

# VITAMIN E LEVELS AND LIPID OXIDATION IN $\omega$ 3 FATTY ACIDS ENRICHED EGGS.

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## INTRODUCTION

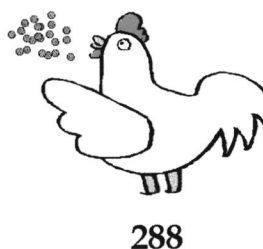
It has been demonstrated that high amounts of  $\alpha$ -tocopherol added to the layer's diet (above 200 ppm) have a protective effect on egg lipid oxidation. However it is very important to establish the minimum levels of  $\alpha$ -tocopherol needed in diets not only to effectively prevent lipid oxidation in animal products but also to be acceptable economically.

**The objective of the present study is to establish the effect of graded levels of  $\alpha$ -tocopherol on lipid oxidation in  $\omega$ 3 fatty acids enriched eggs.**

## MATERIALS AND METHODS

**Experimental Diets.** Basal diet supplemented with 5% LINSEED OIL (65 % PUFA; 34.5 %  $\omega$ 3) and 4 levels of  $\alpha$ -tocopheryl acetate.

Treatment	$\alpha$ -Tocopheryl acetate (ppm)
C	0
50E	50
100E	100
200E	200



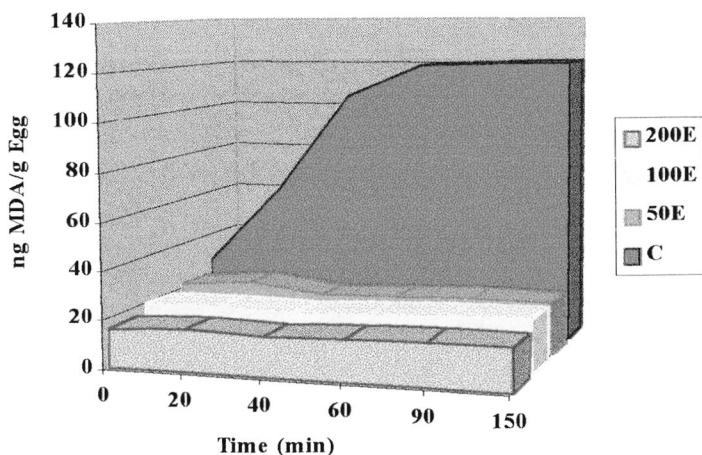
25 days  
feeding



Oxidation measured  
by Induced TBA  
(Kornbrust & Mavis, 1980)

## RESULTS

### Evolution of TBARS values.



During all incubation time, the control group showed higher TBARS values than the  $\alpha$ -tocopherol supplemented groups. At 150 minutes of incubation supplementation with 50, 100 or 200 ppm of  $\alpha$ -tocopherol promoted a dramatic decrease in lipid oxidation compared to the non-supplemented group (121,60 vs. 21,87; 22,20; 17,71; for C, 50E, 100E and 200 E, respectively,  $p < 0,001$ ). Moreover, no significant differences were observed between supplementing with 50, 100 or 200 ppm of  $\alpha$ -tocopherol.

However,  $\alpha$ -tocopherol content of eggs decrease with processing and storage time. Thus, Vitamin E levels required in hens diet should be adjusted depending not only on the fatty acid composition of the eggs (directly related to the diet), but also on the conditions of processing and conditions and time of storage.

## CONCLUSION

**Dietary supplementation with 50 ppm of  $\alpha$ -tocopherol can effectively reduce lipid oxidation to similar extent than 200 ppm in  $\omega$ 3 fatty acids enriched eggs.**

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