Responsiveness to photostimulation in two passeriform birds

Sanjay Kumar Bhardwaj, Rohit Kumar Pandey and Amit Kumar

Received: 14.04.2011 Accepted: 13.07.2011

Abstract

Two studies were performed to analyze the photoperiodic interaction of testicular growth in brahminy myna and weaver bird. In the first study, birds were exposed to stimulatory long day lengths (15L:9D) and natural day length (NDL) for 60 days. The second study investigated the interpretation of a light pulse as ‘morning (entraining)’ or ‘evening (inducing)’ depends on the time during night at which they fall. Five groups (6L:6D:1L:11D, 6L:13D:1L:4D, 11L:13D, 13L:11D and NDL respectively) of birds were exposed under skeleton and complete photoperiods for two months. Body mass and testicular volume was measured on monthly intervals. In the first study, testicular volume among both groups (15L:9D) and (NDL) gradually increased, but more inductive effect was found in 15L:9D. In the second study more induction occurred in testicular volume of groups 6L:6D:1L:11D and 13L:11D with different magnitude as if it was exposed to long days. Taken together, results demonstrate that birds were sensitive to the stimulatory photoperiod and strongly show that brahminy myna and weaver bird at 29°N, 77°45' E latitude responded similar to the populations living at higher latitudes and these species use the photoperiodic cues from the environment to regulate their reproductive cycles.

Keywords: Body mass, testes, circadian rhythm, complete and skeleton photoperiod