Chemical composition and nutritive value of four varieties of cassava leaves grown in South-Western Nigeria

A. O. Oni1, C. F. I. Onwuka1, O. M. Arigbede, U. Y. Anele, O. O. Oduguwa, O. S. Onifade, Z. L. Tan

Journal of Animal Physiology and Animal Nutrition

Volume 95, Issue 5, pages 583–590, October 2011

Keywords:

- **c**assava;
- rumen;
- fermentation;
- leaf;
- forage;
- nutritive value

Abstract

The nutritive value of leaves of four varieties of cassava – MS 6, TMS 30555, *Idileruwa* and TMS 30572 was evaluated based on their chemical composition and *in vitro* fermentation. Crude protein (CP) contents of cassava leaves ranged from 177 to 240 g/kg dry matter (DM), with TMS 30555 showing the highest CP contents. Neutral detergent fibre (NDFom) and acid detergent fibre (ADFom) contents of cassava leaves ranged from 596 to 662 and 418 to 546 g/kg DM respectively. Condensed tannin (CT) and hydrocyanic acid contents ranged from 1.0 to 3.8 g/kg and 58.5 to 86.7 mg/kg DM respectively. The range of volatile fatty acids (VFA) in the supernatant after *in vitro* incubation of the cassava varieties was: acetate (14.7–31.5 mmol/l); propionate (4.5–6.3 mmol/l); butyrate (3.1–3.9 mmol/l); valerate (0.4–0.6 mmol/l); iso-butyrate (0.6–1.3 mmol/l); iso-valerate (1.1–1.9 mmol/l). The acetate: propionate ratio resulting from fermentation of TMS 30555 was higher ($p < 0.05$) than that of the other leaves. The highest *in vitro* gas production of 50.5 ml/200 mg DM was recorded for MS6 being higher ($p < 0.05$) than for TMS 30572, but similar to TMS 30555 and *Idileruwa*. The DM, CP, ADF and HCN contents of cassava leaves were positively correlated with gas production, while CT content was negatively correlated with gas production. The study showed that leaves of the varieties MS 6 and TMS 30555 are superior to the others in terms of CP and gas production indicating a higher digestibility and energy content and thus nutritive potential. They may therefore serve as supplements for ruminants fed on poor roughages.