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Immunological characteristics of colostrum and goat milk from partum to early lactation

Sánchez-Macías, D.¹, I. Moreno-Indias², A. Morales-de la Nuez², N. Castro², A. Argüello²

(1) *Clinical Laboratory Science Department, Universidad Estatal del Sur de Manabí, Jipijapa, Ecuador;* (2) *Animal Science Department, Universidad de Las Palmas de Gran Canaria, Arucas, Las Palmas, Spain.*

Colostrum gradually changes further to become mature milk, which is called transitional milk. The European Regulation (1662/2006) states milking procedure must be carried out hygienically, ensuring in particular that colostrum must be obtained separately and not mixed with raw milk. The objective of this procedure is to avoid possible technological interferences in dairy industry. But, on the other hand, it is necessary to understand the evolution of immunological parameters for a suitable management of goat kid growing. The objective of this study was to analyze the evolution of immune status properties of goat mammary secretion samples from partum to a 90-days period. Goat colostrum and milk samples were collected from the farm of Universidad de Las Palmas de Gran Canaria (Las Palmas, Spain) at partum and 1, 2, 3, 4, 5, 15, 30, 60 and 90 days after partum from 10 Majorera dairy goats. Colostrum and milk samples were assayed for IgG, IgM, IgA, and Chitotriosidase (ChT) activity. Statistical analyses were performed using SAS package. Colostrum and milk ChT activity ranged from 2,775 at partum, to 178 nmol/mL/h at the end of the experiment. Colostrum ChT activity was significantly higher at partum than postpartum, and decreased continuously as time passed. IgG colostrum concentration was the highest at partum and then it dropped very fast. The IgM and IgA evolution was similar to that described previously for IgG, dropping considerably in the two days after delivery. These results showed milk secretion from goats at the next day postpartum is quite different from the colostrum, decreasing considerably the quality if used to bottle-fed colostrums. In conclusion, transitional milk is not mature milk, in immunological terms, after 4-5 days postpartum.