NUTRITIONAL AND BACTERIOLOGIC EVALUATION AS PART OF A RAW MEAT QUALITY CONTROL PROGRAM

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Abstract

Six lots of raw horsemeat diet (Zoo Carnivore Diet, Dallas Crown, Inc., Kaufman, TX 75142 USA) were analyzed in triplicate for selected nutritional and bacteriologic components. Aliquots of frozen meat were submitted to a commercial laboratory (Dairy One, Inc., Ithaca, NY 14850 USA) to determine proximate composition, mineral levels, and gross energy. Additional aliquots were thawed at 10°C for 44 hr, and then maintained at 37°C for an additional 24 hr. Positive control samples were created by adding lyophilized microorganism preparations (E^{power}™ Microorganisms, MicroBioLogics, Inc., St. Cloud, MN 56303 USA) to aliquots. During thawing (T = 0, 24, 44, 68 hr), the samples were screened for *Salmonella* spp. using an enzyme-linked immunosorbent assay (Reveal®, Neogen® Corporation, Lansing, MI 48912 USA), and numbers of *Escherichia coli* and coliform bacteria were determined using a ready-made culture medium system (3M™ Petrifilm™ E. coli/Coliform Count Plate, 3M™ Microbiology Products, St. Paul, MN 55144 USA).

Mean percentages of crude fiber and moisture were below guaranteed maximum values for each lot. However, mean levels of crude fat, sodium, calcium, and phosphorus for each lot were below the guaranteed minimum values. Mean crude protein levels were below the guaranteed minimum values in four of six lots.

One aliquot was weakly positive for *Salmonella* spp. at T = 0, but negative at all subsequent time points. Frozen meat samples had low numbers of *E. coli* and coliform bacteria. Coliform bacteria typically increased with length of thaw, but changes in *E. coli* numbers over time were less predictable.

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