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WALNUT MEAL AS FEED ADDITIVE IN BROILERS NUTRITION: EFFECTS ON PERFORMANCE AND THIGH MEAT QUALITY

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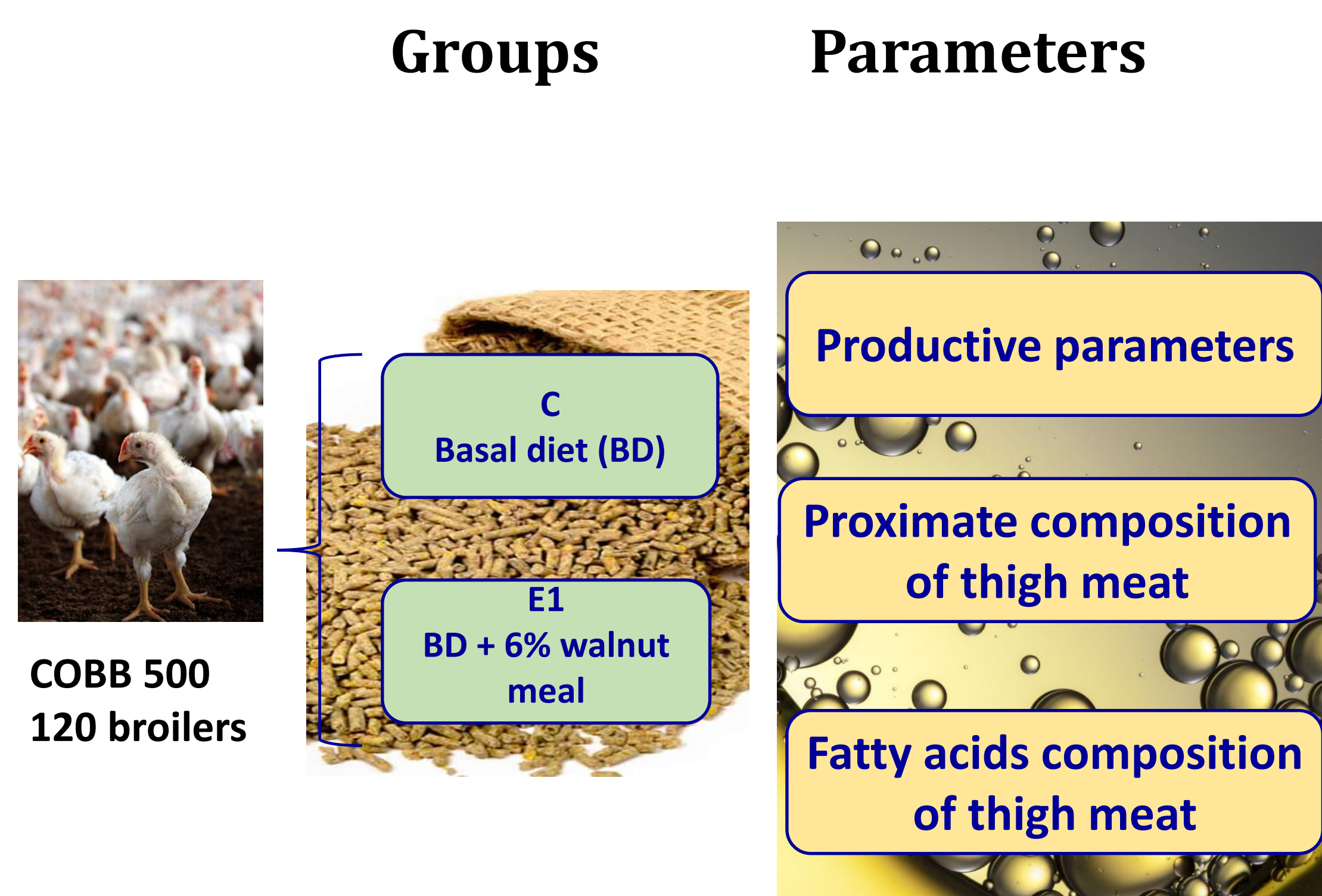
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Abstract: The aim of the study was to evaluate the effect of 6% dietary walnut meal inclusion on productive parameters of broiler chickens' and meat quality. A nutritional trial was conducted on 80 Ross 308 broilers, raised in semi-intensive system conditions, reared on permanent shave litter (10–12 cm thick) in boxes of 3 m² (40 broilers / each group, housed in a single box), fed ad libitum, and free access to the water. At 42 days old, 6 birds from each group were slaughtered and thigh meat samples were collected. The walnut meal supplements negatively influenced the final body weight. Regarding the proximate composition of thigh meat, a decrease of crude fat concentrations was registered at the end of experiment (12.66 vs 10.49%) but also a significant improvements of quality of lipids in terms of omega 3 concentrations and omega 6 to omega 3 ratio (2.22 vs 2.90% $\Omega 6/\Omega 3$). The synthesis of long chain fatty acids was noticed to be stimulated, eicosapentaenoic acid (EPA) and docosahexaenoic acid recording increased concentrations for experimental group compared to control. In conclusion, the walnut meal supplements positively influenced the nutritional composition of broilers meat (thigh meat) in terms of crude fat deposition and lipids quality.

