

## Abstract

The study evaluated how binders affected the feed intake, weight gain, and feed conversion ratio of Small East African goats fed on a variety of native browse-based diets. Twenty-four growing goats with initial body weight approximately  $10.5 \text{ kg} \pm 1.3$  (mean  $\pm$  SE) were randomly allocated to the *Acacia brevispica* and *Berchemia discolor* with various levels of polyethylene glycol (PEG) and bentonite clay in a factorial completely randomized design. Six treatments (T1-T6) were used with four goats per treatment. The goats were allocated to individual pens with each treatment having 3 replicates. The selected local browse leaf meal was treated with PEG at a level of 25 g/kg and bentonite clay at 20 g/kg. The experiment lasted for 70 days, consisting of a 14-day adaptation period. Average daily feed intake (ADFI), average daily gain (ADG), and feed conversion ratio (FCR) were computed each week. The composition of the CP, OM, EE, NDF, ADF, TEPH, and CT varied greatly, with significant ( $P < 0.05$ ) changes seen between the various experimental treatments. Diets treated with binders had higher DM Intake, daily weight gains, and total dry matter intake. Goats on diets treated with bentonite clay (T2) performed much better than the one treated with PEG (T1) although there was no statistically significant difference between the two ( $P > 0.05$ ). *Acacia brevispica*-based diets treated with binders performed better than *Berchemia discolor*-based diets. All nutrients' digestibility coefficients were unaffected by the addition of polyethylene glycol 6000 or bentonite clay. It was concluded that bentonite clay as deactivation material can be adopted due to its low cost compared to PEG and its activity to absorb or bind anti-nutritive factors such as tannins in animal feeds. The addition of PEG and bentonite clay to *A. brevispica*- and *B. discolor*-based diet can be used to enhance feed utilization as a result of tannins deactivation.

**Keywords:** *Acacia brevispica*; Bentonite clay; *Berchemia discolor*; Goats; Polyethylene glycol; Tannins.