EFFECT OF LIGHT ON SOME PHYSIOLOGICAL AND IMMUNOLOGICAL CHARACTERISTICS IN JAPANESE QUAIL

BY

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APPROVAL SHEET

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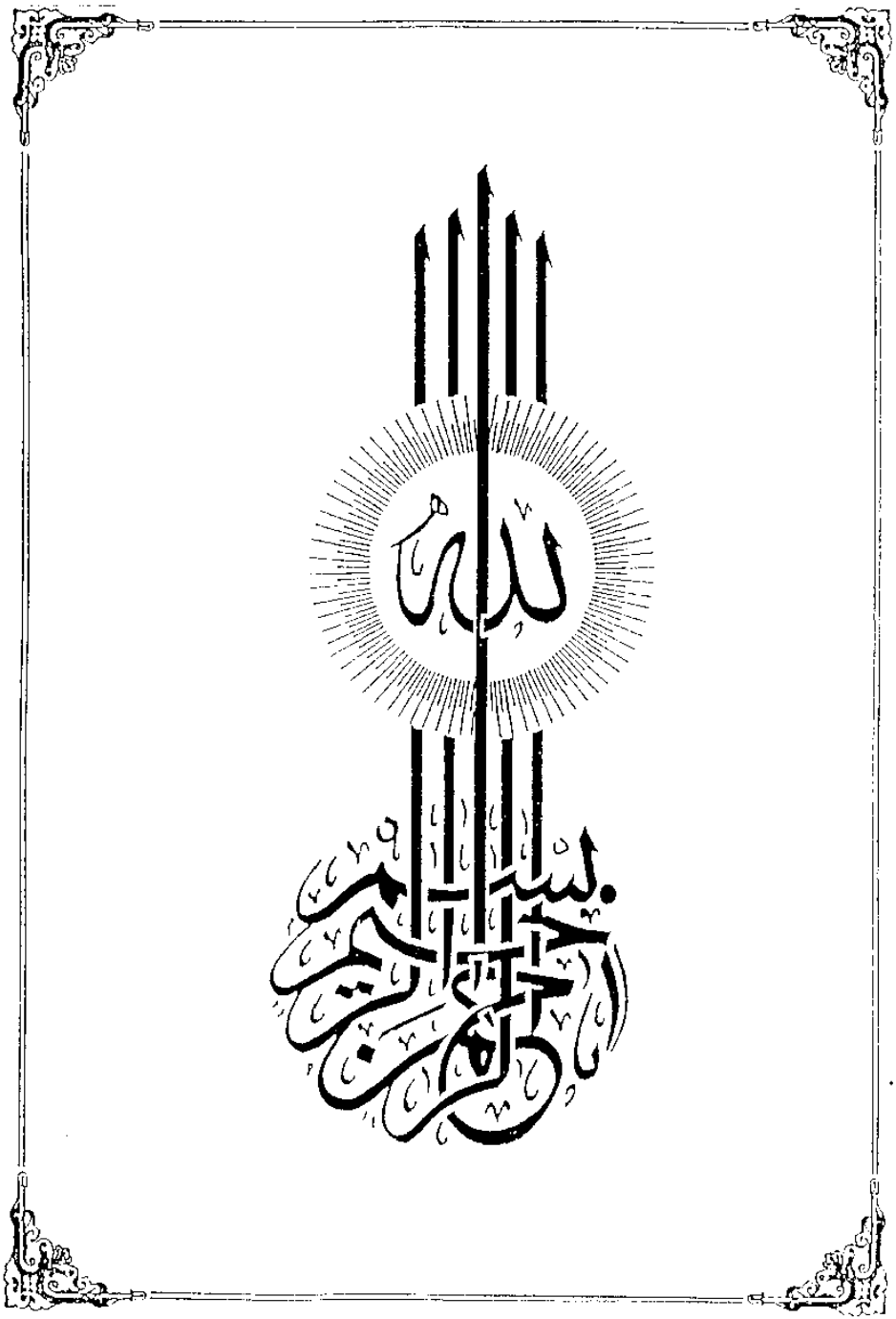

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ABSTRACT

Two experiments were carried out using one-day old male Japanese quail.

The first experiment, was conducted to investigate the effect of continuous and intermittent light on some physiological and immunological characteristics of male Japanese quail. One-day old chicks were maintained under the lighting programs of 2(9L:3D), 2(5L:7D), 2(7L:5D) and 14L:10D, (as a control group), till six weeks of age. Chicks were fed ad. libitum a turkey starter ration. Body weight, feed consumption, feed efficiency and weight gain were recorded at weekly intervals. Thymus, bursa, spleen, testes and adrenal glands were excised at autopsy and weighed. Corticosterone and testosterone were assayed in the plasma samples. Body weights were consistently higher for males raised under all different lighting programs at all ages than that of the control. The

highest averages body weight gain and feed efficiency (129.8 ± 6.69 and 1.37 ± 0.09) were noted for males kept under 2(5L:7D). While the highest average feed consumption were reported for males kept under 2(9L:3D) program. The relative weights of testes, adrenal and spleen increased as the birds grew older. While the relative weights of bursa and thymus decreased. An opposite trend was noted for the relative weights of bursa and thymus glands. The lighting programs had no effect on the weights of all glands under study as well as the plasma testosterone level but resulted in an increase in the plasma corticosterone level.

The second experiment, were conducted to investigate the effect of dipping fertile Japanese quail eggs in testosterone propionate solution on the weights of bursa, thymus and spleen glands of hatched chicks. The experimental period lasted for six weeks after hatching. No significant differences were found in the relative bursa, thymus and spleen weights between different ages, sex and dipping times. The hormonal treatment of the egg resulted in an increase in the thymus weight but no effect on either bursa or spleen weights.

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