• Introduction

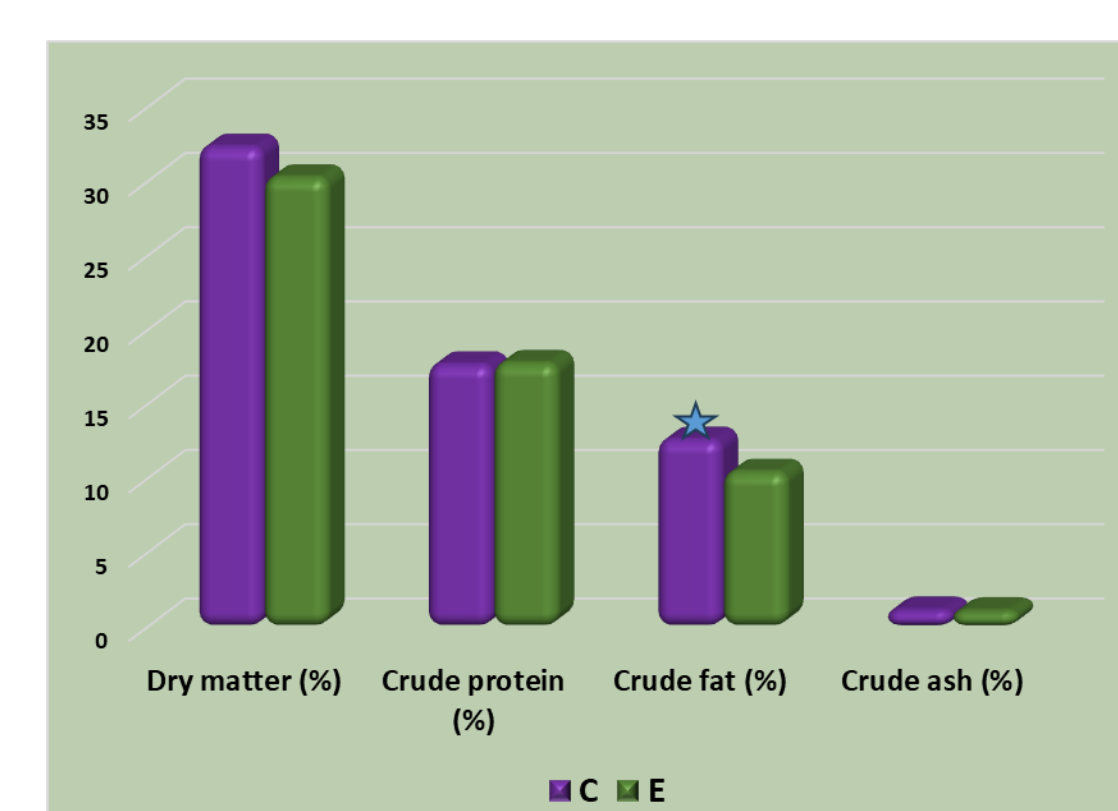
Walnuts are a good source of protein and fiber (Cosmulescu et al., 2009) in human nutrition, thanks to their rich content of nutrients such as magnesium, zinc, phosphorus, iron, and calcium, as well as vitamin E and B-complex vitamins. These nutrients support bone, skin, and hair health while also strengthening the immune system (Hayes et al., 2016). The aim of the study was to evaluate the walnut meal effects on performance of broilers and its potential to improve the nutritional quality of thigh meat.

