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n-3 Fatty acid content in eggs laid by hens fed with marine algae and sardine oil and stored at different times and temperatures

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Inclusion of sardine oil (SO) in diets for Laing hens significantly increases the n-3 polyunsaturated fatty acids (PUFAs) in the egg, but these are more sensitive to oxidation, so the storage time and temperature can cause a decrease in their concentration. Therefore, the objective of this study was to determine the effect of algae Macrocystis pyrifera, Enteromorpha spp., and Sargassum sinicola on n-3 PUFA contents in eggs from laying hens fed diets supplemented with sardine oil and stored for different times (0, 15, and 30 days) and temperatures (20°C and 4°C), for 8 weeks. One hundred and twenty hens were divided into four treatments: T1 (commercial diet), T2 (2% SO+10% M. pyrifera), T3 (2% SO+10% Enteromorpha), and T4 (2% SO+10% S. sinicola). At the end, 50 eggs per treatment were collected to quantify total lipids and egg n-3 PUFAs at different times (0, 15, and 30 days) and temperatures (20°C and 4°C) of storage. The results were analyzed using a 3×3×2 factorial design, and Tukey test to compare means (P<0.05). The results show that M. pyrifera and S. sinicola had a better effect on eicosapentaenoic acid, while Enteromorpha was better for docosahexaenoic acid. In relation to time and temperature, the content of the fractions analyzed in the three treatments at 15 days/4°C had a lower loss compared with eggs analyzed at day 0/20°C.

Palabras clave: Fish oil, Algae, Storage, lipids, Antioxidants, n-3 pufa