

Substitution of animal protein with plant proteins in cryopreservation of boar semen

Summary

Plant protein supplementation in extenders is hygienically safe and eliminates the risk of microbiological contamination. As one of the phospholipids, soya lecithin plays an important role in regulation of the physiological functions of the cell membrane. Moreover, like egg yolk, soya lecithin has properties protecting animal spermatozoa against cold shock during semen cryopreservation. The study was undertaken to determine the effect of adding a mixture of several plant proteins and soya lecithin (Pp) (Animal Pharma BV, the Netherlands) and soya lecithin alone (LS) (Sigma, St. Louis, MO, USA) on the quality of frozen boar semen. The following semen parameters were assessed: sperm motility, plasma membrane integrity (YO-PRO-1/PI), mitochondrial transmembrane potential and acrosome integrity. The best result was obtained for the extender supplemented with 15% soya lecithin, with 36.6% of sperm cells exhibiting progressive motility, 39.5% with plasma membrane integrity (YO-PRO-1/PI) and 32.1% with acrosome integrity. In conclusion, soya lecithin at a concentration of 15% can replace egg yolk extender in cryopreservation of boar semen.

KEY WORDS: plant proteins, soya lecithin, cryopreservation, boar