Egg yolk pigmentation efficiency of apo-ester compared to two products with high zeaxanthin concentration

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A 3-week egg yolk trial was conducted to compare the pigmenting efficiency of Apo-ester (APE) and high zeaxanthin (ZEA1 and ZEA2) tagetes extracts. Four groups of three hens, housed individually in battery cages, were randomly allocated to ten groups. The control group was fed a common basal diet low in native xanthophylls, whereas the nine other groups were fed the basal diet supplemented with 2.5, 5 and 7.5 mg/kg APE and with 7.5, 15 or 22.5 mg/kg ZEA1 and ZEA2, respectively. Laying performance and feed intake were determined per group. Carotenoid content of feed samples and egg yolks were determined by HPLC and carotenoid deposition rate was calculated. Irrespective of the dose, APE showed (P<0.001) a higher deposition rate than ZEA1 and ZEA2 (49.8 vs. 13.0 vs. 10.7% respectively). The calculated linear regression demonstrated that yellow carotenoids concentration in egg yolk was higher with APE giving higher regression coefficient values than ZEA1 and ZEA2. The values of yellowness and chroma obtained in eggs with ZEA2 were significantly lower compared to APE and ZEA1. Apo-ester showed better egg yolk pigmentation efficacy than high zeaxanthin products.