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Physiological and immune responses of Atlantic salmon after high stocking density stress in RAS

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In order to investigate the effects of stocking density stress on the physiological and immune responses of Atlantic salmon in RAS, five stocking densities (6, 9, 15, 21 and 24 kg/m3) groups of Atlantic salmon (180D, 1-1.5 kg) were reared in five square concrete ponds (90 m3). The mortality was obviously affected by stocking density and the content of DO decreased following the density increased, NH3/NH4- showed a positive correlation with density of CO2 content. The specific growth rate, final weight and weight gain in the HSD group were significantly lower than those in the LSD and MSD groups. T3 and GH showed significant decrease with the increase of the stocking density. The content of cortisol in HSD group was significantly differentiated from MSD and LSD groups after 40 days, and then the content among the five groups were nearly equal after 130 days. Our results also showed that the levels of leucocyte numbers and hemoglobin expressions were positively correlated with stocking density after 100 days. The level of lysozyme expression in liver and kidney of high density group began to decline and rise since 130 and 190 days, respectively. GOT activities showed no significance before70 days, and group A increased quickly after 100 days. The level of serum GPT activities showed the similar changes with GOT. According to our results in this study, the stocking density of 30 kg/m3 was considered as the node in RAS caused by density stress.

Biography

Jun Li has completed his PhD from Institute of Oceanology, Chinese Academy of Sciences. He is the Director of Marine Fish Aquaculture and Biotechnology Research Group. He has published more than 100 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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