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## QUANTIFICATION OF PLASMA PROGESTERONE (P4) IN CATTLE USING THE ELFA TECHNIQUE

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The quantification of hormones involved in the bovine reproductive cycle is important for assessing and diagnosing the reproductive status of the animal. Different clinical interpretations can be done with the determination of progesterone (P4) levels, and values below 1 ng/ml indicate absence of corpus luteum. Furthermore, recent publications have shown that values below 2,7 ng/ml on day 7 or 5 ng/ml on day 14 of the cycle could predict pregnancy loss. Currently, the gold standard technique to measure circulating P4 levels is radioimmunoassay (RIA), which is not practical in a daily routine. However, simpler and more accessible diagnostic techniques are now emerging. The purpose of this study is to evaluate a new commercial *in vitro* diagnostic assay of P4 based on enzyme immunoassay by competition with detection of final fluorescence (ELFA). A total of 67 blood samples, from 25 cows, were collected using BD Vacutainer (BD, USA) with sodium heparin by jugular venipuncture at different days of estrus cycle, and centrifuged at 3000X g for 30 min for plasma separation, which were frozen at -20 °C until analysis. P4 levels were measured in duplicate for both techniques: IM1188-PROGESTERONE-RIA (Beckman Coulter, USA) and VIDAS-PRG-ELFA (Biomerieux, France). P4 levels obtained by RIA were classified in two groups as A) P4 <1ng/ml and B) P4≥1ng/ml and matched with P4 values obtained by ELFA. Kappa test was used to determine agreetment between both techniques, coeffiecients of intra-assay variation were determined for RIA and ELFA and sensibility (Se); specificity (Sp); positive predictive value (PPV) and negative predictive value (NPV) were determined for ELFA technique. There is a very good agreement between the RIA and ELFA techniques Kappa=0.96 to determine P4 levels for group A (48 and 47 samples, respectively) and group B (19 and 20 samples, respectively). The coefficients of intra-assay variation were 5% and 2.9% for RIA and ELFA respectively. The Se=1; Sp=0.97; PPV=0.95 and NPV=1 were obtained for ELFA. In conclusion, Only one sample differed its value between the two techniques, representing 1.49% of difference. These results demonstrate that quantification of bovine plasma P4 can be performed with ELFA with similar reliability as the RIA technique. This commercial assay allows measuring P4 levels in the cattle in an easy and applicable way to the daily routine. Further studies should be carried out to strengthen these conclusions.

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