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Diet selection of goats depends on season: roles of plant physical and chemical traits

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Abstract

This paper reports on diet selection of goats offered six browse species (i.e. Acacia natalitia [Vachellia natalitia], Acacia nilotica [Vachellia nilotica], Dichrostachys cinerea, Grewia occidentalis, Gymnosporia maranguensis and Scutia myrtina) commonly found in moist Zululand thornveld. The hypotheses tested were: (1) plant species and season affect diet selection, (2) physical traits such as leaf phenology, spinescence, shoot morphology and leaf size affect selection, and (3) selection is related to tannins, fibre and protein in ways that indicate nutrient maximisation. Six 2-year-old castrated indigenous goats weighing an average of 26 kg each were individually penned and maintained on a basal diet of pellets and grass hay. Six branches were offered simultaneously to individual goats and intake per branch recorded and used as an index for diet selection. Diet selection was significantly influenced by interactions between plant species and season. Scutia myrtina and Grewia occidentalis were consistently the most preferred species, whereas Gynmosporia maranguensis and Acacia nilotica were least preferred throughout the seasons. Goats preferred broad-leaf and long-shoot species over fine-leaf and short-shoot species across all seasons. These results suggest that short-term diet selection in subhumid areas is not as strongly influenced by leaf phenology and plant chemistry as in semi-arid savannas.