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Effects of species and season on chemical composition and ruminal crude protein and organic matter degradability of some multi-purpose tree species by West African dwarf rams.

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Abstract

Seasonal chemical composition and ruminal organic matter (OM) and crude protein (CP) degradabilities were determined in four tropical multi-purpose tree species (MPTS) namely; Pterocarpus santalinoides, Grewia pubescens, Enterolobium cyclocarpum and Leucaena leucocephala. Three West African dwarf (WAD) rams fitted with permanent rumen cannula were used for the degradability trials. Foliage samples were collected four times to represent seasonal variations as follows: January--mid dry; April--late dry; July--mid rainy and October--late rainy seasons. Leaf samples were randomly collected from the trees for estimation of dry matter (DM) and chemical composition. Ruminal in sacco OM and CP degradabilities were estimated from residues in nylon bags. All samples had high CP (161-259 g/kg DM) and moderate fibre concentrations [neutral detergent fibre (without residual ash], 300-501 g/kg DM; acid detergent fibre (without residual ash), 225-409 g/kg DM and acid detergent lignin, 87-179 g/kg DM across seasons. Interaction effects of species and season on chemical composition were highly significant ($p = 0.001$) except for trypsin inhibitor ($p = 0.614$). The MPTS recorded more than 60% OM and CP degradability at 24 h, which implied that they were all highly degradable in the rumen. Their incorporation into ruminant feeding systems as dry season forage supplements is therefore recommended.