

Nanocomposites in technology long-term preservation of animal genetic resources

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Currently, methods of cryopreservation of semen of boars are complicated and after use this gametes in artificial insemination of sows has been not received good results. Preservation viability of boar sperm during their low-temperature treatment primarily depends on methodological approaches to cryopreservation [1].

In this moment, we know that the ultrafine silica (UFS) as impurity in the standard cryomedium in various concentrations can stimulate sperm viability of bull [2]. Modification surface UFS of some biomolecules, such as mono- and oligosaccharides, allowed to create perspective nanocomposites (NC), which, when added to the different composition of cryomedium of sperm bulls, rams and human promote better mobility and survival [3]. In this time, developed and successfully applied method of cryopreservation of sperm removed from tail of the epididymis testis (epidydimis) boars using LGY-medium [4] and some NK synthesized at the Institute of Chemistry Surface O.O.Chuyka NAS of Ukraine, such as a protein albumin bovine serum (BSA), (UFS / BSA) and sucrose (UFS / sucrose). Later it was proposed and created NC (UFS / BSA / NANA) based UFS, BSA and N - acetylneuraminic acid (NANA), which is the terminal fragment receptor cells is largely responsible for the magnitude of the negative charge which correlates with the degree of cell viability. It is expected that the use of the NK as part cryomedium will reduce the current difficulty in the case of cryopreservation ejaculation gametes and ensure preservation genetic material of endangered breed pigs. The aim of this research was to use method of cryopreservation ejaculation boar sperm Mirgorodska breed and establishing effective use UFS / BSA / NANA to enhance the viability gametes. Mirgorodska breed pigs by methodological approaches "Applications preserve the gene pool of the main types of farm animals in Ukraine for the period till 2015" classified as domestic gene pool object that is currently on the verge of extinction. For the preservation and management of this kind animal, to be brought into practice modern methods embryological genetics. It was therefore investigated the effect of adding UFS / BSA / NANA viability

deconservation ejaculation boar sperm Mirgorodska breed (Dnipro 641, Komush 853, Kohany 289). The effect on the viability of gametes three concentrations (0,1 %, 0,01 %, 0,001 %) was assessed by motility percentage. Installed that just ejaculation boars sperm showed motility an level $81,2\% \pm 1,66$. Deconserved boar sperm shows the level of motility at $16\% \pm 3,3$. This mobility remained in control within 90 minutes. In the experimental groups after 30 min. were the most active gametes that were 0,001% concentration UFS / BSA / NANA ($30\% \pm 0,58$). The lowest activity compared to 0,001 % and 0.01% UFS / BSA / NANA had gametes , consisting of 0.1% concentration NC. Their motility has decreased by 18 % compared with 0.001% and 11% compared with 0.001% NC concentration when staying gametes from 0.1% its concentration ($30\% \pm 0,58$; $23\% \pm 3,38$, $12\% \pm 1,67$ respectively). When we study the effect of different concentrations of NC on the viability of gametes boars appeared most active sperm while adding 0.001% concentration UFS / BSA / NANA, which has provided growth of the motility by 15%.

These studies have shown the possibility of increasing the level of activity deconservation boar spermatozoa by the addition of NC UFS / BSA / NANA to LGY-medium, hereinafter particularly important in the early stages *in vitro* fertilization. It is reason to suppose that the effect of increased activity in the presence of gametes NC provided a high degree of chemical affinity surface created by the NC to certain components of semen and corresponding cell receptors, which speeds up the metabolic changes in the energy system cells. Thus the proposed scheme of nanomaterials based UFS and some biomolecules in technology cryopreservation ejaculation sperm of boars. The significant increase in dynamic characteristics, which gives grounds to recommend the use of NK UFS / BSA / NANA of 0,001% concentration, for better preservation and cryopreserved genetic resources in rational management and reproduction endangered breeds pigs.

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