QUALITATIVE EVALUATION OF D.H.P. (DIHIDROXIPIRIDINE) IN THE URINE OF BUFFALOES FED WITH LEUCAENA

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ABSTRACT
The aim of this study was to evaluate the DHP elimination in the urine of buffaloes fed with three levels of leucaena (0,10 and 20g of leucaena's DM/kg L.W.⁰.⁷⁵), plus corn silage at 2.5% of LW in D.M. The main purpose was to estimate the levels of mimosine toxicity in those resistant animals. Data showed that DHP started to be eliminated at the first urination in both levels of leucaena. This occurred one hour after ingestion. DHP was present up to the third urination (5 hours after ingestion) in the highest level.

RESULTS AND DISCUSSION
The buffalo accepted poorly the fresh leucaena; it was necessary to mix it with corn silage. As the liveweight did change from one period of collection to the other, the amount of fresh leucaena was corrected according to the metabolic weight and to the percentage of dry matter in the plants. On average, the amounts of leucaena varies from 2.3kg (level one) to 3.8kg (level two).

The reactions between urine samples and the solution indicated that corn silage consuming animals gave yellow or strawish color, meaning DHP absence. One and two levels gave purple and blue colors, pointing out the presence of DHP in the urine according to Megarrity (1978). Table 1 summarizes the colorimetric behaviour of the urine samples according to the three different diets within the three periods of time that the experiment ran. DHP excretion took place at the first micturition just after the leucaena consumption. It occurred one hour and 10 minutes after ingestion. Urine's color at reaction was more intense the higher the level of ingested fresh leucaena (see Table 1). The quantities of excreted DHP were higher in the two first micturitions that happened one hour and twenty minutes after consumption.

After the second urination DHP excretion was almost nothing.

CONCLUSIONS
DHP appeared in the urine of buffalo just after the ingestion of fresh leucaena (1h 20, after consumption) poising out the very rapid metabolization of the mimosine.

Colorimetric method to detect the presence of DHP in the urine of ruminants showed efficacy and accuracy to detect mimosine latent toxicity in buffalo.

REFERENCES
Leucaena Research Report, 62.


### Table 1
Partial and total micturition volumes, time of collecting and colorimetric reaction of buffaloes’ urine according to 3 different diets

<table>
<thead>
<tr>
<th>Animal</th>
<th>Dieta</th>
<th>1&lt;sup&gt;st&lt;/sup&gt;</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt;</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt;</th>
<th>Total (ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>266</td>
<td>silage*</td>
<td>733-ml 8:35h yellow 93-ml</td>
<td>676-ml 10:30h dark yellow 68-ml</td>
<td>160-ml 13:55h light yellow 200-ml</td>
<td>1569</td>
</tr>
<tr>
<td>283</td>
<td>silage*</td>
<td>8:50h yellow</td>
<td>10:40h yellow</td>
<td>13:50h light yellow</td>
<td>361</td>
</tr>
<tr>
<td>270</td>
<td>10g leucena D.M./kg L.W.&lt;sub&gt;0.75&lt;/sub&gt;**</td>
<td>438-ml 8:35h light purple</td>
<td>300-ml 10:30h purple</td>
<td>145-ml 12:40h light purple</td>
<td>883</td>
</tr>
<tr>
<td>277</td>
<td>10g leucena D.M./kg L.W.&lt;sub&gt;0.75&lt;/sub&gt;**</td>
<td>450-ml 9:05h purple</td>
<td>508-ml 10:40h dark purple</td>
<td>380-ml 16:10h purple</td>
<td>1338</td>
</tr>
<tr>
<td>279</td>
<td>20g leucena D.M./kg L.W.&lt;sub&gt;0.75&lt;/sub&gt;**</td>
<td>166-ml 9:05h purple</td>
<td>137-ml 10:35h dark purple</td>
<td>135-ml 10:42h purple</td>
<td>438</td>
</tr>
<tr>
<td>288</td>
<td>20g leucena D.M./kg L.W.&lt;sub&gt;0.75&lt;/sub&gt;**</td>
<td>410-ml 9:55h purple</td>
<td>221-ml 13:10 dark purple</td>
<td>418-ml 13:30 dark purple</td>
<td>1049</td>
</tr>
</tbody>
</table>

* 2.5% of the L.W. in D.M. basis
** plus corn silage to lead the quantity up to 2.5% of L.W. in D.M. basis