Effects of dietary oil supplementation on the rumen ciliate protozoa and fiber degrading bacteria in goats

ABSTRACT

Oil supplementation in the ruminant diet has been proven to reduce the rumen protozoa population and maintain their low amount during supplementation. Majority of oil that contains medium chain fatty acids are also known to reduce cellulolytic bacteria. This experiment was conducted to study the effect of different types of oil supplementation on the protozoa and fiber-degrading bacteria population in goats. Sixteen male goats equipped with rumen cannula were assigned to four experimental dietary treatments. The first group acted as the control group (CON) and received the basal diet. The second group (OL) received the basal diet with the supplementation of olive oil, whereas the third group (SO) and fourth group (PL) received the basal diet supplemented with sunflower and palm olein oils, respectively. The rumen content of each animal was collected for pH measurement as well as enumeration of the rumen protozoa and fiber-degrading bacteria. The rumen pH level was affected by sampling days ($P<0.05$). The total protozoa counts were higher in the CON compared to the other treatments, which the OL group had the lowest rumen protozoa counts and were significantly affected ($P<0.05$) by the diet and day of sampling. Treatment groups did not affect Fibrobacter succinogenes, Ruminococcus albus and Ruminococcus flavefaciens populations, but there were significantly affected ($P<0.05$) by day of sampling and the interaction of treatment ? day. In conclusion, dietary oils supplementation affects the rumen protozoa population, but the effects on bacteria population are not extensive.

Keyword: Rumen protozoa; Fiber degrading bacteria; Olive oil; Palm olein oil; Sunflower oil