

Scototaxis response in fish: an interspecific study on the role of body colour and sociability.

Monday, September 23, 2024 12:30 PM (20 minutes)

Scototaxis test is an anxiety-like test used by behavioural neuroscientists consisting in the assessment of dark/light preference of laboratory animals. Most of the fish species have been shown to express a preference for the dark environment. However, the majority of the investigated species has a dark body colour, thus making a clear contrast with a white/bright background. Also, while in nature fish tend to be highly social, studies in the scototaxis literature tested single fish. Individual vs. group behaviour might interact with scototaxis response. In experiment 1, we assessed the individual response to test the hypothesis that the different colours of the body might modulate the dark/light preference. We found that species with a dark body colour (*Hyphessobrycon megalopterus*) and a largely transparent body colour (*Kryptopterus bicirrhis*) strongly preferred the darker environment. Instead, the preference for darkness of a species with a luminescent part of the body (*Cheirodon axelrodi*) was less pronounced. Lastly, a species with a white body colour (*Corydoras albini*) did not prefer either a bright or a dark sector. In experiment 2, we observed the same species, but subjects were simultaneously inserted in the test tank (shoals of 20 individuals). While *H. megalopterus* and *K. bichirrhis* confirmed their robust preference for darker environments, the other two species modified their preference and selected preferentially the white compartment. These results, taken together, indicate that scototaxis response is context-dependent, as it appears to be modulated by the body colour and the presence/absence of other conspecifics in the surrounding.

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