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Title: Influence of the photoperiod on growth rate and insulin-like growth factor-I gene expression in Nile tilapia *Oreochromis niloticus*

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Abstract: The effects of the duration of the light phase photoperiod (8 h light or 16 h light) on the growth and hepatic insulin-like growth factor-I (IGF-I) gene expression in Nile tilapia *Oreochromis niloticus* were evaluated. There was a slight but not significant tendency for fish in the long light phase group (L_p) to display elevated specific growth rate (G) both in mass (M) and standard length (L_s) compared with that in the short light phase group (S_p ; $P = 0.057$ for G_M ; $P = 0.055$ for G_L). Significantly, higher food conversion efficiency was observed in the L_p than in the S_p . There were significant positive correlations between IGF-I concentrations and G , both in M and L_s . A significantly negative correlation was observed between IGF-I mRNA level and eye colour pattern. The lack of significant differences in G and hepatic IGF-I gene expression, despite the significant difference in feed conversion efficiency, may be related partly to the development of different levels of social interactions in the different groups within a photoperiod regime leading to increased variation of results within each group. These findings suggest that hepatic IGF-I gene expression has potential utility as a growth rate indicator for this species of fish and social status, as quantified by eye colour pattern, appears to be a much stronger determinant of growth rate and IGF-I transcript level than does light phase photoperiod length.

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