

Studies on Body Mass, Profile of Metabolic Hormones and mrna Expression of Caspase-2, Bcl-XL and HSP-70 gene in Japanese Quail Hens during Sexual Maturation

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Abstract—The present study was undertaken to explore the association of sexual maturation with body mass, serum metabolic hormones and mRNA expression of caspase-2, B-cell lymphoma –XL (Bcl-XL) and heat shock protein-70 (HSP-70) genes in Japanese quail hens. Birds at 5 weeks of age were procured from institute quail farm to carry out the study. After complete acclimatization, forty quail hens individually housed under uniform husbandry condition with ad-libitum layer ration and water at 14h photo-schedule. On 6th week onwards the experiment was commenced on sacrificing four birds each time on 1, 3, 7, 10, 13, 16, 19, 22, 25 and 28 days. Body mass was calculated on deduction from slaughter weight and serum metabolic hormones (glucose, T3 and T4) were assessed using specific diagnostic kits as manufactures' guidelines. The expression study of caspase-2, Bcl-XL and HSP-70 was performed in both ovary and hierarchial follicles (F1, F2 and F3) using real-time quantitative polymerase chain reaction. The percent body mass was recorded higher initially which declined thereafter. The serum T₃ concentration was followed a significant reduction ($P < 0.05$) in advance to the attainment of sexual maturity though level of T4 did not show any significant ($P < 0.05$) change throughout the study period. Significantly ($P < 0.05$) higher level of caspase 2 and Bcl XL was recorded in F3 and F1 follicle respectively when the expression level of HSP 70 varied differently in both ovary and hierarchial follicles. It can be concluded that increased body mass and higher expression level of caspase 2 and Bcl XL in ovarian follicles may play a positive role during sexual maturation of Japanese quail hens.

Keywords: Sexual maturation, body mass, gene expression, serum, Japanese quail.