Nutritive and anti-nutritive evaluation of Kleinovia hospita, Leucaena leucocephala abd Gliricidia sepium with respect to their effects on in vitro rumen fermentation and gas production

ABSTRACT

The nutritive and tannin content of tree forages (Kleinhovia hospita, Leucaena leucocephala, and Gliricidia sepium and their effects on in vitro rumen fermentation, digestibility and gas production were examined. Rumen fluid was obtained from three fistulated Boer goats with an average weight range of 31-32 kg fed forages. The fluid was incubated with 0.2 g of each forage at 39 °C for 48 h to determine the in vitro gas production, DM digestibility, metabolizable energy and volatile fatty acid. The proximate composition and the polyphenol composition of the forage were also evaluated. The experimental design was a completely randomized design and the treatments were K. hospita, L. leucocephala and G. sepium. The chemical composition, percentage of total polyphenol, non-tannin polyphenol, condensed tannin and hydrolysable tannin differed ($P<0.05$) among the forages. The K. hospita had higher ($P<0.05$) net gas production and in vitro dry matter digestibility compared with other forages. Similarly, K. hospita had higher ($P<0.05$) concentration of total volatile fatty acid and propionic acid followed by L. leucocephala and G. sepium. The molar proportion of acetic and butyric acid did not differ among the forages. The outcome of this study present K. hospita as a good potential forage to be used in ruminant diet as a result of better nutrient composition, moderate anti-nutritive value and best ivDMD in comparison with L. leucocephala and G. sepium.

Keyword: Kleinhovia hospital; Leucaena leucocephala; Gliricidia sepium; Nutritive value; Tannin