in the egg shells when the eggs were studied in UV-light (Fig. 1). Control eggs did not fluoresce.

The concentration of oxytetracycline in the egg shell, albumen, and yolk was measured by UV-absorption spectrofluorometry (Hayes and DuBuy, 1964). Oxytetracycline was deposited mainly in the shell (0.182 ± 0.028 µg./gm., mean ± SD), and albumen (0.190 ± 0.030 µg./gm.) whereas the yolk contained only traces of oxytetracycline.

The dry weight of the control egg shells was 4.79 ± 0.39 gm. (mean ± SD). The dry weight of the egg shells showing fluorescence was 4.66 ± 0.63 gm. and 4.85 ± 0.41 gm. after tetracycline and oxytetracycline injections respectively.

It was concluded that tetracycline and oxytetracycline were deposited in the shell of the calcifying egg, but they did not inhibit egg shell calcification.

**REFERENCES**


### DEPRESSION OF PLASMA α-TOCOPHEROL LEVEL IN CHICKS INFECTED WITH AVIAN LEUKOSIS

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During the course of a study on the nutritional status of poultry around Tehran, it was found that 1.0280 mg. α-tocopherol per 100 ml. of plasma was present in the chicks fed a basal diet supplemented with 10 mg. α-tocopherol acetate per kg. of feed. The same study also revealed that 0.420 ± 0.020 mg. α-tocopherol per 100 ml. of plasma was present in the chicks fed a commercial type diet (Saadat-Noori et al., 1970).

With no preliminary objective to establish any correlation between a complex and a condition, a series of chicks infected with avian leukosis obtained from the flocks around Tehran were sacrificed and blood samples were analyzed for α-tocopherol. The chicks examined were of various breeds and were, on the average, 8 weeks old. They represented a stratified random population of the flocks examined. Viral infection was diagnosed by gross observation confirmed by histopathological examination.

A total of 130 samples obtained from 3 flocks of 5200 chicks with acute classical Marek's disease, which had been fed a commercial type diet, was analyzed. The results obtained indicated that the mean and standard deviation values of plasma α-tocopherol in infected chicks examined were 0.200 ± 0.015 mg. percent, respectively. No histological lesion due to nutritional encephalomalacia was observed.

This is compatible with the finding of other investigators that feeding fats rich in
unsaturated acids, e.g., coconut oil and corn oil significantly lowered the incidence of lesions from avian leukemia compared with the commercial type diet (Boyd and Edwards, 1968). It had been already shown that these oils are particularly rich in vitamin E (Ames, 1956).

It is suggested that free radicals formed in autooxidation of unsaturated fat in the absence of adequate vitamin E in body tissue may produce a predisposing condition for tumorigenesis by latent leukemia virus. An experimental project is in progress in this Laboratory to test this hypothesis and the results will be presented in the near future.

REFERENCES


THE CAUSE OF CHANGE IN EGG CYCLE BY VARYING SULFUR AMINO ACID CONTENT OF THE DIET\(^1\)

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Moreno et al. (1970) reported that a linear relationship existed between length of laying cycle and the protein or sulfur amino acid content of the laying hen diet. Therefore, it was suggested that the laying cycle was a better criterion for use in measuring the sulfur amino acid adequacy of a laying hen diet than production characteristics previously used.

This experiment was conducted to determine if the length of the rapid growth phase of yolk formation was the cause of different cycle lengths produced by feeding different levels of sulfur amino acids.

EXPERIMENTAL PROCEDURES

Hens used in this study had been receiving diets containing various levels of sulfur amino acids for 56 days prior to the initiation of the experiment. During the last 28 days the length of their laying cycles were 7.49, 6.20, 5.37, 3.72, and 2.10, respectively, for hens receiving diets as previously used by Harms et al. (1969) which contained 130, 115, 100, 85, and 70% of their sulfur amino acid requirement. Each hen was fed a gelatin capsule containing approximately 30 mg of Oil-red-O dye on the 56th day and were continued on these diets. Beginning on the day of dye administration, eggs were gathered daily and individually marked for a period of three weeks. The eggs were hard cooked and the size of the yolk (% of ovulated size) at dye administration was determined by the following techniques.

The diameters of the dye ring and of the entire yolk were determined by duplicate measurements of each taken in two directions at right angles across the yolk (Figure 1). The average of the duplicate measurements was used for calculations. The diameter of the ring of dye was divided by the diameter of the yolk in order to determine the location of the dye ring in rela-