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The effects of the physical form of feed and phytase supplementation on feed retention time in broilers

N S B M Atapattu* and N D C Sirisena
Department of Animal Science, Faculty of Agriculture, University of Ruhuna, Kamburupitiya

Two experiments were conducted to determine the effects of feed physical forms and the dietary phytase supplementation on the feed retention time in the gastro-intestinal tract of broiler chicken. In the first experiment, 32-days old broiler chicks (n=24) were deprived of feed for 8 hours and then they were offered one of the four experimental diets. Dietary treatments were two physical forms (pellets or mash) given either in wet or dry form. Mash feeds were prepared by grinding pelleted feeds. Wet feeds were prepared by mixing feed with water at 1:1 ratio. Each treatment combination was tested on six birds giving a 2 * 2* 6 factorial arrangement. The time taken from the ingestion of feed to the expulsion of the first faecal pellet was considered as the time of digesta retention. In the second experiment, two mash form diets were formulated and prepared. One of the diets was supplemented with 1000 FTU of microbial phytase while the other diet contained no microbial phytase. As in the experiment one, both diets were given either in wet or dry form. This experiment was conducted on 40 days old birds. In the first experiment, pelleting or wetting did not significantly change the digesta retention time. However, the retention time of feed of wet mash was numerically lower compared to dry pellets. The digesta retention time varied from 162 minutes for wet mash to 182 minutes for dry pellets. The phytase supplementation also did not significantly affect the feed retention time. The mean digesta retention time increased from 173 minutes in the first experiment to 183 minutes in the second experiment. Elongation of the digestive tract during day 32 to 40 may have increased the retention time in the second experiment. It was concluded that pelleting, wetting or phytase supplementation of broiler diets have little effect on the retention time of digesta in the digestive tract. Retention time increases as birds grow due to the elongation of the digestive tract.

* mahindaatapattu1@yahoo.com Tel: 041-2292200