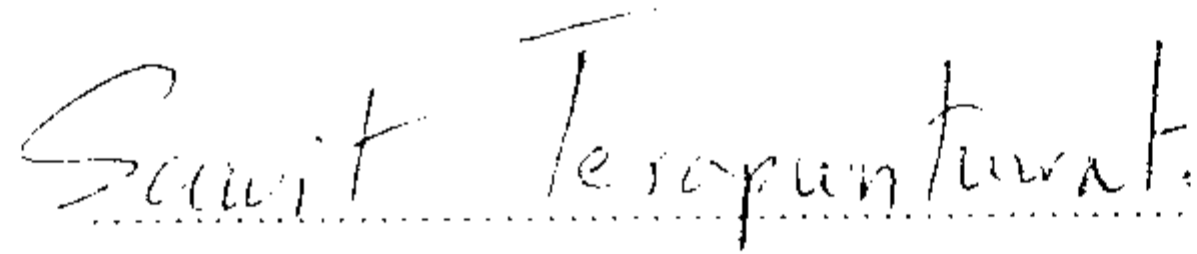


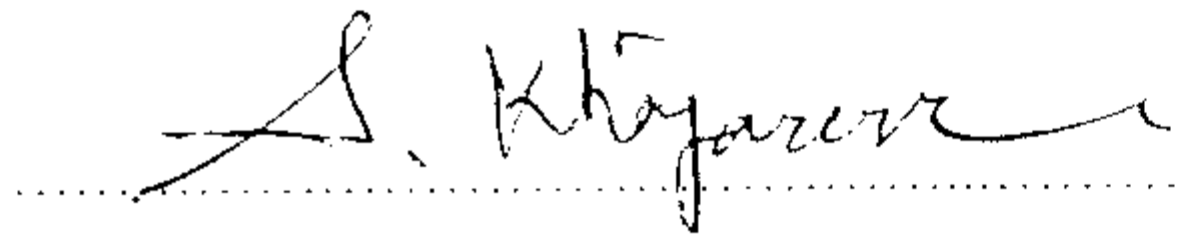
**THESIS TITLE :** STUDIES ON THE NUTRITIVE VALUE OF VARIOUS  
QUALITY MEAT MEALS IN BROILER FEEDS

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### **ABSTRACT**

The studies were conducted to evaluate the nutritive value of three meat meals : 60 percent protein (M-60); 70 percent protein (M-70); and 75 percent protein (M-75). The physical characterisization by using stereoscopic microscopy revealed that the M-60 meat meal had rather coarse texture and was apparently adulterated by small particles of bone while the M-70 and M-75 were very fine and soft with trace contamination of hair. The bulk density of the three meat meals ranged between 488.66 to 598.00 g/L. The proximate composition showed that the meat meals M-60, M-70 and M-75 contained between 59.06-60.69, 66.94-71.06 and 72.88-73.13 percent crude protein, and 4.10-7.47, 3.82-5.84 and 4.74-5.69 percent crude fat, respectively. Ash percentage in the M-60 (23.29-26.85 percent) was higher than in the M-70 (19.40-19.59 percent) and M-75 (14.84-19.01 percent) meat meals. Calcium phosphorus ratios were similar among the meat meal

samples. Gross energy of the three meat meals ranged between 4,159-4,576 kcal/kg. When calculated on the basis of protein content, methionine in the M-75 was lower than those in the M-60 and the M-70 meat meals but the value of cystine in M-75 was higher than in other meat meals. Lysine content of the M-60, M-70 and M-75 ranged between 4.21-5.51, 4.88-5.47 and 4.19-4.52 percent, respectively. In feeding experiment I, two levels (5 and 10 percent in starter and 4 and 8 percent in finisher) of these three meat meals were incorporated in the corn-soybean-fish meal broiler rations. A total of 420 day-old Abor Acres broiler chicks were used in the experiment. The experimental design was Completely Randomized Design (CRD) with 7 treatments, 3 replications of 20 chicks each. It was found that the chick on the diets containing the lower level of meat meal had similar ( $P>0.05$ ) feed intake, body weight gain, feed efficiency and protein efficiency ratios with those of the control. At the higher rate of meat meal incorporation, feed intake, body weight gain, feed efficiency and protein efficiency ratio of the broiler were poorer ( $P<0.05$ ) than the rests. The chicks fed high level of M-75 had lower ( $P<0.05$ ) body weight (1,327.40 g) and poorer ( $P<0.05$ ) protein efficiency ratio (2.73) than the controls (1,586.33 g and 3.05, respectively). Chicks on the high-level meat meal had a higher content of abdominal fat ( $P<0.05$ ) when compared to the control. However, weight of breast and leg meat of all experimental birds were similar ( $P>0.05$ ) across treatments. The results indicated that the growth performance of broilers tended to be reduced as the level of meat meals in the rations increased. It might be caused by the poorer balance of essential amino acids in the diets containing a higher levels of meat meals. Experiment II, six meat meal based diets were tested against a corn-soybean-fish meal based control broiler ration. A total of 1,260 day-old Abor Acres broiler chicks were used in the experiment. The experimental design was Completely Randomized Design (CRD) with 7 treatments, 3 replications of 60 chicks each. The three meat meals were separately incorporated into the corn-soybean meal-fish meal based broiler diets at the levels of 10 percent in the starting (0-3 weeks) and 8 percent in the finishing (3-6 weeks) periods. Each meat meal diet was supplemented with lysine, methionine plus cystine at either the NRC

(1984) or higher NRC (1984) 10 percent recommended levels. It was found that, at the NRC (1984) amino acids supplementation, feed intake of broiler fed any kinds of meat meal were not significantly different ( $P \geq 0.05$ ); however, those fed with the M-75 meat meal had lower ( $P < 0.05$ ) body weight gain and also poorer ( $P < 0.05$ ) in both feed efficiency and protein efficiency ratios than the controls. At the 10 percent amino acids supplementation, the broilers fed with the M-75 based-diet had lower in both body weight gain and feed consumption and also poorer in both feed efficiency and protein efficiency ratios than the rests. However, abdominal fat content of carcass of the broilers fed M-70 and M-75 based-diets were heavier ( $P < 0.05$ ) than on other treatments. In addition, the breast meat of carcass of the broilers fed M-75 based-diets was lighter ( $P < 0.05$ ) when compared to the control.