.

Keywords: *Artemia*, enrichment, herbal components, *Poecilia reticulata*