

Flemingia: a practical source of dietary bypass protein for ruminants

In the Philippines, ruminant diet is low in protein because most smallholders could not afford to buy commercial feed concentrates. Now, farmers may augment the protein needs of ruminants with flemingia (*Flemingia macrophylla*) (Fig. 1). Abundantly found in nature, flemingia is a low-cost, high-quality, and sustainable source of protein. Locally known as 'malabalatong,' it is a woody, deep-rooting, tussock-forming tropical shrub that grows to about 1-4 m.

Flemingia thrives well in acid soil and is drought resistant. It is used as mulch in alley cropping for soil amelioration and soil erosion control in hilly areas.

It contains 22.7% crude protein (CP) and 8% tannin. Because of its tannin content, it has low CP digestibility in the rumen of ruminants, which makes it an effective source of bypass protein for animals. Bypass protein passes the rumen undegraded but is digested and absorbed in the small intestine. This protein is more beneficial to the animal because it is directly utilized for higher weight gain, milk yield, among other benefits. Its high tannin content also indicates that it is a natural dewormer.



Fig. 1. Flemingia

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Effectiveness

Although flemingia has lower CP, higher neutral detergent fiber (NDF), and higher condensed tannin than 'ipil-ipil' (*Leucaena leucocephala*) and 'kakawate' (*Gliricidia sepium*), it is well compensated by its high bypass protein content.

Flemingia is best combined with other forage legume such as stylo, rensonii, desmanthus, ipil-ipil, and kakawate that are easily digested in the rumen. Animals supplemented with flemingia gained weight and had feed efficiency comparable with those supplemented with commercial concentrate.

How it works

It is recommended that flemingia be incorporated fresh at the rate of 10-25% in the ration. However, it may be prepared as a leaf meal. To prepare leaf meals, sun-dry the leaves and twigs for 7 hours or air-dry for 5 days at 10-13% moisture content. Grind and store in sacks. Four (4) kilograms of flemingia herbage is needed to prepare 1 kg of leaf meal with 22% CP content.