Comparison of Nutritive Value in Fodder Species and Industrial By-Products Available in Low Country Dry Zone (DL1b- *Anuradhapura* District), Sri Lanka

R.H.W.M. Karunanayaka[1], W.A.D. Nayananjalie[1]*, S.C. Somasiri[1], A.M.J.B. Adikari[1], W.V.V.R. Weerasingha[1] and M.A.A.P. Kumari[1]

[1]Department of Animal and Food Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Sri Lanka
*nayananjalie@yahoo.com

This experiment intended to find out the nutritive value of fodder species and industrial by-products available for feeding ruminants in *Anuradhpura* district. Fodder species; maize (*Zea mays*), sorghum (*Sorghum bicolour*), CO-3 (*Pennisetum purpureum* x *P. americanum*), gliricidia (*Gliricidia sepium*), and guinea grass (*Panicum maximum*) and agro-industrial by-products; rice (*Oryza sativa*) bran, coconut (*Cocos nucifera*) poonac, maize (*Zea mays* L.) meal and soya bean (*Glycine max*) meal (SBM) were analyzed for dry matter (DM), crude protein (CP), crude fiber (CF), ether extract (EE), ash, acid detergent fiber (ADF), neutral detergent fiber (NDF) and gross energy (GE). Nitrogen free extract (NFE), total digestible nutrients (TDN) and metabolizable energy (ME) were calculated. The data were analysed using one-way ANOVA procedure in SAS. The observed TDN, ME and GE of fodder species differed significantly ($p<0.05$). Gliricidia obtained the highest ($p<0.05$) percentage of DM (25.10±0.78), EE (3.96±0.62), CP (23.79±0.41), TDN (64.34±1.40) and GE (4060±5.54 kcal/g) and ME (2420±0.26 kcal/kg). Guinea grass contained the highest ($p<0.05$) percentage of ADF (46.78±3.25) and NDF (71.15±1.96) compared to other fodder species. Sorghum and CO-3 had the highest ($p<0.05$) percentage of ash (10.21±1.77) and CF (36.70±2.94) while the lowest ($p<0.05$) percentage of ash and CF were recorded in maize (7.77±0.44) and gliricidia (26.37±5.48), respectively. When considering the agro-industrial by-products, highest ($p<0.05$) percentage of total ash (8.52±0.79), CP (50.99±0.43), TDN (83.50±2.09) and ME (3280±0.39 kcal/kg) were reported in SBM while NFE (83.08±1.22%) was highest in maize meal. The highest ($p<0.05$) percentage of EE and GE were obtained from rice bran. Thus, the results of the current study show that the above feed ingredients available in Anuradhapura district are rich in nutrients needed for dairy cows and that they can be effectively incorporated in the formulation of total mixed rations for dairy cows.

Keywords: Agro-industrial by-products, Fodder species, Gross energy, Nutrient comparison