

# Effect of Natural Antioxidants on the Oxidative Stability of Eggs.

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## INTRODUCTION.

Due to the increase in the production of  $\omega$ 3 PUFA enriched eggs, prevention of lipid oxidation in such products became more important. Dietary supplementation with alpha-tocopherol has been reported to increase the oxidative stability of animal products (Lauridsen et al. 1997, Cherian et al. 1996).

The purpose of this experiment was to evaluate the effect of the Canthaxanthin as a natural antioxidant on the prevention of rancidity of fresh eggs and to compare it with that of Vitamin E.

## MATERIALS AND METHODS.

A basal diet containing 5% of Linseed oil (L) was supplemented with 200 ppm of vitamin E (LE), 5 ppm of Canthaxanthin (LC) or both (LEC). 120 laying hens of Lohman strain were randomly assigned to these four treatments (6 replicates of 5 hens per treatment). After 40 days of feeding, egg samples were collected and the oxidative stability was determined by the induced TBARS methodology (Kornbrust & Mavis, 1980), and the presence of peroxides by the Ferrous-Xilenol Orange method (Hermes-Lima et al. 1995).

## RESULTS.

After 150 minutes of incubation, TBARS values (ng MDA/g egg) were lower ( $p < 0.001$ ) in the vitamin E supplemented groups (19.6 and 17.9 for LE and LEC respectively) than for the control and

canthaxanthin groups (137.6 and 130.8 for L and LC) (figure 1). No synergic effect was observed between canthaxanthin and vitamin E. In the same way, production of primary oxidation products were higher for the groups without vitamin E supplementation, as shown in figure 2, and canthaxanthin didn't have any effect.

Figure 1. TBARS.

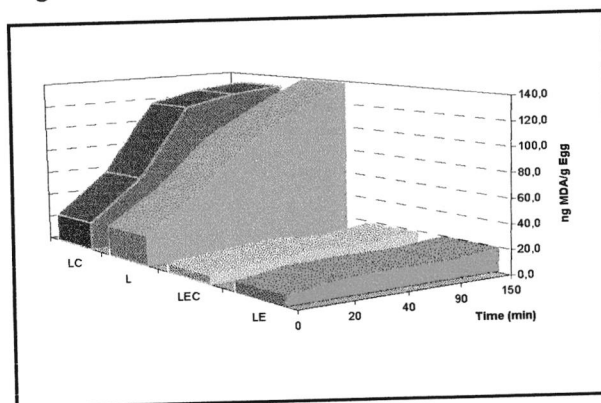
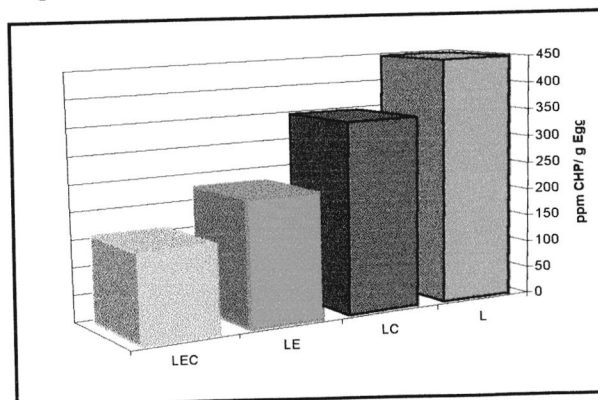


Figure 2. Peroxide Values.



## CONCLUSIONS.

Supplementation of laying hen's diet with 200 ppm of vitamin E improves oxidative stability of  $\omega$ 3 PUFA enriched eggs. Dietary canthaxanthin at the concentration used (5ppm) had no effect on the oxidative stability of eggs and did not interfere with the effect of vitamin E.