

## **Production Performance and Quality of Eggs of Laying Hens Fed Diets Supplemented with Plants Rich in alpha-Linolenic Acid**

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**ABSTRACT:** The aim of the study was to evaluate the effects of including a plant source of n-3 fat in the form of alpha-linolenic acid (ALA, 18:3n-3) in the diets of layers on production performance and quality of eggs. One hundred twenty five hens were assigned to five dietary treatments. The diets were supplemented with 0, 1.5, 3.0, 4.5 and 6.0% *Portulaca orelacea* flour, as a source of ALA. Birds were placed at point of lay and fed for 4 weeks. Water and feed were provided ad libitum. Feed consumption was measured weekly and FCR was calculated at the end of the trial. A total of 25 egg yolk samples of day 28 (n = 5 egg yolks for each treatment) were collected to analyse the egg quality. Results showed that the incorporation of plants rich in ALA did not modify feed intake (FI), feed conversion ratio (FCR) and egg production. The average of FI and FCR of hens fed diets containing ALA was 98.73 g/day and 2.11. Enriching ALA levels in the diets had no effect on physical quality of eggs, including egg weight, yolk weight, albumen index, yolk index and Haugh Unit (HU). The average of egg weight and yolk weight were 59,5 and 15.0 g, respectively. Diet containing *Portulaca orelacea* increased yolk colour of egg. In conclusion, laying hens fed diets supplemented with *Portulaca orelacea* rich in ALA improved yolk colour and did not change the production performance of the birds or the qualities of the eggs.

**Keywords:** *Portulaca orelacea*, alpha-linolenic acid, Performance production, Egg quality