B-60: Evaluation of nutritive value of some commonly available forages for goats

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Of all types of livestock, the goat industry holds the greatest possible development in Sri Lanka due to various reasons. It requires little expertise, less religious prejudice against the consumption of mutton, smaller capital investment, less concentrate requirement compared to cattle, higher reproductive potential and lower labour inputs, Utilization of new lands for goat feeding is uneconomical since these lands can be better utilized for cash crops where the rural farmer can obtain more ready cash in a shorter duration. Hence, the most appropriate solution to these drawbacks is the maximum exploitation of existing resources, with the adaptation of new feeding techniques.

Feeding of leaves, tender shoots and twigs is the traditional practice among farmers in Sri Lanka. Despite their wide usage, limited published nutritional data is available regarding tree leaves and shrubs. Studies on the nutritional value of various fodder resources will be useful in assisting farmers for the proper and balanced feeding of their goats.

Ten fodder species, which are commonly consumed by goats, were collected from the dry zone of Sri Lanka and identified by their botanical names. They were *Strebles asper* (Geta nitul), *Grewia orientalis* (Welmediya), *Cresentia cujute* (Katupila), *Fluggea leycopyros* (Goi wel), *Breynia patans* (Gas Kaila), *Sida acuta* (Wal bebila), *Phyllanthus ploryphyllus* (Kuratiya), *Ficus amplissima* (Nuga), *Ocimum sanctum* (Thala), and *Trema orientalis* (Gadumba).

Three samples were taken from each fodder. Samples consisted of young and mature leaves and, tender shoots and dried at 60°C until a constant weight was obtained and dry matter content was determined. The samples were ground to pass 1 mm and 3 mm screens & used for chemical analysis and *in sacco* digestibility studies. All the samples were analysed for dry matter, organic matter, ash, crude protein and crude fibre. Furthermore, digestibility studies using *in vitro* and *in sacco* were also perfosrmed. Samples were statistically analysed and means were determined using DMRT.

According to the proximate analysis, the dry matter content of these air dried fodder varied from 87.0 to 93.6% with a mean value of 89.6%. The total ash content varied from 6.4 to 19.0% whereas, crude protein content of the feedstuffs varied from 11.4 to 27.9% with a mean of 17.9%. These results showed that most leaves are high in protein though they are non leguminous and, serve as good protein supplements. The crude fibre of the feedstuffs ranged from 9.6 to 31%. Feed samples with less than 12% crude fibre were Katupila & Wal babila.

In vitro digestibility of leaves showed a large variation, from 49.7 to 79%. The average dry matter digestibility and organic matter digestibility values obtained were 59.9 & 57.2% respectively. *In vitro* dry matter digestibility values can provide reliable indication regarding the quality of the herbage and can also serve as an inexpensive means for preliminary testing prior to the actual feeding trials.

According to the *in sacco* study, *Sida acuta* has the highest degradability in the rumen followed by *Strebles asper, Ocimum sanctum, Trema orientalis and Phyllanthus ploryphillus.*

Shrubs and tree fodders are important forage sources, for small ruminants in Sri Lanka. Goats can utilize tree fodders because of their unique feeding behaviour. Some of the promising species identified in the study include *Strebles asper, Fluggea leucopyras, Breynia patans, Sida acuta & Ocimum sanctum.* Some fodders showed a moderate digestibility which could be a limiting factor when these fodders are fed as the sole diet. The importance of fodder leaves and shrubs is greater in the intensive farming areas, particularly in the dry zone due to feed shortage usually prevalent during the dry season.

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