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Evaluation of tropical top feed species for their nutritional properties, *in vitro* rumen digestibility, gas production potential and polyphenolic profile

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Abstract
The present study was planned to screen nutritional properties of eight different species of top feeds *viz., Acacia nilotica, Azadirachta indica, Bambusa vulgaris, Ficus benghalensis, Leucaena leucocephala, Pithecellobium dulce, Senegalia catechu* and *Terminalia arjuna* used in southern Gujarat, India. Top feeds were assessed for their chemical composition, *in vitro* digestibility, gas production potential and polyphenolic fraction using rumen liquor of Surti buffalo. To check resemblance, two conventional fodders *Sorghum vulgare* and *Medicago sativa* were also assessed. Crude protein (CP) content was in the range of 10.28 (*Acacia nilotica*) to 21.71% (*Pithecellobium dulce*). The NDF content varied from 35.57% (*Acacia nilotica*) to 64.47% (*Bambusa vulgaris*). *Acacia nilotica* had the highest total phenolic (12.60%) content, whereas *Azadirachta indica* had higher condensed tannin (CT) content (8.60%). *In vitro* dry matter digestibility (IVDMD) and *in vitro* organic matter digestibility (IVOMD) of top feeds ranged from 75.41 to 86.71% and 50.09 to 72.67%, respectively. The *in vitro* gas production (IVGP) was high (P>0.05) in *Azadirachta indica* (44.00 ml). Results revealed that all proximate components, fiber fractions, mineral content, total phenols and their fractions in top feeds were found comparable to or better than conventional fodders. Major parameters of *in vitro* digestibility were also resemblance and more comparable to conventional fodders. However, *Acacia nilotica*, *Azadirachta indica*, and *Pithecellobium dulce* were found best suitable amongst top feeds by considering their chemical composition, phenolic contents and *in vitro* rumen evaluation.

Keywords: Livestock feed, Nutritional value, Phenolics, Rumen, Top feeds