

Effects of vegetable oil supplementation on rumen fermentation and microbial population in ruminant: a review

ABSTRACT

Understanding the nature of ruminant nutrition and digestion is essential to improve feeding management and animal production. Among many approaches, manipulating ruminant nutrition and fermentation through feed supplementation is being practised and researched. Over the last decade, the utilization of vegetable oils in feed formulation and their effects on various aspects of ruminants have been reported by many researchers. It is important to understand the lipid metabolism in ruminants by microorganisms because it affects the quality of ruminant-derived products such as meat and milk. Majority of vegetable oil supplementation could reduce rumen protozoa population in ruminants due to the effects of medium-chain fatty acids (FAs). However, vegetable oil also contains unsaturated FAs that are known to have a negative effect on cellulolytic bacteria which could show inhibitory effects of the fibre digestion. In this paper, the physiology of nutrient digestion of ruminants is described. This paper also provides a current review of studies done on improvement and modification of rumen fermentation and microbial population through vegetable oil supplementation.

Keyword: Rumen fermentation; Rumen microbial population; Rumen protozoa; Vegetable oil supplementation