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Integration of pomace and grape seeds in feed of broiler chickens: effect on the chemical characteristics of the meat

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Recently, consumer demand for healthier, safer, good quality food products has increased. The use of grape pomace and grape seeds, natural antioxidants rich in polyphenols and known for their ability to prevent lipid oxidation, has attracted significant interest and could become an important alternative as a partial substitute for vitamin E which is the most commonly used antioxidant in animal diets. In this context, the valorization and reuse of wine industry wastes could be a way to reduce costs for companies and damage to the environment [1]. The objective of this study was to evaluate the effect of adding different percentages of pomace and grape seeds to the diet of broiler chickens. Three experimental sets were prepared of broiler chicken feeds containing: 0%, 3% and 6% pomace, 0%, 3% and 6% grape seeds and a mixture of 3% pomace and 3% grape seed. The animals were and butchered fed for 7, 21 and 42 days of age; meats were weighted, cut into small pieces, and stored at -80°C. Then, they were freeze-dried to evaluate total polyphenolic content (TPC), antiradical activity by DPPH e ABTS methods [2], fatty acid content by GC-M. The results of dietary supplementation with different percentages of grape pomace and grape seeds show an increase in anti-radical activity (DPPH) and TPC with respect to control samples. The highest TPC and the highest TEAC (Trolox equivalent antioxidant activity) value, were recorded in broiler meats with the simultaneous presence of pomace and grape seeds in the diet (3%+3%), 4.21 mg GAE/g and 7.82 mmol TEAC/100g respectively. The same set of samples showed an increase in % PUFA (40.71%) compared to the control (21.00%) and this could be due to the fact that the grape by-products, slowed down lipid degradation reactions reducing oxidative rancidity and lengthening the shelf life of chicken meat [3]. The color, texture and oxidative stability of the meat were evaluated. Further research on the use of grape by-products in chicken broiler diets will be essential to evaluate the best supplementation rate that will ensure the meat's beneficial potential without compromising the birds' growth performance.

References

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