IDENTIFICATION AND ASSESSMENT OF NUTRITIVE VALUE OF WIDELY USED FEEDSTUFFS FOR DAIRY CATTLE FEEDING IN JAFFNA DISTRICT

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By

PRIYA RAJENDRA THAMBIPILLAI SATKUNAM

Department of Animal Science

Faculty of Animal Science and Export Agriculture

Uva Wellassa University

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ABSTRACT

The study assessed the nutritive value and methane production of most widely used roughage and concentrate feedstuffs for dairy cattle farming in Jaffna district, Sri Lanka. Information on the use of feedstuffs was collected through a survey conducted from randomly selected 50 dairy cattle farms in the study area. Based on the frequency of use, mostly used 7 roughages and 4 concentrate were sampled, representing each village. The samples were analyzed for Dry Matter (DM), Organic Matter (OM), ash and Crude Protein (CP) contents. They were further assessed for in-vitro Organic Matter Digestibility (OMD) and Metabolizable Energy content (ME) through *in-vitro* gas fermentation assay. Nutritive values of roughages were significantly different ($P<0.05$), whereas the methane production from them were not different ($P>0.05$). Sugargraze and mix weeds recorded 12.60 and 11.70% CP, 6.42 and 7.44 Mcal/kg ME, 44.22 and 50.92% OMD and 16.65 and 18.05 mg/g (DM) methane production, respectively. Ipil-ipil, gliricidia and palmyrah tree leaves contained 25.78, 20.28 and 07.22% CP, 51.20, 47.61 and 33.88% OMD, 7.37, 6.85 and 4.98 Mcal/kg, ME and 13.89, 15.58 and 11.87 mg/g (DM), methane production, respectively. Paddy straw recorded 0.34% CP, 46.14% OMD, 6.82 Mcal/kg, ME and 16.34 mg/ g (DM), methane, respectively. Nutritive values among concentrate feedstuffs also showed significant differences ($P<0.05$). Gingelly meal had the highest protein (39.26% CP) and energy (9.80 Mcal/kg, ME) contents. Dhal dust recorded 12.82% CP, 51.38% OMD, 7.60 Mcal/kg, ME and 10.35 mg/ g (DM) methane production. Wheat bran and rice bran recorded 16.72, 11.66% CP, 55.06, 46.92% OMD, 8.13, 6.85 Mcal/kg, ME and 6.84, 15.43 mg/g (DM), methane production, respectively. The study concluded that there is a great variability in the nutritive value of feedstuffs and there dairy cattle rations should be formulated based on current nutrient assessments.

Keywords: Dairy cattle, nutritive values, OMD, Methane production, Roughages, Concentrates