

## EFFECT OF STORAGE CONDITIONS ON CRUDE PROTEIN AND MIMOSINE CONTENT OF LEUCAENA LEAF MEAL

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(Received : 10-02-2008; Accepted : 25-04-2009)

Leucaena leaf meal (LLM) promises high protein supplement in the diet of livestock. Main objective of this study was to assess nutrient loss during storage in different environment and find out suitable storage method for the leaf meal to ensure better keeping quality and nutrients availability during lean period.

### Materials and Methods

Fresh leaves of *Leucaena leucocephala* were collected from central research farm of IGFRI, Jhansi. The leaves were dried from an average moisture of 34.74% to a final moisture of 11% in shed/sunlight to make / process as Leucaena leaf meal (LLM). Leucaena leaf meal was stored for a period of one year in polythene lined bags (T1), gunny bags (T2) and open lot under shed (T3) with four replications. Dry matter, crude protein and mimosine content of leucaena leaves was analysed at every two months (AOAC, 1990). The data were analysed statistically (Snedecor and Cochran, 1980).

### Results and Discussion

Crude Protein and Mimosine content of fresh leucaena leaf was 23.77 and 3.84% on DM basis. After drying of leaf meal, the CP and mimosine content was 22.08 and

2.91 percent, respectively. Thus, there was a reduction in CP and mimosine by 7.11 and 24.22 % as compared to fresh leaves. Drying was also reported to minimize the anti-nutritional factors present in the Leucaena leaves (D'Mello and Acamovic, 1989). Physical processing and heat treatment also reduces the mimosine content from leucaena leaves (Srinivaulu *et al.*, 2001, Mahanta, *et al.*, 2002).

There was a gradual decline in CP content in all the storage conditions with the time intervals. The CP content of LLM stored in polythene lined bags (T1), gunny bags (T2) and open under shed (T3) was reduced to 22.11, 20.01 and 19.86 percent, respectively after one year storage period. The loss in CP content was minimum in T1 as compared to T2 and T3, which did not differ significantly ( $P < 0.05$ ).

Mimosine content reduced marginally ( $P > 0.05$ ) during storage (from 2.89 to 2.50%) in all the treatments and it was least varied in polythene lined bags. Reduction in mimosine content during storage was not significantly different among the treatments. Lower concentration of mimosine was reported in decomposed leaves of leucaena (Neema *et al.*, 2002), but safe storage of leaf meal protected the crude protein and mimosine content. The study concludes

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that LLM can be safely stored in all the three stated conditions.

### References

AOAC (1990)... *Official methods of analysis*. 15<sup>th</sup> Edn. Association of Official Agricultural Chemists, Washington, DC.

D'Mello, J.P.F. and Acamovic T. (1989)... *Animal Feed Science and Technology*. 26 : 1.

Mahanta S.K., Singh U.P and Pachauri V.C. (2002)... *Forage Research* 28 : 124.

Neema Khare, Bisaria A.K. (2002)... *Indian Journal of Agroforestry* 4 : 63.

Snedecor, G.W. and Cochran, W.G. (1980)... *Statistical methods*. 7<sup>th</sup> edn., Oxford and IBM Publishing Company, Calcutta.

Srinivasulu C., Prabhu M.R.L., Devi B.C. (2001)... *Indian Veterinary Journal* 78 : 133.

