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Effects of biologically active substances on the rabbit fertility

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The aim of the study was *in vivo* and *in vitro* evaluation intravaginal application of biologically active substances included in the rabbit insemination dose on sperm-ovule interaction and selected reproduction parameters. This study was realized in two experiments – *in vitro* and *in vivo*. The adult female rabbits were divided into four groups. Group C (control) with an intramuscular application of synthetic GnRH (gonadotropin-releasing hormone) super-analog – Lecirelin (2.5 μg per doe) immediately after the artificial insemination (A.I.). Two groups (H0.06 and H0.12) with an intravaginal application of heparin (0.06 μl; 0.12 μl per doe) and intramuscular application of GnRH (2.5 μg per doe) after A.I. The last was group G only with the intravaginal application of GnRH – Lecirelin (7.5 μg per doe). All females were artificially inseminated by fresh semen doses (0.5 ml per one female) and insemination doses (I.D.) were diluted by insemination extender for rabbit sperm (MiniTüb, Germany). Concentration of spermatozoa varied from 24.0 to 95.2 x 106 per insemination dose. In an, *in vitro* experiment, we analyzed the influence of intravaginal application GnRH and two different level of heparin on the total number of oocytes and zygotes, number of zygotes with two pronuclei and number of unfertilized oocytes. In an, *in vivo* experiment, we followed the intravaginal application of GnRH and different level of heparin on selected reproductive parameters. The significance of differences among groups was determined by t-test and $\chi 2$ test. The highest kindling rate (89.29%) was obtained in group H0.06 and number of total born kits (10.88±2.63) in group H0.12. Intravaginal application of GnRH and heparin positively influenced the number of zygotes with two pronuclei and decreased the number of unfertilized oocytes. However, these differences were not significant compared with the control group. This work was supported by the Slovak Research and Development Agency under the contract No. APVV-16-0067 and No. APVV-0044-12.

Biography

Dr. Lubomir Ondruska is a research scientist at the National Agricultural and Food Centre Nitra in the Slovak Republic. He is interested in the area of animal genetics, animal breeding, molecular biology and reproductive physiology of farm animals (as an animal model uses rabbit, other farm animals and game). He is scientist strives for the application of modern methods and practices in basic and applied research as well as to the user community. His gained experience and education applies to the solution research projects and also on pedagogical activities in Slovak Agricultural University in Nitra, Slovakia. Scientific research activities: Original scientific work: 52, Books in authorship: 2, Contributions in proceedings of scientific conferences and congresses: 155, Expert and popular articles: 53. Participation and coordination in the research project: Slovak Research and Development Agency: 7, EU operational programs: 2, Ministry of agriculture projects: 7.

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