Effect of synthetic emulsifier and natural biosurfactant on feed process and quality of pelletized feed in broiler diet

ABSTRACT

A feed production trial was conducted to study the effect of synthetic emulsifier and natural biosurfactant the process and quality of pelletized broiler feed. A corn-soy based broiler diet was formulated with fixed ratio 2:1 of oil-to-water with two types of emulsifiers, namely glyceryl polyethylene glycol ricinoleate synthetic emulsifier and lysophosphatidylcholine natural biosurfactant. T1: Basal diet with no water and no emulsifier; T2: Basal diet with water and no emulsifier; T3: Basal diet with water and synthetic emulsifier glyceryl polyethylene glycol ricinoleate; T4: Basal diet with water and a natural biosurfactant lysophosphatidylcholine as comparative treatment. The treatment diets were manufactured by a commercial feed mill. The electricity cost and meal temperature were measured during the process of milling. Composite samples were collected from different processed points, tested for physical properties, chemical stability and biostability of pelletized feed. Pellet quality of emulsifier supplemented diets was significantly ($p<0.05$) improved in crumble and pellet intact form. Correlation between emulsifier and pelletize processed cost was not observed in this present study. No deteriorate effect was observed in hydrolytic rancidity (AV), oxidation rancidity (PV), mold count, moisture content and water activity. However, percentage of starch gelatinization on pelletized feed was significantly ($p< 0.0001$) improved in both types of emulsifier treated diets. These results demonstrated that the addition of emulsifier to broiler diet improved pellet quality to some extent although significant difference between synthetic emulsifier and natural biosurfactant was not observed.

Keyword: Emulsifier; Feed intact form; Pellet durability index; Pellet quality; Starch gelatinization