Abstract

The aim of this study was to evaluate the effect of by-pass protein supplementation and body condition upon ovarian activity as well as serum insulin (INS) concentrations and to determine their possible relationship in goats of the Comarca Lag unera. The study was developed during the months of August and September at the Southern Goat Research Unit, located between the 25° NL and 103° WL, at 1,117 m. Goats, 19 months old, with a body condition score (CCC) low (CCB, n=16, 28.81±0.72 kg BW) or high (CCA, n=16, 35.12±0.72 kg) received one of two protein supplementation level (NSP): Without protein (SP 0 g goat d⁻¹) or With protein (CP, 103.95 g goat d⁻¹) during 40-d pre and 14-d postovulation, under natural photoperiod conditions. Goats received a basal diet of alfalfa hay (2.0% BW, 14.6% CP), mineral salts, water and shades. Once synchronized with two PGF doses at 11 d interval, ovarian activity was evaluated by transrectal ultrasonographic scanning during the late luteal phase of the second estrous cycle, considering the total number of follicles (FT) and corpus luteum (CLT). During the follicular phase prior to the second estrus, a blood sampling was performed in order to quantify serum INS concentrations. While CC affected (P<0.05) CLT, favoring to the CCA group, (2.81±0.20 vs 1.87±0.20), there were no differences (P>0.05) between CC with respect to FT (2.43±0.25 vs 2.18±0.25). The NSP affected the expression of both CL and FT, favoring to the supplemented goats 2.62±0.21 vs 2.06±0.21, and 2.68±0.25 vs 1.93±0.25, respectively. While the CCA goats had the largest serum INS levels, 1.92±0.17 vs 0.81±0.17 ng mL⁻¹, the supplemented goats depicted the largest serum INS levels with respect to the non supplemented goats. There was observed a positive correlation of serum INS levels with respect to CLT (r=0.46; P<0.06) and FT (r=0.38; P<0.13).

Keywords

Goats, by-pass protein, body condition, insulin, ovarian activity.