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First attempt at sperm cryopreservation in rhea (*Rhea americana*) - Preliminary results

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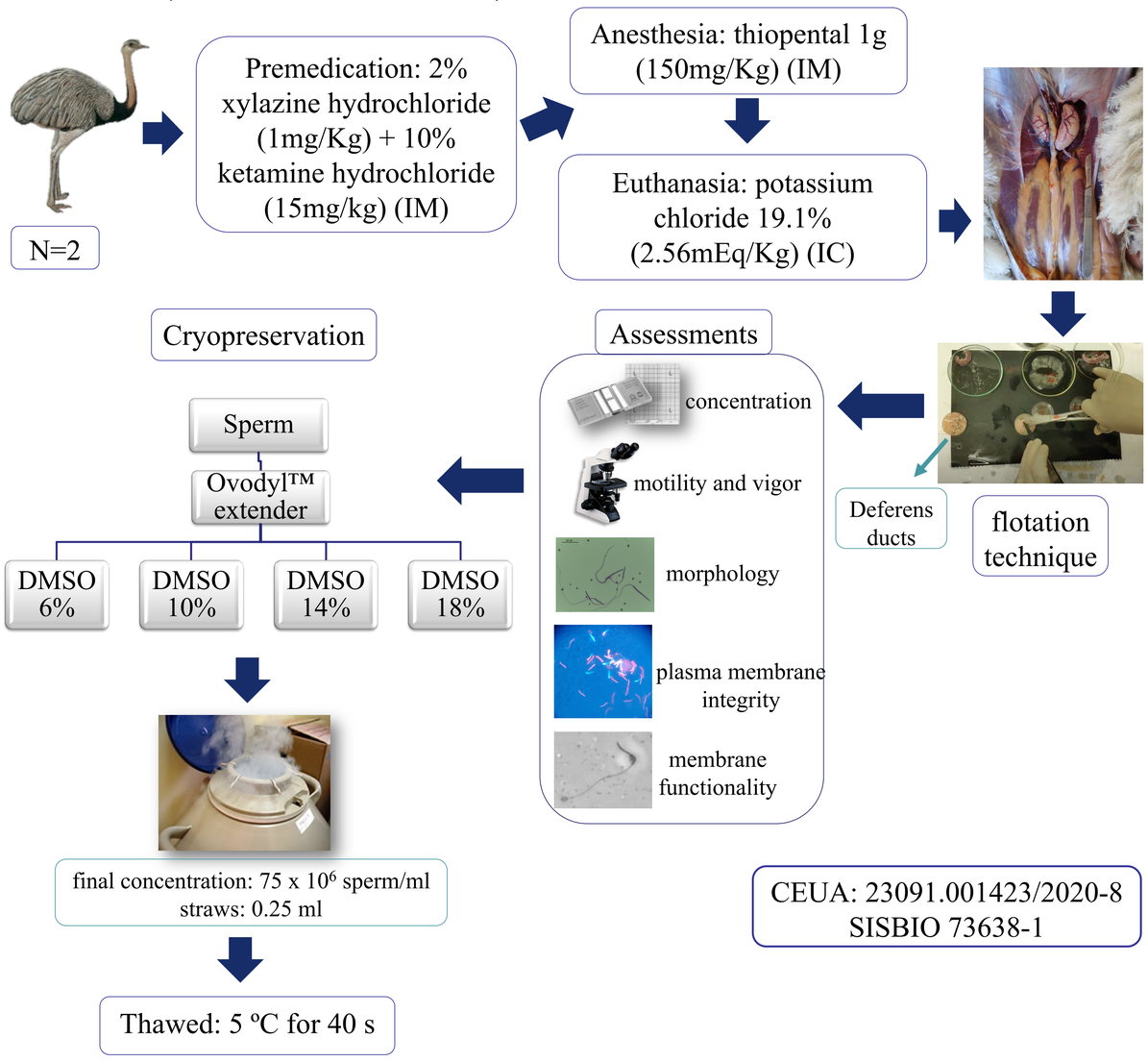
1. INTRODUCTION

The rhea *(Rhea americana)* is a native bird of South America, which is globally classified as an almost threatened species. In this context, the knowledge of research on its reproductive physiology as well as the development of assisted reproductive techniques are essential for its conservation. Despite the importance, protocols for sperm cryopreservation of Rhea sperm were not yet stablished. In this initial study, we aim to investigate the use of a commercial extender for sperm recovery and dilution, as well as the effect of dimethyl sulfoxide (DMSO) as a cryoprotectant agent for the cryopreservation of Rhea sperm.

2. MATERIAL AND METHODS

The animals were from the Center for Multiplication of Wild Animals (CEMAS/UFERSA).



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Data were expressed as mean and standard error.

3. RESULTS

Fresh samples presented a concentration of 140 ± 10.0 x 10^6 sperm/ml, being 77.5 ± 2.5% motile sperm with vigor 3.5 ± 0.5, with 72 ± 1.7% normal morphology, 66.5 ± 4.5% membrane integrity and 78.5 ± 14.5% functional membrane. The results of cryopreservation of rhea sperm are in table 1

Table 1. Parameters of cryopreserved rhea (*Rhea Americana*) sperm with different concentrations of DMSO (Means ± standard error).

	6%	10%	14%	18%
Motility (%)	15.0 ± 10.0%	10.0 ± 5.0%	7.5 ± 2.5%	7.5 ± 2.5%
Vigor (1-5)	1.0 ± 0	1.0 ± 0	1.0 ± 0	1.0 ± 0
Normal morphology (%)	75.0 ± 3.5%	77.5 ± 9.5%	83.5 ± 2.5%	81.0 ± 9.0%
Plasma membrane integrity (%)	15.5 ± 1.5%	19.0 ± 4.0%	15.0 ± 7.0%	9.5 ± 6.5%
Plasma membrane functionality (%)	29.0 ± 3.0%	35.5 ± 0.5%	39.5 ± 3.5%	28.0 ± 6.0%

4. CONCLUSION

Notably, this study is the first description related to cryopreservation of Rhea sperm. In summary, we have had promising results showing that Ovodyl™ is an effective means of sperm retrieval and dilution; however, more studies are needed to define the appropriate concentration of cryoprotective agents to improve the freezing protocol for Rhea sperm.

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