

Potential for Producing Leaf Meal Pellets for Ruminant Rations from Wasted Gliricidea (Gliricidia sepium) Leaves

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The conventional protein supplements for ruminant feeding in Sri Lanka are expensive. Being a tree legume, *Gliricidia* (*Gliricidia sepium*) leaves are rich in crude proteins (CP, 15.4% - 28.8%). A substantial amount of *Gliricidia* leaves is wasted from *Gliricidia* plantations managed for Dendro power generation. The objective of this study was to investigate the potential for the production of *Gliricidia* leaf meal pellets (LMP) as a protein supplement for ruminant rations. Tender *Gliricidia* leaves harvested, dried, ground, and the proximate composition of the leaf powder (LP) was determined. Using the *in-vitro* gas fermentation assay, the organic matter digestibility (OMD) and metabolizable energy (ME) of LP were determined. Additionally, the *in-vitro* tannic bio-assay was employed to determine the biological effect of tannins in LP. The highest level of LP that could be incorporated into LMP was determined by conducting an experiment with six mixtures containing different percentages of LP, molasses and wheat flour. The mixtures were pelletized, and dried pellets were analyzed for proximate composition, hardness, OMD and ME. The experiment was conducted as a complete randomized design. *Gliricidia* LP recorded 25.09% CP, 62.36% OMD and 9.06 MJ/kg ME. The tannic bio-assay confirmed that there was no significant ($P>0.05$) biological effect of tannins in LP. The highest level of LP that could be incorporate in LMP was 89%. Despite a lower CP level (20.62% vs. 23.93%), the LMP, which included 77% LP, exhibited significantly ($P<0.05$) greater OMD (80.69% vs. 69.20%) and ME (11.96 MJ/kg vs. 10.15 MJ/kg) compared to those that included 89% LP. The study suggested the potential inclusion of 77% *Gliricidia* LP in the production of *Gliricidia* LMP with greater nutritive value as a protein supplement in ruminant rations.

Keywords: Crude Protein, Leaf Powder, Metabolizable Energy, Organic Matter Digestibility

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