

Photoperiodic regulation of testicular growth in a male migratory bird, *Emberiza bruniceps* under natural day length

B.K. TRIPATHI AND UMESH GAUR

National Council of Educational (NCERT) NEW DELHI, INDIA

Regional Institute of Education, Shyamla hills, BHOPAL (M.P.) INDIA

Email: umeshvsg@yahoo.com

(Received: Apr., 2011; Accepted : Sep., 2011)

Tripathi, B.K. and Gaur, Umesh. (2011). Photoperiodic regulation of testicular growth in a male migratory bird, *Emberiza bruniceps* under natural day length. *Asian J. Bio. Sci.*, 6 (2) : 260-261.

Red headed bunting *Emberiza bruniceps* is a long distant palaeartic Indian migratory small passerine finch, is captive bird show periodic cycles in gonadal growth. The changes in testicular size occur, and correspond to the increasing day lengths of spring and early summer (Jain and Kumar, 1995). This is a photoperiodic bird that follow the annual solar cycle for gonadal growth.

Investigation was carried out with adult male *Emberiza bruniceps*. This bird visit the zones of low altitude during winter specially in October and November and stay in most of the western and central India. (Ali and Ripley, 1983).

The male red headed bunting are seen in plains (Latitude 23° 32' N, Longitude 77° 05' E) through out the winter till spring (Sep./Oct to March and early spring). During the day time, they found in the crop fields and during night, they shelter in bushes, sugarcane field on 'Babool trees (*Acacia Arabica*).

Adult birds were captured from the field and maintained under natural day length (NDL) in captivity at Regional Institute of Education, Bhopal (India) Bird were chiefly fed with paddy grains, (*oryza sativa*), some times Kakoon (*Setaria italica*). Animal were provided with grains and water at *libidum*. Food and water were changed daily. Birds were looking healthy throughout the experiment.

The gonadal weight assessed *in situ* by unilateral exploratory laprotomy.

Five Birds (n=5) were maintained under natural day length at Bhopal Lat 23°32 N Long 77.5°E) India from April to March month in each months between 15th and 20th day. Combined testicular weight (CTW) was

assessed. Significant increase in testes weight (P<0.001) was observed in the month of may June and July when compared with the other months of the year (Table 1). The testis regressed from October to March, started from August but the value of the testis weight remained higher during August and September, initiation of testicular growth begins from April (the value of testis weight in April in higher than the March).

Table 1 : Study of testicular response in red headed bunting under natural day length (NDL) in different months

Months	Natural day length (NDL) (hrs)	Ovarian weight (mg.) mean ± SE
JAN	10.50	3.02 ± 0.38
FEB	11.24	2.70 ± 0.39
MARCH	12.04	6.10 ± 0.97
APRIL	12.50	36.40 ± 2.80
MAY	13.28	280.20 ± 8.40*
JUNE	13.48	359.80 ± 6.80*
JULY	13.40	310.30 ± 10.20*
AUGUST	13.06	205.02 ± 16.60*
SEPTEMBER	12.26	120.10 ± 12.80
OCTOBER	11.42	12.70 ± 3.68
NOVEMBER	11.02	6.90 ± 2.60
DECEMBER	10.40	4.40 ± 0.82

The significant changes which has been observed in the present study reveals a delayed regression patterns compared to the previous work (Tewary and Prasad 1983; Tewary *et al.*, 1982 ; Thapliyal and Singh 1995). Testicular weight remained minimal through out January to April

and August to December. The initiations of growth strictly followed an increasing day length of summer.

LITERATURE CITED

- Ali, S and Ripley, S.D. (1983).** *Hand book of birds of India and Pakistan* (compact edition). Oxford University Press, Delhi/Oxford, New York.
- Jain, N. and Kumar, V. (1995).** Changes in food intake, body weight, gonads and plasma concentration of thyroxine, luteinizing hormone and testosterone in captive bunting exposed to natural day lengths at 29° N. *Biosci.*, **20**: 417-426.
- Tewary, P.D. and Prasad, B.N. (1983).** Photoperiodic induction of fattening in red headed bunting : A phenomenon of external coincidence system. *Environ.Control Bio.*, **21**:1-5.
- Tewary, P.D., Prasad, B.N. and Kumar, V. (1982).** An evidence for the circadian control of premigratory events in red headed bunting, (*Emberiza bruniceps*). *PAVO*, **19**: 35-41.
- Thapliyal, J.P. and Singh, V.K. (1995).** Role of male hormones in the regulation of the annual body weight and gonad development cycle of migrator male red headed bunting, (*Emberiza bruniceps*) *PAVO*, **33**: (1&2): 63-92

**** * ****