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Effect of level of Natuzyme® on methane production in diets with various forage sources*M. Danesh Mesgaran, E. Parand, A. Faramarzi Garmroodi and A. Vakili**Ferdowsi University of Mashhad, Mashhad, College of Agriculture, Department of Animal Science, 0098, Iran; danesh@um.ac.ir*

This experiment aimed to investigate the effects of level of Natuzyme® (Bioproton Co.) on *in vitro* gas production (GP, ml/200 mg DM), dry matter disappearance (IVDMD) methane production (MET, ml/200 mg DM) and fermentation efficiency as mg IVDMD per ml MET (FE) of various ruminant diets containing wheat straw (D1: 6.2% wheat straw, 39.4% corn silage) or alfalfa hay (D2: 21.3% alfalfa, 37.2% corn silage) at half time (t1/2) of gas production. Approximately, 200 mg (DM) of each diet was weighted in a 125 ml serum bottle, while 24 h prior to incubation each bottle received 0.84, 1.68 and 2.52 g/kg DM of the enzyme (E1, E2 and E3, respectively) in an aqueous suspension to maintain same moisture content (40%), run=3 and n=3. The gas production procedure was followed by pipetting buffered rumen fluid into the bottles and incubated at 38.6 °C for desired intervals. In a pre-trial, pressure of gas was recorded at 2, 4, 6, 8, 10, 12, 24, 48, 72 and 96 h of incubation. Pressure data was converted to volume using an experimental curve and was modeled to estimate t1/2. Main trial incubation was continued until t1/2 and volumes of GP and ME, and residual DM was measured. Data were analyzed as 3×2 factorial arrangement in a completely randomized design. Results showed that D1 compared with D2 had higher FE (6.77 vs. 5.59), less GP (33.68 vs. 35.71) and MET (9.20 vs. 10.87), (P<0.05). In addition, both E2 and E3 compared with E1 had significantly (P<0.05) higher GP (36.70 and 36.75 vs. 30.63) and MET (10.81 and 10.39 vs. 8.91). The IVDMD was significantly (P<0.05) higher in E3 than those of the E1 and E2 (33.90 vs. 27.90 and 28.40, respectively). It seems that combination of improved IVDMD and FE using E3 comparing with E1 and E2 could be advantageous but the outcome can vary considering type and forage content of diet.

Effect of a combination of plant extracts on milk persistency and somatic cell counts of dairy cows*C. Gerard¹ and M.L. Le Ray²**¹In vivo NSA, R&D Department, Talhouet, 56250 Saint Nolff, France, ²NEOVIA feed additives, Talhouet, 56250 Saint Nolff, France; cgerard@in vivo-nsa.com*

For dairy cows, total milk production per lactation is largely dependent on the shape of the lactation curve, which can be described through 2 main parameters: peak yield and milk persistency after the peak. These parameters are mostly negatively correlated. Hence, finding nutritional strategies improving milk persistency could be a way to enhance productivity of dairy herds. In this context, the specific supply of a plant extracts combination was tested on 24 (control) + 24 (supplemented) dairy Holstein cows (average milk production =30 kg/day) fed with a diet composed of 48% corn silage, 35% pasture, and 17% complete feed. Most of the cows had passed the lactation peak at the beginning of the trial (average Days in Milk =101). Comparisons of milk production data were done through ANOVA, data of milk somatic cell counts (SCC) were analysed through the Chi² method, after classification of the samples in 4 groups according to their SCC level. The results showed a statistically relevant higher average milk production for the supplemented group (+ 0.6 kg/day), essentially linked to a strong higher milk production (+2.3 kg/day) observed for the highest producing cows (initial milk production over 30 kg). Even if milk fat and milk protein contents were slightly lower for the supplemented group, total milk protein and fat exportations were not affected by the plant extracts supply. When only the highest producing cows were considered, milk protein production was even slightly enhanced (+ 4%). In terms of SCC, the proportion of milk samples containing more than 250,000 SCC was significantly lower for the supplemented group (9 vs. 30% for the control group) during the trial period. This trial showed that the use of specific plant extracts could improve milk production through an enhancement of milk persistency after the peak, especially for high producing cows, and could have beneficial effects on milk SCC levels.