



## I-INTERNATIONAL MEETING OF ANIMAL SCIENCE IN SEMI-ARID REGIONS

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Área do trabalho: Nutrição e Produção de Não-Ruminantes

### **Relationships between lactation period and milk composition of donkeys of the Nordeste ecotype**

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The composition of donkey milk varies throughout lactation, adjusting to the immunological and nutritional needs of the foals. These changes are important for the development of the foals and have implications for the use of milk in human nutrition and the production of functional dairy products. The study aimed to analyze the interrelationships between lactation phases and the nutrients in the milk of Nordeste ecotype donkeys through multivariate principal component analysis. Fourteen female donkeys, aged between 3 and 7 years with a mean body weight of  $185 \pm 30$  kg, were used in a completely randomized experimental design in a split-plot scheme. The plots consisted of groups of primiparous and multiparous females, and the subplots were represented by evaluation periods: 1, 3, 15, 30, 60, 90, 120, 150, and 180 days of lactation. The animals remained in native pasture area throughout the gestational period, with water and mineral salt *ad libitum*. At 11 months of gestation, the females were transferred to maternity paddocks and, after giving birth, remained in an area of approximately 0.5 hectares without vegetation cover. From the 11th month of gestation, the daily dry matter intake was 2.5% of body weight, with 70% forage and 30% specific commercial concentrate for breeding equids. The animals exclusively consumed Tifton 85 hay (*Cynodon* spp.) as forage. To determine the chemical composition, two milk samples were collected at 06:00 and 15:00 hours, with 80 mL of milk collected each time, totaling 160 mL of milk per day of evaluation. The data were subjected to multivariate principal component analysis. In colostrum (1st day of lactation), higher concentrations of fat and protein were observed in the milk. In transition milk (3rd day of lactation), the protein content remained high while fat concentrations decreased. In mature milk (15th to 180th day of lactation), there was an increase in pH and lactose, and lower levels of protein and fat, with lactose being the predominant nutrient during this lactation phase. During the early days of lactation, the high presence of fat, both in primiparous and multiparous females, may be related to providing essential energy for the foal's initial vital activities. Similarly, the increased protein concentration during this initial period is possibly associated with the significant presence of immunoglobulins. Moreover, the acidity of colostrum is influenced not only by the presence of these immunoglobulins but also by the lower concentration of lactose compared to mature milk. Fluctuations in lactose levels may be linked to changes in the availability of glucose in the blood of lactating females, as lactose is synthesized from glucose. It is concluded that there are fluctuations in the milk composition of Northeastern donkeys according to the phases of lactation.

**Keywords: Donkey, Interrelationships, Main components, Nutrients.**

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