Why is cannibalism less frequent when larvae of sutchi catfish Pangasianodon hypophthalmus are reared under dim light?

Abstract

Survival rates of the larvae of sutchi catfish Pangasianodon hypophthalmus are reported to be three times higher under dim conditions (0.1 lx) than those under 100 lx. In this study, larval behaviour of sutchi catfish was examined under various light intensities (<0.01, 0.1, 1, 10 and 100 lx) using a CCD camera to understand why survival rates vary under different light intensities. Five-day-old larvae showed significantly higher swimming activity under <0.01, 0.1 and 1 lx than those under 10 and 100 lx. On the other hand, the larvae showed significantly higher aggressive behaviour under 10 and 100 lx; swimming larvae attacked resting individuals more frequently under 10 and 100 lx than those under 0 and 0.1 lx. Aggressive behaviour was considered to induce lesions, inflicted by the sharp teeth of attacking larvae, on larval skin surfaces. It is considered that the chemical substances would generate from injured skin surfaces then acted as stimuli, causing the cannibalistic behaviour in other fish around the injured fish. This study provided evidence that the observed higher survival rates depended on lower frequency of aggressive behaviour under dark or dim conditions. It is therefore recommended that larval rearing of sutchi catfish be conducted under dim (less than 1 lx) conditions.