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PHYSIOLOGY OF REPRODUCTION IN *RUTILUS FRISII KUTUM* WITH SPECIAL FOCUS ON MELATONIN

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INTRODUCTION

Reproduction itself is typically a long-lasting and highly energetic process requiring the diversion of resources away from somatic growth. Consequently, the spawning window is usually highly restricted with the need to optimize the partitioning of available energy. Although a number of factors have been reported to influence the timing of reproduction, it is commonly accepted that photoperiod is the only environmental signal that can provide a consistent timing message and provides the most reliable and noise-free signal to entrain the reproductive. Across the whole animal kingdom, melatonin is recognised as the biological timekeeping hormone mainly due to the fact that it reflects the seasonal variations in day-length, rather than the existence of direct evidences of its role in the regulation of reproduction in fishes (Migaud et al., 2010). Melatonin interacts with the reproductive cascade at a number of key steps through the central hypothalamo-hypophyseal system as well as modulates actions of sex steroids in the final oocyte maturation (Maitra et al., 2010). It appears that although melatonin may not drive the initiation of reproduction, it does clearly play significant roles in coordinating the reproductive development, through mechanisms such as the feedback control of gonadotropin signalling and oocyte maturation (Chattoraj et al., 2005; S´ebert et al., 2008).

MATERIALS AND METHODS

Between March-April 2012, 102 mature fishes were caught in the Khoushkrood River, during the reproduction season about five times a day in a weekly manner. Then the blood was drawn from the caudal vein and centrifuged. The melatonin and LH concentrations were determined through ELISA kit.

RESULTS AND DISCUSSION

The melatonin concentration at night was significantly higher than at day which was synchronized with night-time spawning of kutum. Melatonin reflects the seasonal variations in day-length across the whole animal kingdom, rather than the existence of direct evidences of its role in the entrainment of reproduction in fishes (Migaund *et al*., 2010). At first days of reproduction period (March 2011) melatonin was so high because of its inhibitory role, then it comes down by first days of April (during the peak days of spawning), thus its inhibitory effect lessened. By late April melatonin started to rise again.
The trend of changes for LH was similar to melatonin during the spawning period**.** . Thus, this can be concluded that melatonin affected LH secretion in kutum and the decreased level of LH during the migration period was in accordance with Melatonin reduction.

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