



Effect of *Juniperus monosperma* on Rumen Bacterial Diversity

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Juniper encroachment and subsequent loss of abiotic components and biotic communities is a problem for rural residents of the United States. One proposed method for reduction of Juniper encroachment is to allow small ruminants to intensively graze infested areas. Juniper shrubs contain terpenes that are antimicrobial in nature and may be detrimental to microbial populations in the rumen. A reduction in the viability of the rumen microbial population could result in decreased diet digestibility. This study was performed to determine the effect of *Juniperus monosperma* (JM) consumption on rumen bacterial population diversity using six crossbred wethers (32.3 + 1 kg). A 3 X 3 Latin square was used to test the effect of JM or alpha-pinene addition to a basal diet of Old World Bluestem/Buffalo Grass hay. Dietary treatments included 1. JM at 20% of dry matter intake, 2. alpha-pinene at a naturally occurring level in JM, and 3. basal diet. Samples of rumen fluid were collected by orally three times a week. Ruminal fluid DNA was extracted and DGGE was performed. Number of bands in a lane on a DGGE gel is an indication of bacterial diversity. Diet did impact the total number of bands within a lane on a DGGE gel with the JM treatment having the greatest number of bands compared to alpha-pinene and basal diet ($P = 0.05$). These data indicate that JM is not harmful to the rumen bacterial population and the mixture and levels of terpenes present may encourage an increase in rumen microbial diversity.

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