A floor pen study was conducted to evaluate effect of a protease (CIBENZA® DP100, Novus International, Inc.) and an NSP enzyme blend (CIBENZA® CSM, Novus International, Inc.), when used alone or in combination, on growth performance and carcass parameters of broilers. The study consisted of 4 treatments in a 2x2 factorial arrangement with 2 levels of protease (0 or 300 units/g) and 2 levels of NSP enzyme (0 or 1000 units xylanase, 75 units β-glucanase, and 12.5 units α-galactosidase/kg). The diets were wheat (30%), corn, and SBM based containing DDGS (5-10%) and they were formulated to meet minimum requirements of broilers for starter (0-19 d), grower (19-35 d) and finisher (35-42 d) periods. All diets were pelleted and starter diets were crumbled after pelleting. Each diet was fed to 8 replicate pens of 18 male broilers. Body weight, feed intake, FCR, and mortality were determined at 19, 35, and 42 d. On d 22, digesta samples were collected to measure viscosity. Carcass parameters including dressing percentage, breast yield, and fat pad weight were obtained on d 43. Data were analyzed as a 2x2 factorial arrangement and a P-value of ≤ 0.05 was considered significantly different. On d 19, NSP enzyme significantly increased body weight (P=0.032) and improved FCR (P=0.018) regardless of protease supplementation. On d 35, feed conversion ratio was significantly improved by either NSP enzyme (P=0.002) or protease (P=0.041) and there was no interaction between them (P=0.928). On d 42, protease significantly improved FCR (P=0.018) whereas NSP enzyme tended to improve FCR (P=0.058) and their interaction was not significant (P=0.348). Digesta viscosity was reduced 26% by NSP enzyme (P=0.003) regardless of protease supplementation. Processing parameters were not significantly affected by dietary treatment (P>0.05). The study demonstrated that in broilers fed wheat corn SBM based diets containing DDGS, protease and NSP enzyme supplementation were able to improve FCR and their effect was independent of each other.

Key words: broiler, protease, NSP enzyme