

## **Abstract**

The aim of this study was to investigate the effect of sources and different levels of oil with an emulsifier on performance and oxidative stability and shelf life of meat in broiler chickens under heat-stress in 320 day-old broiler chicks (Ross 308), tested in  $2 \times 2 \times 2$  factorial arrangement in a completely randomized design with four replications and 10 broilers in each replicate. Factors included two oil level (low, 30 kg per ton and high, 60 kg per ton) and two different sources of oil (palm, and soybean oil containing saturated fatty acids, unsaturated fatty acids), and two levels of phospholipid emulsifier (zero and 1 kg per ton; lysolecithin). Heat stress program was applied in days 29 to 42 for 5 hours ( $36 \pm 1$  ° centigrade). The Broilers that received soy oil increased significantly feed intake, weight gain and they improved the feed conversion ratio compare to palm oil ( $P < 0.05$ ). Different levels of oil had no significant effect on performance parameters ( $P > 0.05$ ). 1.0 grams per kilogram level of lysolecithin in two last weeks of period of breeding significantly improved performance of the birds were exposed to heat stress ( $P < 0.05$ ). Different levels of oil had a significant effect on meat oxidative properties ( $05 / 0P >$ ). Diets containing palm oil significantly decreased malondialdehyde in meat compared to diets containing soybean oil ( $P < 0.05$ ). The chicken that consumed zero level of lysolecithin, showed significantly lower malondialdehyde in their meat , after 30 days of storage at -20 ( $P < 0.05$ ). Oil sources and its different levels had no significant effect on pH and moisture content of meat ( $05/0 P >$ ). But the meat of broilers that consumed palm oil, after 90 days of storage at -20, had significantly more moisture content ( $P < 0.05$ ). This experiment showed that use soybean oil and lysolecithin can lead to improved performance of broiler under heat stress.

**Keywords:** soybean oil, palm oil, emulsifier, oxidative stability, heat stress.



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**Effect of sources and different levels of oil with an emulsifier on  
performance and oxidative stability and shelf life of meat in broiler  
chickens under heat-stress**

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