Effect of the dietary supplementation of *Solanum glaucophyllum* on egg quality traits and productivity of aged laying hens

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BACKGROUND & AIM

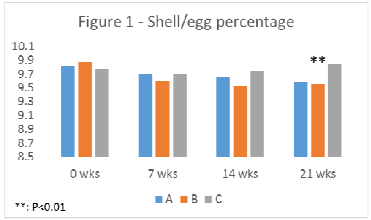
Solanum glaucophyllum (SG) standardized leaves is a mixture of leaves and food grade wheat middling to ensure a concentration of minimum 10 mg/glycosylated 1,25-dihydroxycholecalciferol/kg feedingstuff.

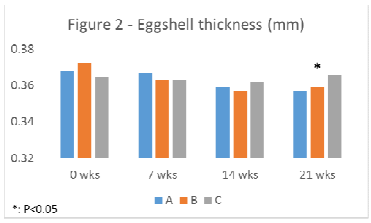
The aim of this study was to test the effect of the dietary supplementation of different standardized doses of *Solanum glaucophyllum* leaves on eggshell quality traits and productivity of aged laying hens.

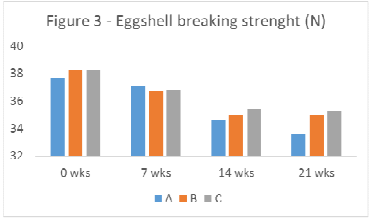
MATERIALS AND METHODS

300 Hy-Line brown hens of 70 weeks of age, selected to be of similar body weight, were housed in 30 enriched cages, randomly divided into **3 experimental groups** (10 replications each). All animals were fed the same commercial diet for 4 weeks, then submitted to the following treatments: **A) commercial basal diet (BD**) containing 3,000 UI vitamin D/kg feed, **B) BD supplemented with 100 mg of SG/kg feed**, and **C) BD supplemented with 500 mg of SG/kg feed**, delivering 1 and 5 µg 1,25-dihydroxyvitamin D_3/kg feed, respectively, as levels already tested were much higher. Productive traits were weekly recorded on a cage basis (egg number and weight, feed consumption, number of dead hens) and feed conversion rate and egg mass were calculated. At 0, 7, 14 and 21 weeks into the trial, all the eggs laid in one day were collected and used for the eggshell quality traits evaluation.

RESULTS

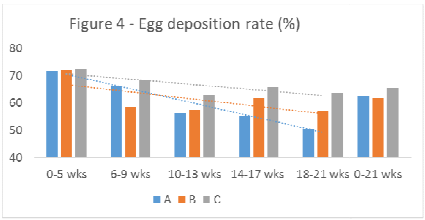


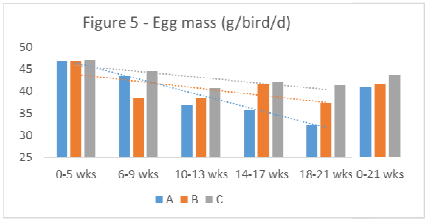


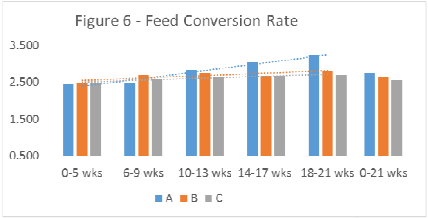


Eggshell quality traits evaluated at 7 and 14 weeks of treatment resulted slightly affected by SG supplementation (Figures 1-3). After 21 weeks of treatment, corresponding to 95 weeks of age for the hens, group C compared to groups A and B showed higher eggshell percentage (9.84 vs. 9.59 and 9.56 %; P<0.01), eggshell thickness (0.366 vs. 0.357 and 0.359 mm; P<0.05), eggshell density (84.1 vs. 82.1 and 82.6 mg/cm^2, P<0.05) and breaking strength (35.2 vs. 33.7 and 35.0 N; P=0.17 with C and B different from A).

In Figures 4-6 productive performance are reported. Overall, egg deposition rate (65.4 vs. 62.5 vs. 61.9% for C, A and B respectively), feed conversion (2.558 vs. 2.756 vs. 2.625) and egg mass (43.8 vs. 40.9 vs. 41.8 g/hen/d) resulted not statistically different among groups. However, as shown in figures, a better trend for all the considered productive traits was observed in treated groups.







CONCLUSIONS

Based on the results obtained in this study, the addition of *Solanum glaucophyllum* to the hen feeding seems to be beneficial to counteract the detrimental effect of hen aging on some eggshell quality traits.