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**Cannabidiol Water Preparation in Diet of Laying Hens - Production Parameters and Eggs Quality**

Sepideh Fallahi1\*, Łukasz Bobak2, Muhammad Umair Asghar3, Katarzyna Olejnik1and Sebastian Opaliński1

\*Sepideh Fallahi, sepideh.fallahi@upwr.edu.pl, 1 Department of Environmental Hygiene and Animal Welfare, Wrocław University of Environmental and Life Sciences, Poland

2 Department of Functional Food Products Development, Wrocław University of Environmental and Life Sciences, Poland

3 Department of Animal Nutrition and Feed Management, Wrocław University of Environmental and Life Sciences, Poland

**Abstract:** Poultry products are renowned for their nutritional value. Cannabidiol (CBD), a component of hemp, possesses anti-inflammatory properties. Supplementing laying hens' drinking water with CBD has shown beneficial effects on egg quality.

**Background/Objective:** Cannabidiol (CBD), a non-psychoactive compound found in hemp, has gained attention for its analgesic and anti-inflammatory effects. CBD interacts with the endocannabinoid system, modulating inflammation and redox balance. Thus, supplementing laying hens' water with CBD could enhance performance and egg quality.

**Methods:** The study involved Lohmann Brown Classic laying hens in a Completely Randomized Design with five treatments: Control (C), Blank (B), and CBD levels at 20 (I), 40 (II), and 80 (III) mg/kg body weight, in total 180 hens (n=12). CBD was added to the drinking water from the 26th to the 40th week of age. Weekly feed, water, FCR, and egg production recordings were made, and egg parameters were assessed on days 0, 30, 60, and 90, as well as sensory evaluation. Data were analyzed using Statistica.

**Results:** Performance was not influenced by CBD, except lower feed intake in group III (between 32 and 40 wk of age) and higher water consumption in group II and III (between 32 and 36 wk of age). CBD had no effect on egg parameters, however, eggshells in group III were stronger and thicker comparing with group II. Sensory factors remained unaffected by CBD, while yolk color intensified in groups B, I, and II.

**Conclusion:** CBD supplementation did not negatively impact hens' performance and egg quality. Further research is required to understand CBD's effects on poultry production. This study was conducted by the Animal Science for Future (ASc4Future) research group, supported by the Wrocław University of Environmental and Life Sciences under the Ph.D. research program "Doctoral student grant no. N020/0009/2022".

**Keywords:** CBD, Performance, Egg Parameters, Sensory Evaluation, Laying Hens