PROTEIN DEGRADABILITY OF INTACT LEAF PROTEIN SOURCES IN DIFFERENT KINDS OF ROUGHAGE AND SPECIES OF ANIMALS

C. Wachirapakom* and M. Wanapat*

Many researchers have suggested that intact leaf proteins are good protein supplements to animals fed low quality roughage. Wanapat et al, (1989) reported that supplementation of dried cassava leaf to draft buffaloe diets could improve body condition and draft capability during the dry season. In addition, developing countries have a number of intact leaf protein sources, which can be used as supplements for increasing feed utilization and performance in animals fed low quality roughage based diets.

In the present study four sources of intact leaft protein: dried cassava leaf (DCL), dried leucaena leaf (DLL), dried water hyacinth leaf (DWHL) and dried kenaf leaf (DKL), were suspended in the rumen of three fistulated animals; white buffalo, black buffalo and brahman, using the in sacco technique and withdrawals at 0, 6, 12 and 14 h. Animals were fed rice straw (RS), urea-treated rice straw (UTS) and fresh signal grass (FG) ad libitum in three switching periods. Protein degradability of intact leaf protein in the rumen of animals is presented in the table.

Table: Protein degradability (%) of intact leaf protein in the rumen of animals fed different kinds of roughage at different withdrawal of times

Item	Time of withdrawal (h) 0	6	12	24	Mean
Dried leaf					
Cassava	22.5	27.1	30.2	36.4	29.1[a*]
Leucaena	27.4	32.4	34.5	43.1	34.4[b]
Water hyacinth	12.3	27.6	33.5	37.8	27.8[a]
Kenaf	22.2	36.3	41.3	47.6	36.9[b]
Diet of animal					
Rice straw	21.1	28.2	28.3	32.6	27.6[a]
Urea-treated rice straw	21.1	33.6	37.6	42.0	33.6[b]
Fresh signal grass	21.1	32.4	38.5	48.5	35.1[b]

*Values with the same superscript (a, b) are not different (P<0.05)

DKL and DLL were degraded to a higher extent than that of DCL and DWHL for both time withdrawals and feeds (P<0.05). Rate of protein degradability in animals fed UTS and FG were not different but these were degraded more than in animals fed RS (P<0.05). Protein degradabilities of intact leaf protein between buffaloe and cattle sources were not different (Wanapat et al., 1985). However, this trial indicated that DCL and DWHL were a better source of by-pass protein than DLL and DKL. Ensiling rice straw with urea (5%) for 2 weeks may increase protein utilization.

WANAPAT, M., WACHIRAPAKORN, C. and KONGPIROON, N. (1985). The Utilization of Fibrous Agricultural Residues as Ruminant Feeds Project. Annual Report 1984-1985. Khon Kaen University, Khon Kaen 40002, Thailand.

WANAPAT, M., URIYAPONGSON, S., CHANTHAI, S., WANAPAT, S., WACHIRAPAKORN, C., and THAMMASANG, K. (1989). The Utilization of Dried Cassava Leaves and Urea-treated Rice Straw for Draft Swamp buffaloes During the Dry Season at Village Level. Proc. of the Animal Science Research the 27th Annual Conference, Kasetsart University, Bangkok, Thailand.

*Department of Animal Science, Faculty of Agriculture , Khon Kaen University, Khon Kaen 40002, Thailand.