



Transforming Brewery Waste into High-Protein, Lean Chicken Feed: BrewGrow Poultry

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Abstract

Brewer's spent grain, a major by-product of the brewing industry, is a valuable feed source because of its high protein, fibre, and essential nutrient content. Adding BSG to poultry diets is a sustainable way to cut feed costs, minimise environmental waste, and promote circular agriculture. It can help create more environmentally friendly livestock farming systems, increase chicken production, and improve resource efficiency by being used as a substitute feed component. This research assesses the effects of replacing standard feed with brewers spent grain on the poultry meat texture, sensory attributes and lipid oxidation value. The research involved two groups of broiler breeds raised at the same farm in Mostaganem area. The results showed significantly higher animals in the experimental group exhibited a reduced total fat level in their meat. However, the concentration of Vitamin C was significantly higher ($p<0.05$) and more prevalent in meat from animals raised DBSG. A significant difference ($p<0.001$) was noted in MDA amounts between meats from both groups. The highest rate of meat acceptance by tasters was observed in the group of animals that included DBSG in their diet compared with the control group. This group also exhibited more tender meat coloration and lower lipid oxidation rates. ($p<0.001$). Brewer's spent grain enhanced the quality of meat by producing leaner, lower-fat meat with appealing sensory attributes. As a result, consumers indicated that they preferred meat from animals fed spent grain from breweries. These findings suggest that brewer's spent grain is a sustainable feed ingredient that enhances meat quality and consumer acceptability.

Keywords: Brewery byproducts, consumer, feeding diet, oxidation, texture

