

Prolactin and luteinizing hormone profiles during the reproductive cycle in the native Thai chicken. S. Kosonsiriluk¹, N. Sartsoongnoen¹, N. Prakobsaeng¹, I. Rozenboim², M. E. El Halawani³, and Y. Chaiseha*¹, ¹*Suranaree University of Technology, Nakhon Ratchasima, Thailand*, ²*The Hebrew University of Jerusalem, Rehovot, Israel*, ³*University of Minnesota, Saint Paul*.

Unlike Gallinacous-temperate zone birds, the reproductive cycle of the native Thai chicken, an equatorial non-photoperiodic continuous breeder consists of three reproductive stages including laying (LAY), incubating (INC) and rearing of young (R). In temperate zone birds, luteinizing hormone (LH) and prolactin (PRL) levels vary during the four reproductive stages with the high PRL levels observed during the incubation phase are responsible for the suppression of gonadotropic hormones and ovarian steroids, follicular atresia, termination of egg laying activity and induction of incubation behavior. PRL action on the reproductive neuroendocrine system has been shown to be mediated by its feedback effects on the hypothalamus, pituitary and ovary. The objective of this study was to establish baseline information on the neuroendocrine changes (LH and PRL levels) associated with reproductive stages of the native Thai hens. Chickens were classified into three stages: LAY, INC and R (n=10). Blood samples were collected for determining plasma PRL and LH levels by Enzyme-Linked immunoSorbent Assay. Daily records were kept of egg production and nesting activity during the reproductive cycle. The results revealed that PRL levels (ng/ml) were low in R (24.1±1.9), intermediate in LAY (40.4±12.6) and highest in INC (351.9±37.1, P<0.05). There were no changes (P>0.05) in LH levels across the reproductive stages. Levels were 3.4±0.3, 3.7±0.4 and 3.2±0.1 ng/ml, whereas ovarian weights were (P<0.05), 35.9±0.9, 3.1±1.2 and 1.9±0.9 gm for LAY, INC and R, respectively. The finding that ovarian regression occurred in INC and R hens in the absence of a decline in LH levels is interpreted as an adaptive mechanism(s) allowing for reinitiating egg laying activity in case of nest destruction at any time and irrespective of the season. The finding further suggest the antagonodotropic effect of PRL is limited to its effect on the ovary.

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