World Academy of Science, Engineering and Technology
International Journal of Animal and Veterinary Sciences
Vol:14, No:10, 2020

Chemical Composition and Nutritional Value of Leaves and Pods of Leucaena Leucocephala, Prosopis Laevigata and Acacia Farnesiana in a Xerophyllous Shrubland

Authors : Miguel Mellado, Cecilia Zapata

Abstract : Goats can be exploited in harsh environments due to their capacity to adjust to limited quantity and quality forage sources. In these environments, leguminous trees can be used as supplementary feeds as foliage and fruits of these trees can contribute to maintain or improve production efficiency in ruminants. The objective of this study was to determine the nutritional value of three leguminous trees heavily selected by goats in a xerophyllous shrubland. Chemical composition and in vitro dry matter disappearance (IVDMD) of leaves and pods from leucaena (Leucaena leucocephala), mesquite (Prosopis laevigata) and huisache (Acacia farnesiana) is presented. Crude protein (CP) ranged from 17.3% for leaves of huisache to 21.9% for leucaena. The neutral detergent fiber (NDF) content ranged from 39.0 to 40.3 with no difference among fodder threes. Across tree species, mean IVDMD was 61.6% for pods and 52.2% for leaves. IVDMD for leaves was highest ($P < 0.01$) for leucaena (54.9%) and lowest for huisache (47.3%). Condensed tannins in an acetonic extract were highest for leaves of huisache (45.3 mg CE/g DM) and lowest for mesquite (25.9 mg CE/g DM). Pods and leaves of huisache presented the highest number of secondary metabolites, mainly related to hydrobenzoic acid and flavonols; leucaena and mesquite presented mainly flavonols and anthocyanins. It was concluded that leaves and pods of leucaena, mesquite and huisache constitute valuable forages for ruminant livestock due to its low fiber, high CP levels, moderate in vitro fermentation characteristics and high mineral content. Keywords: Fodder tree; ruminants; secondary metabolites; minerals; tannins

Keywords : fodder tree, ruminants, secondary metabolites, minerals, tannins
Conference Title : ICTAS 2020 : International Conference on Tropical Animal Science
Conference Location : Dublin, Ireland
Conference Dates : October 22-23, 2020