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Comparative study between two systems of milk partitioning in three dairy goat breeds at two milking frequencies

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Thirty-six dairy goats belonging to three Canarian breeds (Majorera, Tinerfeña and Palmera) in the middle lactation were subjected unilaterally to once daily milking (X1) or twice daily milking (X2) during 6 weeks. The aim was to compare two systems of milk partitioning in relation with milking frequency and breed factors. During wk 1, 3 and 5, each goat was injected intravenously with 0.8 mg of an oxytocin receptor blocking agent to measure cisternal milk (CM). Later, the goats were injected intravenously with 2 IU of oxytocin to reestablish milk ejection to allow the measurement of alveolar milk (AM). During wk 2, 4 and 6, the machine milk was recorder (MM, milk collected between attaching the line and the final cessation of the milk flow without manipulating the udder), machine stripping milk (MSM, milk remaining in the udder after manual manipulation) and residual milk (RM, milk collected after injecting goats with 2 IU of oxytocin). Pearson correlation coefficients among fractions were calculated using the SAS statistics package. High negative correlations between MM and MSM were observed in all breeds studied for X1 (Majorera, $r = -0.87$; Tinerfeña, $r = -0.92$; Palmera, $r = -0.92$) and X2 (Majorera, $r = -0.82$; Tinerfeña, $r = -0.89$; Palmera, $r = -0.78$). On the other hand, MM and RM were significantly correlated in all breeds for X1 (Majorera, $r = -0.87$; Tinerfeña, $r = -0.69$; Palmera, $r = -0.78$), while only the Majorera breed presented significance for X2 ($r = -0.78$). However, no significant correlations were detected when comparing CM and AM with MM, MSM and RM ($P > 0.05$); which impedes the establishment of a relationship between both systems, and could be explained as a consequence of teats placement of the Canarian goat breeds whose teats are not located in the ventral portion of the udder. In conclusion, the results reflect the importance of udder morphology on milk partitioning parameters and indicate that both milk partitioning systems do not seem to be comparable among them.