ASSOCIATION OF BOVINE SPERM MOTILITY AND VIABILITY WITH *IN VITRO* EMBRYO PRODUCTION

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Semen from different bulls and/or ejaculate may results in variation on cleavage and blastocyst production. Identification of sperm parameters associated to those variations may be useful to predict potential of embryo production of a given sample on *in vitro* fertilization. The aim of this study was to associate two sperm parameters (motility and viability) of sperm samples with cleavage, 8-cell stage and blastocyst production. Motility and viability of 22 frozen semen samples from eight Holstein or Gir bulls were evaluated after several steps of *in vitro* fertilization (post-thawing, post-swim up and post-fertilization) and associated with cleavage, 8-cell and blastocyst rates. Motility was assessed using optical microscope and viability by eosin-nigrosin stain. After thawing, sperm and diluent were separated by swim up method, centrifuged and used at a concentration of 2.0 to 2.5 x 10^6 spermatozoa/mL on *in vitro* fertilization. After 20-22 h post-fertilization, zygotes were co-cultured with *cumulus* cells in CR2aa medium supplemented with 10% fetal calf serum and bovine serum albumin. Cleavage and 8-cell stage rates were assessed 72h post-fertilization and blastocyst rate at eight day. Association of motility and viability post-thawing (MotPD and ViaPD, respectively), motility and viability post-swim up (MotPSW and ViaPSw, respectively) and viability post-fertilization (ViaPFec) with cleavage, 8-cell stage and blastocysts rates were performed by linear regression analysis. Cleavage and blastocyst rates ranged from 37.9% to 87.5% and 0 to 44.3% among samples, respectively. Motilidade and viability post-thawing ranged from 40% to 85% and 21.3% to 85.3%, respectively. MotPD was associated ($P<0.01$) with cleavage ($R^2=0.49$) and 8-cell stage ($R^2=0.39$) rates whereas ViaPD was associated ($P<0.05$) only with cleavage rate ($R^2=0.24$). Determination coefficient between MotPD and blastocyst rate was $R^2=0.16$ ($P=0.059$). Others sperm parameters (MotPSw, ViaPSw and ViaPFec) did not show significant association ($P>0.05$) with cleavage or embryo rates. In conclusion, motility post-thawing presents moderate association with cleavage and 8-cell stage rate, and may be useful as an additional parameter to evaluate the potential fertility of sample semen before swim up. The data also suggests that sperm viability, assessed by eosing-nigrosin after swim up and *in vitro* fertilization, is not a good parameter to predict cleavage and *in vitro* embryo production rates.