Effect of Storage Time of Dietary Rice Polish on Growth Performance and Meat Quality of Broiler Chicken

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This study examined the effects of dietary rice polish storage time on broiler chicken growth performance and meat quality. Ninety-six male, Cobb 500, 1-day old chicks were randomly allotted into 4 treatment groups (n=4 and 6 birds per replicate). The birds were fed with one of the four isonitrogenous and isoenergetic experimental diets: a commercial-like control diet (without inclusion of rice polish) and three diets containing rice polish stored for <24 hours, 1 week or 35 days. Feed consumption was measured daily, and body weights were measured weekly. After 35 days of feeding period, weights of the carcass & breast muscle, and the weights & lengths of the digestive tract organs were measured. The ileal contents of 16 birds (1 from each replicate) were collected. Breast muscle was stored at 4 °C until the analysis of meat quality characteristics. The birds fed diets containing rice polish stored for 1 week and 35 days showed significantly ($P<0.05$) lower live weight, weight gain, feed intake and feed conversion ratio than the birds fed control diet. The birds fed rice polish stored for <24 hours showed no difference in growth performance with the control birds. Feeding rice polish stored for 1 week and 35 days also significantly ($P<0.05$) decreased ileal fat digestibility and significantly ($P<0.05$) increased relative digestive tract organ weights and lengths. Furthermore, these birds showed significantly ($P<0.05$) higher TBARS (2-thiobarbituric acid reactive substances) values in meat than the birds fed control diet. There were no significant differences in other meat quality characteristics (cooking loss, drip loss, water holding capacity, pH and color) and ileal protein digestibility among the dietary groups. In conclusion, dietary inclusion of rice polish stored for extended time periods (over 1 week) can negatively affect the growth performance and meat TBARS values in broiler chicken.

Keywords: Broiler chicken, Digestibility, Growth performance, Meat quality, Rice polish

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