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“Solidarity in a competing world —
fair use of resources”

Evaluation of Rumen Filtrate for Fermentation of Sweet Orange (*Citrus sinensis*) Peel in Rabbit Feed

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Abstract

Feeding costs account for about 70% of the total cost of non-ruminant animal production in Nigeria. A ninety-one day feeding trial was conducted using thirty (30), 6–7 week old mixed breed weaner rabbits at the Federal University of Agriculture Makurdi, Nigeria from October 10, 2015 to January 9, 2016. The objective was to determine the potential of filtrate from rumen content mixed with water, to improve the nutritive value of Sweet orange (*Citrus sinensis*) peel by fermentation. The filtrate was obtained from the rumen content of cattle and drinking water mixed in equal ratio (1:1). The filtrate was added to 5 kg each of freshly collected sweet orange peel in ratio 1:5 (T1), 2:5 (T2), 3:5 (T3), 4:5 (T4) and 5:5 (T5). Each was mixed thoroughly, put in polythene bags and sealed on top, left under shade of tree to ferment for 24hrs, and thereafter sun-dried. Each of these was milled and used to replace maize in a practical rabbit diet (D) at 30% level. Five rabbits, individually housed in a rabbit hutch and each serving as a replicate were randomly assigned to and fed diets D, T1, T2, T3, T4 and T5. The experimental diets had significant effect ($p < 0.05$) on the final live body weight and daily body weight gain with rabbits in treatment T5 having superior weights of 1928 g and 15.85 g, respectively. The experimental diets had no significant effect ($p > 0.05$) on percent live weight of liver, kidney, lung, heart and spleen and, on the coefficient of digestibility of dry matter, crude protein, crude fibre, ether extract, nitrogen free extract and total digestible nutrient. Of the carcass yield indicators determined (dressing percentage, fore limb, hind limb and loin), the experimental diets significantly affected ($p < 0.05$) only the loin, with the rabbits in T5 having a comparatively higher weight. The results obtained showed that filtrate obtained from a mixture of the rumen content of cattle and water in ratio 5:5 can be used to ferment sweet orange peel to improve its nutritive value for maize replacement at 30% in rabbit feed.

Keywords: Orange peel, rabbit, fermentation, filtrate, rumen content