

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