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The Evaluation of Substitution of Acacia villosa in Ruminants Ration

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Abstract : Acacia villosa is thornless shrub legume which contents high crude protein. However, the utilization of A. villosa as ruminant feed is limited by its secondary compounds. The aim of this article is to find out the maximum of substitution A. villosa in sheep ration. The nutritional evaluation consisted of in vitro two stages, in vivo, and in vitro gas production trials. The secondary compounds of A. villosa also were analyzed. Evaluating digestibility of increasing level of substitution A. villosa replacing Pennisetum purpureum was using in vitro two stages. The substitution of 30% A. villosa was compared to 100% P. purpureum by in vitro gas production technique and in vivo digestibility. The results of two stages in vitro showed that total phenol, condensed tannin, and non-protein amino acid (NPAA) were high. Substitution 15% A. villosa reached the highest digestibility for both dry matter (DM) and crude protein (CP) which were 67% and 86% respectively, but it was shown that DM and CP digestibility of substitution 30% of A. villosa was still high which were 61.82% and 75-67% respectively. The pattern of gas production showed that first 8 hours total gas production substitution of 30% A. villosa was higher than 100% P. purpureum and declined after 10 hours incubation. In vivo trials showed that substitution of 30% A. villosa significantly increased CP intake, CP digestibility, and nitrogen retention. It can be concluded that substitution A. villosa until 30% still gave the good impact even though it has high secondary compounds.

Keywords : Acacia villosa, digestibility, gas production, secondary compounds
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