

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

INTEGRITY OF THE PLASMA MEMBRANE OF CRIOPRESERVED SPERMATOZOA WITH ADDITION OF AÇAÍ EXTRACT

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In the cryopreservation of sperm cells, one of the main factors that affect viability is the oxidative stress, which is a result of the excessive number of reactive oxygen species. Thus, it becomes necessary to guarantee additional protection during the sperm freezing process, which can be achieved by the addition of potentially antioxidant substances. Polyphenols stand out among the most efficient antioxidant substances used to combat the excess of reactive oxygen species. One of the natural sources of polyphenols is açai (*Euterpe oleracea Martius*), which is highly antioxidant, mainly due to its anthocyanin-rich polyphenolic fraction. Therefore, the aim of this study was intended to evaluate the effect of the incorporation of açai extract (*Euterpe oleracea Martius*) to the semen of bulls with low tolerance to cryopreservation, on the integrity of the plasma membrane of spermatozoa post-thaw. The semen samples, were obtained by the electroejaculation method, from five Senepol bulls aging between 24 and 30 months and with a history of low tolerance to cryopreservation (total and progressive motility post-thaw below 50% and 30%, respectively, in the subjective evaluation of sperm movement). Each sample was divided into five parts, diluted according to their experimental groups: extender Triladyl (Control); Triladyl® added with 5, 10, 15 or 20 mg of açai extract per mL of media. The semen samples were packaged in 0.25 mL French straws, and cryopreserved in a TK 3000 Compacta SE machine. The integrity of the plasma membrane of the post-thaw semen samples were evaluated by the association of fluorescent 6-carboxyfluorescein diacetate and propidium iodide probes, in epifluorescence microscopy. For each sample, we evaluated 200 spermatozoa, which were classified according to the fluorescence pattern emitted (intact plasma membrane or injured). The data concerning the spermatozoa with both an intact plasma membrane were subjected to variance and regression analysis testing the linear and quadratic models at the significance level ($p < 0,05$). The integrity of the plasma membrane was significantly affected ($p < 0,05$) by the addition of different concentrations of açai extract to the extender. The addition of açai extract to the freezing extender grants better preservation of the structural integrity of the plasma membrane of spermatozoa with low tolerance to the cryopreservation process.

Keywords: bovines, cryopreservation, *Euterpe oleracea Martius*, semen

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