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Pregnancy rates and parameters of an in vitro embryo production program between buffaloes and cattle in Colombia and Argentina

Jesus Alfredo Berdugo-Gutierrez¹, Carlos A. Hernandez², Daniel Londoño³, Jose L. Konrad⁴, Gustavo Crudeli⁵

¹Gentech Biosciences, Envigado , Colombia; ²CHR , Carlos Hernandez Reproduction. Medellin, Colombia; ³Ge3. Biotecnologia Animal, Medellín. Colombia; ⁴Universidad Nacional del Nordeste, Corrientes, Argentina; ⁵Universidad del Chaco Austral, Saenz Peña, Argentina; jaberdugog@unal.edu.co

Buffalo produce high quality milk and beef, most breeders use maternal models for breeding, implementing embryo transfer programs is a need due to the nature of the production system,. Establishing a baseline to set improvement objectives in the technique is necessary. This research compares the parameters and pregnancy rates in an *in-vitro* production program (IVEP) from cattle and buffaloes in two different Latin American countries. Data from an IVEP from 2012-2019 from 261 buffaloes (crossbred buffaloes, Murrah and Mediterranean) and 61 cattle (Brahman) were included in the analysis. The number of follicles, viable oocytes, cleaved oocytes, and blastocysts was recorded. Data from Colombia and Argentina were registered. Comparisons were performed using the Mann-Whitney Test. P< 0.05 was considered statistically significant, data were expressed as mean±s.d. Cattle embryos were considered as controls for buffalo. There are no statiscal differences (P= 0,212) in the number of total antral follicles observed between cattle 9.69±5.03 and buffaloes 8.70±6.62. It has been observed that the presence of a Corpus Luteum is significative for the number of viable oocytes (P < 0,001) compared to the presence of a dominant follicle (p=0.333) at the OPU. The number of viable oocytes, cleavage, blastocyst and pregnancy rate from buffalo and cattle was 8.00±5.91 vs 17.98±15,24, 4.12±3.89 vs 11.68±11.66, 1.31±1.79 vs 4.66±4.86, 26% vs 34% respectively (P < 0,05). Other authors have reported the differences between cattle and buffaloes in embryo production, low embryo yield and oocyte quality but very few try to discuss about the differences. The good results obtained in cattle as controls and the results from buffaloes show that the buffalo embryo production needs a careful review, of other aspects mainly related to oocyte quality, competence and the clinical conditions (health, ciclicity) of the animals used for the programs. Despite showing the feasibility of the implementation of the IVP-ET in buffaloes, the observed differences between buffalo and cattle demonstrate the need to gain a better understanding of the reproductive biology of the buffalo.

Keywords: IVPE, buffaloes, comparison, baseline