• Material and method



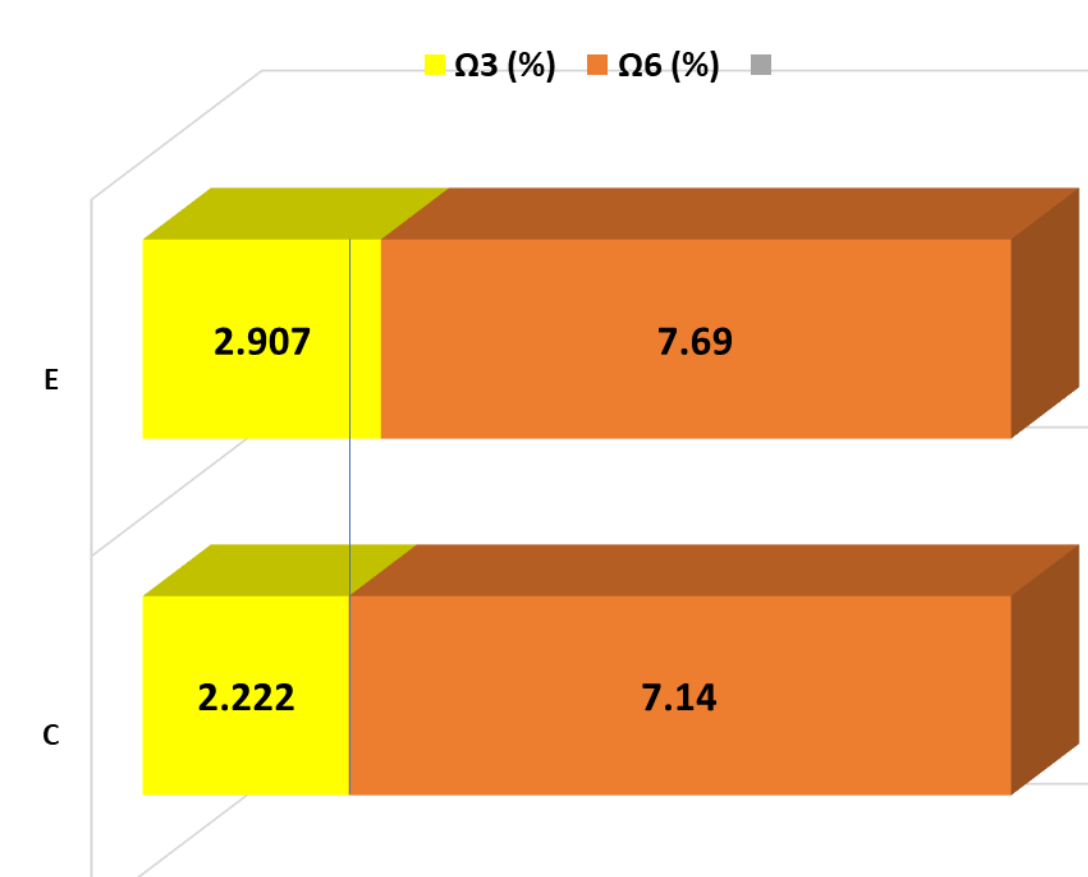
• Results and discussions

Parameter	Control	E1	SEM	P value
BWi (g)	352.7	347.3	5.88	0.5130
BWf (g)	3140	2821	45.65	0.0001
ADG (g)	92.91	82.47	1.371	0.0001
ADFI (g/broiler/day)	151.7	139.0	5.659	0.1160
FCR	1.61	1.62	-	-



Dietary supplements like walnut meal significantly decreased the performance parameters compared with control group.

Only crude fat was significant influenced by the walnut meal supplements present in broilers diets. The decreased concentrations of fats recorded in the experimental group are associated with the quality of lipids determined as fatty acids profile



Omega-3 concentrations were over 30% higher in the experimental group. The omega-6 to omega-3 ratio shifted closer to the ideal value of 1, indicating an improved lipid profile. LC-PUFA synthesis was stimulated by the nutritional supplements, as it is proved by EPA and DHA contents.

• Conclusions

According to the results presented in this study, walnut meal supplementation positively influenced the nutritional composition of broiler thigh meat, particularly in terms of crude fat deposition and lipid quality. The reduction in crude fat content, combined with an improved omega-3 fatty acid profile, results in leaner chicken meat with enhanced nutritional value. Moreover, the presence of long-chain fatty acids such as EPA and DHA in the lipid profile of samples from the experimental group highlights the relevance and significance of these findings for both human nutrition and medical applications.

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