

## Nutritive Value of *Melia dubia* Cav. Drupe pulp and its Feeding Effect on Surti Goat (*Capra aegagrus hircus* L.) Kids

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### 1. Introduction

India is an agriculture dominated country having largest livestock population in the world. In India, there is a huge annual shortage of concentrates, green fodders, and dry roughages for animal feeds. These estimates do not include feed resources from shrubs and tree leaves and fruits. There are a number of lesser-known and under-utilized plants that adapted to local, harsh conditions and have tremendous potential as livestock feed. *Melia dubia* Cav. is one such species, drupes of which may be utilized as top feed. Goats and cattle browse on *M. dubia* drupes, however, scientific and systematic information about nutritive value of drupe pulp as a feed resource is not attempted along with its feeding effect either on cattle or small ruminants.

### 2. Material and method

This study was carried out at the institutional research farm of the College of Forestry, Navsari Agricultural University, Navsari, Gujarat in 2017–2018. Variation in drupe morphometric, proximate principles, total phenols and other volatile phytochemicals was carried out among 9 provenances. Feeding experiment (for 90 days) with basal feed replaced by *M. dubia* drupe pulp @ 20% and 40% along with basal ration alone was conducted on Surti Goat kids in cages. Data were analyzed as per CRD.

### 3. Result and discussion

Drupe morpho-metric and biomass attributes, proximate principles, mineral matter and total phenols differed significantly among the studied populations. Average drupe length and width was found 25.60 and 20.92 mm, respectively. Whereas, average drupe fresh weight, pulp fresh weight, pulp dry weight, stone weight was 678.93, 476.45, 166.10 and 202.48 g/100 drupes, respectively. Dry matter and moisture contents were 35.28 and 64.72%, respectively. Similarly, an average crude fibre, crude protein, ether extract, total ash and nitrogen free extract content of 9.97, 6.07, 2.41, 7.10 and 74.46%, respectively was found in drupe pulp of different populations. Overall average Ca, Mg, P and K content of 0.50, 0.16, 0.14 and 2.01%, respectively was recorded in 9 provenances. An average 0.48% total phenols were recorded which were within the permissible limit. *M. dubia* pulp could be categorized as good feed resource with low in fibre, but rich in energy and minerals. Total mixed rations (TMRs) replaced by *M. dubia* drupe pulp (T<sub>1</sub> - Basal feed; T<sub>2</sub> - 20% basal feed replaced by *M. dubia* drupe pulp; T<sub>3</sub> - 40% basal feed replaced by *M. dubia* drupe pulp) did not have any significant effect on body weight of kids and dry matter intake by the kids of all groups. On the other hand, there was no significant effect of TMRs as well as period on growth rate and feed conversion ratio of Surti goat kids. Inclusion of *M. dubia* drupe pulp in different TMRs of Surti goat kids reduced the cost of feeding with maximum at 40% replacement (Rs. 1012.33/group (8 kids) over the basal feed (control group). The proximate principles, mineral matter and total phenols content found in *M. dubia* drupe pulp are in permissible limits and fall within the range found in leaves, twigs and pods/fruits of most commonly used fodder trees and shrubs throughout the world. Even it has better feed parameters compared to most of the forage grasses and fodder species. Further, corroboration with feed and fodder standards, the pulp of *M. dubia* can be included in mineral, fat, carbohydrate and energy rich feed source category. Thus, the present investigation divulged that *M. dubia* drupe is a good alternative/agro-industry by-product as a feed source for small ruminants.