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Performance and Nutrient Digestion of Lambs Fed Incremental Levels of Wild Cactus (*Opuntia leucotrichia*)

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Abstract

In northern Mexico *Opuntia leucotrichia* (OL) is abundant and widely distributed. Traditionally, OL cladodes are used as emergency feed for livestock during dry seasons; however, scarce research has been carried out using OL cladodes on high production diets for sheep. The aim of this study was to evaluate growing performance, nutrient digestion and rumen parameters of lambs fed incremental levels of OL. Two simultaneous trials were conducted to evaluate five isoenergetic and isonitrogenous diets containing different levels of OL: 0%, 10%, 20%, 30% or 40%, dry matter basis. In a performance trial one, fifty intact Rambouillet × Dorper male lambs (10 lambs × diet) of 19±2.8 kg of body weight, were randomly assigned to experimental diets. Data was analysed as complete block design. In trial two, five ruminal cannulated Rambouillet male rams were used in a digestion study. Ruminal pH, and ammonia-N were also estimated. Data was analysed as a 5 × 5 latin square design. About 25% of immature cladodes of each plant were harvested then were singed-off of spines by burning, chopped in a $\frac{3}{4}$ HP helicoidal mill and mixed to diets. Dry matter intake of lambs was significantly higher for 0% (1344 g d⁻¹) diet than 10% (1153), 20% (1098), 30% (955) or 40% diet (982). The average daily gain of lambs was also significantly different among diets (329 g d⁻¹, 227, 212, 185 and 253, respectively). Feed efficiency was significantly higher for 20% diet (5.2) followed by 30% (4.5), 10% (4.3), 40% (4.1) and 0% (4.1) diet. As could be expected, water intake (3.8 l d⁻¹ 3.3, 2.1, 1.3 and 0.8, respectively) decreased as consumption of OL increased. Digestibility of dry matter, organic matter, cell wall and lingo-cellulose was not significantly different among treatments; however, crude protein was digested higher ($p < 0.05$) in lambs fed 40% diet (72%) than other lambs (mean = 69). Ruminal pH (mean = 6.1) and ammonia-N (13.8 mg dl⁻¹) were not significantly different among treatments. Inclusion of OL on feedlot lambs diets is a good option for production systems where this resource is available.

Keywords: Growing performance, lambs, nutrient digestibility, *Opuntia leucotrichia*