CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

COATED UREA IN LOW QUALITY FORRAGE DIET

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The protection of urea aims to reduce the release rate of ruminal ammoniacal nitrogen, reducing the risk of intoxication, improving the use of nitrogen, and enhencing ruminal fermentation. Four rumen-fistulated female Nelore cattle (536 ± 101 kg) were distributed in a four-by-four Latin square, with 14 days of adaptation and four treatments: control (without urea), common urea (U), polymer-coated urea (UP1) and lipid-coated urea (UP2). The animals were fed Brachiaria brizantha's hay 'Marandu', and mineral salt ad libitum. The treatments were infused directly into the rumen, in the amount of 1% of the estimated dry matter intake and adjusted for the nitrogen concentration of each product. Ruminal ammoniacal nitrogen (N-NH$_3$) was measured over one day, starting just before treatments administration (time 0 hours), and thereafter at two-hour intervals. The in situ degradability of nitrogen of the products was evaluated using the nylon bag technique, with incubation periods up to 48 hours. Soybean meal was used for the degradability of the control treatment. Statistical analysis was performed using SAS software, comparing the means by orthogonal contrast, with significance level of 5%. The contrasts were: control X urea presence; U X coated urea; UP1 X UP2. N-NH$_3$ data were analyzed as time-repeated measures, and interaction between time and treatment was observed ($P<0.05$). In most collection times (9 of 12), the treatments with urea displayed greater values than control ($P<0.05$), and in the times between 2 to 8 hours the values of U were greater ($P<0.05$) than coated-urea treatments. At time 0 hours, the values of N-NH$_3$ (mg dL^{-1}) were 4.4, 5.18, 6.09 and 5.34. In time 2 hours, when peak occurs, 7.83, 63.7, 38.89 and 35.16. And in time 10 hours, 5.91, 15.96, 14.67 and 12.3 for control, U, UP1 and UP2, respectively. For degradability, the parameters values were: a: 25.98, 100, 6.57, and 15.62; b: 75.25, 0, 72.10 and 68.13; c: 0.17, 0, 0.419 and 0.517; De: 92.55, 100, 75.3 and 81.09, for control, U, UP1 and UP2, respectively. Differences were observed for all contrasts of all parameters ($P<0.05$), except c, that was the same for UP1 and UP2 ($P = 0.167$). Both types of urea protection provided a lower release rate compared to U, and greater stability in ruminal ammonia concentration, showing themselves efficient in minimizing the risks of intoxication and presenting potential for better nitrogen utilization.

Keywords: ammoniacal nitrogen, *Bos indicus*, *Brachiaria brizantha*, in situ degradability, low release urea

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