DOI: 10.22055/IVJ.2023.406104.2595

Investigating the nutritional value of the red *Alternanthera sessilis* plant for ruminants

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Received: 09.07.2023 Accepted: 12.11.2023

Abstract

The present experiment was conducted to determine the chemical composition, digestibility and fermentation of red *Alternanthera sessilis* and compare its nutritional value with alfalfa either individually or in the form of rations of fattened lamb diets. Four experimental treatments included 1: control (without *Alternanthera sessilis*), 2: ration containing 3% (20% alfalfa substitution), 3: 6% (40% alfalfa substitution) and 4: 9% (60% alfalfa substitution) *Alternanthera sessilis*. Digestibility and fermentation of experimental samples were measured by gas production and two-step digestion test. In terms of chemical composition, there was a great relationship between *Alternanthera sessilis* and alfalfa hay. Adding *Alternanthera sessilis* to feed of lambs significantly increased the amount of truly degraded organic matter, metabolizable energy, and apparent digestibility of organic matter, so that these parameters were highest in treatment containing 9% of *Alternanthera sessilis* plant. On the other hand, by using *Alternanthera sessilis* plant, dry matter digestibility tended to increased. The amount of microbial biomass production and microbial biomass production efficiency were not affected by experimental diets. Rations containing *Alternanthera sessilis* were cheaper than control diets. Therefore, it can be stated that the nutritional value of *Alternanthera sessilis* is comparable to alfalfa hay and can be replaced by alfalfa by up to 60% in the ration of fattening lambs. *In vivo* experiments are also suggested.

Key words: *Alternanthera sessilis*, Alfalfa hay, Digestibility, Ruminants

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