

Short-term cold storage of the Caspian shemaya (*Alburnus chalcoides*) sperm

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INTRODUCTION

Short-term semen storage refers to maintaining sperm viability and motility by reducing metabolic activity through lowering temperature, typically at 1–4 °C. The ability to store fish semen for short durations has wide applications in both routine aquaculture operations and conservation programs. This study aimed to evaluate the sperm quality of the Caspian shemaya (*Alburnus chalcoides*) during chilled storage at 4 °C.

METHOD

In the present study, the percentage of motile spermatozoa (MP) and motility time (MT) of the Caspian shemaya sperm were evaluated during chilled storage at 4 °C for periods of 0, 24, 48, 72, and 96 hours. Sperm samples were collected from 16 mature male fish, with an average weight of 22.1 ± 4.3 g. For the sampling procedure, the fish were anesthetized using clove powder extract. Sperm was then collected using a sterile syringe by gently applying pressure to the abdominal region. Samples were pooled (n=2 per plastic tube) and stored at 4 °C.

RESULTS

The results showed significant differences in MP at all measured intervals after the initial assessment ($P < 0.05$, Table 1). Additionally, there was a considerable difference in MT at all intervals after 24 hours of chilled storage compared to the initial measurement ($P < 0.05$). All sperm samples lost their viability after 96 hours of chilled storage.

Table 1. Motility time and percentage of motile sperm (mean \pm SD) of the Caspian shemaya (*Alburnus chalcoides*) during chilled storage (+4°C)

Time after storage (h)	n [*]	Spermatological parameters	
		Motile sperm (%)	Motility time (s)
0 ^{**}	8	100.0 \pm 0.0 ^a	56.1 \pm 8.6 ^a
24	8	85.0 \pm 13.7 ^b	49.2 \pm 2.2 ^a
48	8	47.5 \pm 14.4 ^c	38.7 \pm 2.8 ^b
72	3	30.7 \pm 3.6 ^d	26.7 \pm 10.3 ^c
96	0	0.0 \pm 0.0 ^d	0.0 \pm 0.0 ^d

Groups with different alphabetic superscripts in the same column differ significantly at $P < 0.05$

* Number of samples with motile sperm in each time

** Before chilled storage.

CONCLUSION & FUTURE WORK

The findings suggest that the sperm samples maintain a favorable quality for fertilization for up to 24 hours after chilled storage. Therefore, short-term storage of Caspian shemaya sperm, for a duration of up to 24 hours, can facilitate efficient management of samples and support successful fertilization processes in hatchery operations.

REFERENCES

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