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Two studies were conducted to investigate the effect of DL-Methionine (DL-Met) and DL-Methionine Hydroxy Analogue (DL-MHA) in 600 male broiler chickens. These studies was a completely randomized design of treatments. First experiment was carried out to investigate the effect of methionine sources on production performance, evidence of ascites syndrome and blood metabolites. One hundred and fifty chicks were separated into 3 groups (raised in floor pens) consisted with 6 replications (25 chicks per replicate) and experimental diets were given as follow; 1. diet deficient in methionine (negative control group), 2. diet supplemented with DL-Met and 3. diet supplemented with MHA (1.25 times of DL-Met group). A adding methionine sources significantly improved growth performance, carcass quality and breast meat, while reduced abdominal fat content ($P<0.05$). However, there were no significant differences between two sources of methionine on production performance. For evidence of ascites syndrome, there were no differences among groups in packed cell volume, plasma triiodotyronine and heart characteristic, but decreased the heart weight when supplemented methionine in diet. In addition, adding methionine sources significantly enhanced plasma uric acid level while it had no effects on serum concentration of triglyceride and non-esterified fatty acid. In the second experiment, the aim was to order to investigate the effect of methionine sources on pH level, accumulation of mineral, liver of chemical composition and triglyceride level. Chicks were raised in metabolic cage during 14-21 days and 35-42 days and they were fed the same diet as in the first experiment. Chicks were separated into 3 groups consisted with 6 replications of 1 chicks each. A DL-MHA had highly significantly decreased pH level in diet feed compare of to un-supplemented group and DL-Met supplementation ($P<0.01$). There were not effects of adding methionine source on pH in digestive tract and fecal. Adding methionine group had higher fecal weight than the un-supplemented group and had significantly decreased calcium and phosphorus utilization ($P<0.05$). Although, no have effect on protein and fat utilization. Furthermore, Both of adding DL-Met and DL-MHA groups had increased liver weight but have no effect on liver chemical composition. While, nutrient accumulation in tibia found that both of adding DL-Met and DL-MHA groups had increased calcium phosphorus and protein accumulation because had highly significantly increased tibia weight ($P<0.01$). However, DL-MHA supplementation had significantly increased bending strength in tibia bone ($P<0.05$).

Ratchadaporn Chaiyapit
Student's signature

Kanchana Markvichitr 25 / 10 / 2006.
Thesis Advisor's signature