

Effect of Dietary Dehydrated Pasture and Citrus Pulp on the Performance and Meat Quality of Broiler Chickens

J. L. Mourão,^{*1} V. M. Pinheiro,^{*} J. A. M. Prates,[†] R. J. B. Bessa,[‡] L. M. A. Ferreira,[†]
C. M. G. A. Fontes,[†] and P. I. P. Pontes[†]

**Centro de Ciência Animal e Veterinária – Universidade de Trás-os-Montes e Alto Douro, Apartado 1013, 5000-911 Vila Real, Portugal; †Centro de Investigação Interdisciplinar em Sanidade Animal – Faculdade de Medicina Veterinária, Pólo Universitário do Alto da Ajuda, Avenida da Universidade Técnica, 1300-477 Lisboa, Portugal; and ‡Estação Zootécnica Nacional, Instituto Nacional de Investigação Agrária e das Pescas, Fonte Boa, 2005-048 Vale de Santarém, Portugal*

ABSTRACT Some feedstuffs containing significant levels of fiber may be a good source of bioactive compounds that may contribute to improving broiler meat quality. However, high fiber level can have a negative impact on broiler performance. A study was undertaken to investigate the impact of incorporating citrus pulp (5 or 10%) or dehydrated pasture (5 or 10%) on the performance, carcass yield, and characteristics of broiler chickens. A diet containing neither citrus pulp nor dehydrated pasture was used as control. The results on growth performances showed that daily weight gain was reduced by 26% in birds of the 10% citrus pulp treatment ($P < 0.05$). Compared with the control treatment, increases in feed intake occurred in birds consuming diets with 5 or 10% citrus pulp, which resulted in significantly higher feed conversion rates with the 10% level. Under the same incorporation rate, dehydrated pasture had effects less evi-

dent on the performances of broiler chicken. In addition, diets containing citrus pulp, displaying higher percentages of soluble nonstarch polysaccharides, increased small intestine relative length, and reduced carcass yield. Inclusion of 10% dehydrated pasture in diets resulted in improved breast skin yellowness ($P < 0.05$). Finally, the results revealed that incorporation of the nonstarch polysaccharide-rich feedstuffs had a major impact on the fatty acid profile (affected 16 of 21 fatty acids) of broiler meat. Polyunsaturated fatty acids content in meat was higher in birds consuming the highest levels of both citrus pulp and dehydrated pasture, leading to increased ratios of polyunsaturated to saturated fatty acids. Together, the results suggest that incorporation of moderate levels of dehydrated pastures in poultry diets has a minor impact on broiler performance and can contribute significantly to improve breast skin yellowness and fatty acid composition of meat.

Key words: citrus pulp, dehydrated pasture, broiler chicken, fatty acid profile, polyunsaturated fatty acid/saturated fatty acid

2008 Poultry Science 87:733–743
doi:10.3382/ps.2007-00411

©2008 Poultry Science Association Inc.
Received October 4, 2007.
Accepted December 28, 2007.
¹Corresponding author: jlmourao@utad.pt