The potential of mulberry (Morus alba) as a fodder crop: the effect of plant maturity on yield, persistence and nutrient composition of plant fractions

ABSTRACT

The forage potential of mulberry (Morus alba) was evaluated under Malaysian conditions. The yield and nutrient composition of plant fractions of mulberry (whole plant, leaf and stem fractions) were determined at four harvest stages, namely, 3 (W3), 5 (W5), 7 (W7) and 9 (W9) weeks in a randomized block design. The study was conducted over a 9-month period to assess the persistence of the crop to repeated harvests. Fresh and dry matter (DM) yields of all plant fractions increased significantly (p<0.01) with increasing intervals between harvests, with highest DM yields at W9. The leaf to stem ratio declined significantly (p<0.01) from 5.2 (W3) to 0.9 (W9), indicating predominance of the stem fraction with advancing maturity. The nutritional composition of plant fractions was also significantly influenced (p<0.01) by advancing plant maturity at harvest. Crude protein (CP), ash and the metabolisable energy content of plant fractions declined significantly (p<0.01) from W3 to W9, while there was a corresponding significant increase (p<0.01) in the acid detergent fibre, neutral detergent fibre and acid detergent lignin. From this study it was concluded that the optimum stage to harvest the whole plant is 5 weeks, which is a compromise between yield, nutrient composition (CP and fibre components), and the annual number of cuts, with good crop persistence to repeated harvests. Fresh mulberry whole plant can provide a valuable supplemental source of nutrients to poor quality basal diets.

Keyword: Harvest stage; Mulberry; Nutrient composition; Persistence; Yield