

EFFECT OF PROCESSING ON MIMOSINE CONTENTS OF SOME LEAVES FED TO LIVESTOCK

EFEECTO DE LA DESECACIÓN SOBRE EL CONTENIDO DE MIMOSINA DE ALGUNAS HOJAS PARA ALIMENTO DEL GANADO

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ADDITIONAL KEYWORDS

Drying. *Spondias*. *Gliciridia*. *Leucaena*.

PALABRAS CLAVE ADICIONALES

Hojas de arbustos. Desecación. *Spondias*. *Gliciridia*. *Leucaena*.

SUMMARY

Leaves of *Spondias Gliciridia* and *Leucaena* species were collected and analysed for their Mimosine contents. Use was made of fresh leaves oven-dried (50°C) and sun-dried leaves. Results obtained showed that heat processing reduced the contents of the Mimosine in the three leaves species by as much as 50 p.cent. Even with the drying the level was still highest in the *Leucaena leucocephala* leaves (1.61g/100g DM). It is suggested that the toxicant load in the animal may be reduced if dried leaves are fed.

RESUMEN

Se estudió el contenido de mimosina en hojas frescas desecadas en estufa a 50°C y desecadas al sol de *Spondias*, *Gliciridia* y *Leucaena*. Los resultados obtenidos muestran que el calor redujo hasta en un 50 p.100 el nivel de mimosina en las hojas de las tres especies. No obstante, aún después de la desecación, el nivel permanecía alto en las hojas de *Leucaena leucocephala* (1,61g/100g MS).

Se sugiere que se puede reducir el consumo de tóxico por los animales si se les suministran hojas desecadas.

INTRODUCTION

The presence of some anti-nutritional factors in feeding stuffs of plant origin consumed by livestock, confers a multiplicity of drawbacks on the animals. In particular, mimosine, a toxic alkaloid, is present in *Leucaena leucocephala* and the toxic effects on livestock include retarded growth, alopecia, loss of appetite, reproductive failure, etc (Hathcock and Labadon, 1975; Ekpenyong, 1989). The toxicity effect can be removed by supplementing with metal ions (Acamovic and D'Mello, 1980). This study was, however, conducted to appraise the effect of heat processing on the mimosine contents of some leaves and peels usually fed to livestock.

MATERIALS AND METHODS

The leaves of four plants (including *Leucaena leucocephala*) fed to animals were collected from humid tropical part

Table I. Mimosine concentrations in some leaves (g/100g leaves). (Concentraciones de mimosina (g/100g de hojas) en algunas hojas).

	Fresh	Oven-Dried*	Sun-Dried
<i>Spondias mombin</i>	0.89	0.34	0.30
<i>Gliricidia sepium</i>	1.30	0.67	0.54
<i>Leucaena leucocephala</i>	3.25	1.50	1.61

* (50°C); (Average of four determinations each)

of Nigeria in the month of November, mimosine was assayed in the fresh leaves using the rapid method Matsumoto and Shuwan (1958). The feedingstuffs were dried at 50°C in a forced-air draught oven for 3 days and another batch sun-dried on a concrete slab for 3 days and

REFERENCES

- Acamovic, T. and F. D'Mello. 1980. The effect of metal ion supplemented *Leucaena* diets on chick growth and mimosine excretion. *Leucaena Newsletter*, 1: 38.
- Ekpenyong, T.E. 1989. Effect of *Leucaena* leafmeal in layer rations. *Leucaena Res. Rep.*, 10: 54.
- Hathcock, J.N. and M.M. Labadon. 1975. Toxicity of mimosine and *Leucaena leucocephala* extracts to chicken embryos. *Nutr. Rep. International*, 2: 63-69.
- Matsumoto and Shuman. 1958. A rapid colorimetric method for determination of mimosine. *Arch. Biochem. Biophys.* 33: 195-200.
- Onwuka, C.F.I. 1986. *Gliricidia sepium* as dry season feed for goat production in Nigeria. In: Potentials of Forage Legumes in sub-saharan Africa. Edited by Haque I., S. Jutzi and P.J.H. Neate). ILCA, Addis Ababa. pp. 533-539.

then assayed for mimosine levels.

RESULTS AND DISCUSSION

Mimosine levels were observed to be highest in the fresh sample (**table I**) especially in *L. leucocephala*. The levels were drastically reduced by both sun and oven-drying. This could mean a reduction of the toxicity effect of mimosine, just as was observed by Ekpenyong (1989) by wilting. Animals may then tolerate the leaves more.

Considering the relative cost of oven-drying, it is recommended that *Leucaena sp.* could be dried in the sun for a while before feeding to livestock. A fodder bank of dried leaves (Onwuka, 1986) may also be well utilized by animals especially during the dry season months.

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