

Goat Milk Quality

Regional IGA Conference 2013 in Tromsø, Norway

ABSTRACTS



Effect of breed, parity, and milking interval on concentration of lactose in blood plasma

Torres A.¹, Argüello A.², Castro N.², Capote J.³

¹Instituto Canario de Investigaciones Agrarias, La Laguna, Tenerife, Spain

²Departament of Animal Science, Universidad de Las Palmas de Gran Canaria, Arucas, Spain

³Instituto Canario de Investigaciones Agrarias, La Laguna, Tenerife, Spain

Lactose is a disaccharide derived from the condensation of galactose and glucose. This milk component is synthesized only in the mammary gland and is not secreted basolaterally in significant quantities, so the plasma level of lactose provides a measure of the leakage rate through tight junctions (TJ), allowing its movement from the lumen of the mammary gland into the blood stream. The objective of this study was to evaluate differences in plasma lactose concentration at different milking intervals in goats traditionally milked once a day. 32 dairy goats (16 primiparous and 16 multiparous) of two breeds (Majorera and Palmera) in mid lactation were milked at different intervals (10, 24, 28, and 32 h). Goats were milked in a double 12-stall parallel milking parlor (Alfa-Laval, Madrid, Spain). Blood samples were taken at each milking. The enzymatic assay for determination of lactose (Boehringer Mannheim / R-Biopharm) is based on two reactions, one measuring galactose and the other measuring lactose and galactose; the difference between the two provided a measurement of lactose concentration. The analysis was performed in the Laboratory of Research Unit at University Hospital (Tenerife, Spain). Repeated measures analysis, with adjustments for non-sphericity (Greenhouse-Geisser correction) followed by LSD post-hoc tests, were used for statistical analysis. Lactose concentration was not affected by breed factor (Majorera: 197.01 μM ; Palmera: 181.81 μM). However, parity affected lactose content in blood. Thus, primiparous goats showed lower values (135.83 vs. 242.99 μM) than multiparous goats. Finally, lactose concentration was affected by milking interval, a significant increase was observed between 24 and 28 h for both breeds (Majorera: 152.55 vs. 349.19 μM ; Palmera: 144.00 vs. 241.47 μM , at 24 and 28 h, respectively). However, no differences were found between 28 and 32 h for both breeds. In conclusion, the results demonstrated that TJ disruption occurs after 24 h of milk accumulation. Nevertheless, degree of TJ leakiness differed according to parity.