



14th INTERNATIONAL CONGRESS ON THE BIOLOGY OF FISH

From June 28th to July 1st, 2022

MONTPELLIER / Corum - France



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Abstract book

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COHABITATION WITH ATLANTIC SALMON (*SALMO SALAR*) AFFECTS BRAIN NEUROMODULATORS BUT NOT WELFARE INDICATORS IN LUMPFISH (*CYCLOPTERUS LUMPUS*)

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Abstract:

Lumpfish are utilized to combat ectoparasitic epidemics in salmon farming. Research gaps on both cleaning behavior and client preferences in a natural environment, emphasizes the need to investigate the physiological impacts on lumpfish during cohabitation with piscivorous Atlantic salmon. Lumpfish (39.9 g, S.D ± 8.98) were arranged in duplicate tanks (n = 40 per treatment) and exposed to Live Atlantic salmon (245.7 g, S.D ± 25.05), salmon Olfaction or lifelike salmon Models for 6 weeks. Growth and health scores were measured every second week. In addition, the final sampling included measurements of neuromodulators, body color and plasma cortisol. A stimulation and suppression test of the hypothalamic-pituitary-interrenal (HPI) axis was used for chronic stress assessment. Results showed that growth, health scores and body color remained unaffected by treatments. Significant reductions in levels of brain dopamine and norepinephrine were observed in Live compared to Control. Plasma cortisol was low in all treatments, while the stimulation and suppression test of the HPI axis revealed no indications of chronic stress. This study presents novel findings on the impact on neuromodulators from Atlantic salmon interaction in the lumpfish brain. We argue that the downregulation of dopamine and norepinephrine indicate plastic adjustments to cohabitation with no negative effect on the species. This is in accordance with no observed deviations in welfare measurements, including growth, health scores, body color and stress. We conclude that exposure to salmon or salmon cues did not impact the welfare of the species in our laboratory setup, and that neuromodulators are affected by heterospecific interaction.