

# Effect of Using *Cuminum cyminum* L, Citric Acid and Sodium Sulphate for Improving the Utilization of Low Protein Low Energy Broiler Diets

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**Abstract :**

Three hundred one day-old of unsexed Cobb broiler chicks were used in present study to examine the ability of *Cuminum cyminum* L (CC), Citric Acid (CA) or Sodium Sulphate (SS) either alone or in combination to increase nitrogen retention and utilization of the Low Protein Low Energy Diet (LPLE), containing 4% lower protein and 200 kcal/kg lower energy than control diets. At 42 days of age, LPLE diets decreased weight gain and degrade feed conversion by 23.24% and 19.47%, respectively compared to control diet. Besides, LPLE diet decreased daily nitrogen excretion by 25.92% compared to control diet. Supplementing LPLE diet with CC, CA and SS together improved weight gain, feed conversion and nitrogen retention percentage by 7.21, 6.16 and 16.69%, respectively. Compared to control diet, the combination of such feed additives succeeded in reducing daily nitrogen excretion by 64.81%. It can be conclude that the three additives used in present study work in synergy under low protein and low energy conditions. Further studies are needed to determine the optimum level of these additives mixture with different levels of protein and energy.

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**Key Word :**

Cuminum cyminum L, citric acid, sulphate, low protein energy diet

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