

CONSISTENCY OF BEHAVIOUR IN TWO FISH SPECIES, *Poecilia reticulata* (GUPPY) AND *Nannoperca vittata* (WESTERN PYGMY PERCH)

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Behavioural traits often show consistent covariation among individuals of the same species. This covariation can have clear consequences for fitness and the evolution of life histories. Here we used several testing setups (open field test, emergence test, novel object test, mirror test) to evaluate the consistency of behavioural traits in western pygmy perch (*Nannoperca vittata*) and guppy (*Poecilia reticulata*) with a week of resting period between the first and the second trials for a total of four trials across the experimental timeline. Forty-eight fish from each species were used for the study regardless of their sex. Track length (TL), time spent in the risky zone (RZ) were measured in an open field test, while time to emergence (ET) was measured in the emergence test. Latency to approach a novel object (LA) and time spent close to the object (TS) were measured in novel object test and aggression and sociability test/mirror test, time spent close to a mirror (CV), and the number of attacks (AT) launched at the mirror was measured. A monochrome camera was mounted above the experimental arena and recorded the fish movements. Videos were analyzed using video tracking software. Repeatability (consistency) was calculated as the intra-class correlation coefficient (ICC), based on within individual and between individual variance components. ICC is the fraction of behavioural dissimilarity used to measure the differences of behavioural traits between and among individuals of the same species. ICC was higher than zero for all traits except for the number of attacks in *N. vittata*. Only TL, RZ, CV and ET were repeatable in *N. vittata* ($p < 0.05$), while all traits except LA and attacks are significantly repeatable in *P. reticulata* ($p < 0.05$). The results suggest that the individuals have some traits that contribute to reacting differently towards biotic and abiotic environmental stressors. Moreover, the results provide an idea of which behavioural traits can be used as guides in upcoming studies. In general, traits measured in the open field and emergence tests can be used in future studies as they have shown significant repeatabilities in both fish species.

Keywords: Behavioral traits, Between individual variance, Consistent covariation, *Nannoperca vittata*, *Poecilia reticulata*