INDIVIDUAL PREFERENCES OF NILE TILAPIA FOR COLORS OF SHELTER

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- Introduction: Determining preference responses of the animals for different items or conditions is an approach widely used to infer better environmental conditions for such animals. In this way, preference response has been usually inferred from momentary choices of the animals. Moreover, preferences are generally considered just at a group level, thus ignoring individual variation of response. However, Maia & Volpato (2016) recently demonstrated that animal choices imply two biological patterns of response (preference - a consistent choice over time; and non-preference - a momentary and not consistent choice), and that individual preference is the rule for fish's preference for background colors. Here we tested if the fish Nile tilapia (*Oreochromis niloticus*) express individual preference and non-preference responses for colors of shelters.

- Methodology: We applied multiple-choice tests during 10 consecutive days for individual fish (n = 5), where 5 colored shelters were available for fish to choose from (red, yellow, blue, green or white). In each day of test, the position of the shelters was randomly alternated before the experimentation. Fish were filmed in these conditions from above for the last 7 days during 1h/day. From films, we registered the frequency of fish entries in each colored shelter each 30 s, totalizing 120 observation points per hour. Then, we used these data to calculate Maia & Volpato (2016)'s preference index (PI) score for each fish, determining preferred (positive values) and non-preferred (negative values) colored shelters and the intensity of these responses for each individual.

- Analysis and Discussion of Results: We found that fish varied not only in terms of their preferred shelter color, but also considering the number of preferences expressed, including fish that preferred just one color and fish that preferred three different colors of shelter. Three fish preferred green and white colors, 2 fish preferred yellow and blue colors and just 1 fish preferred red color for shelters. Moreover, the intensity of responses also varied significantly among individuals (PI range from 17.25 to 1,612.13 for preferred options and from -1.13 to -236.13 for non-preferred options).

- Conclusion: We conclude that Nile tilapia express significant individual variation of preference for different colors of shelter, both in terms of what they prefer and how much they prefer each option. Thus, concerning animal welfare issues and as proposed by Maia & Volpato (2016), we reinforce that preferences should be considered in an individual level to better improve animal conditions.

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