

Extending storage time for Rainbow Trout (*Oncorhynchus mykiss*) milt: The effect of temperature

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QUESTION

Can rainbow trout milt (sperm) be stored for longer periods of time and what is the effect of temperature on storage time?



Figure 2. (A) Bad eggs separated from eyed-eggs; (B) fertilized eggs with visible eye spots; (C) checking milt motility with light microscope.



Figure 1. Alex and Brad collecting milt while Steve took photos.

HYPOTHESES

Trout milt stored at 1.7°C will remain viable longer and have a higher fertilization rate than milt stored at 4.2°C, and despite motility, milt stored for longer periods (> 15 days) can still fertilize eggs.

METHODS

- Milt collection took place on 20 March 2017; observations began the same day (Fig. 1).
- Milt samples from 15 male trout were divided and stored at two temperatures.
- Motility was checked every 5 days, for a total of 21 days (Fig. 2C).
- Samples were 'breathed' every 2 – 3 days.
- Egg fertilization conducted on 30 Mar and 10 Apr, days 10 & 21 (Fig. 6 & 7A).
- Note: Two different females were used for each temperature on both fertilization days, four females total.
- Egg fertilization rate (% eyed-eggs) was determined on 15 Apr and 26 Apr (Fig. 2A&B and Fig. 7B).

RESULTS

- Motility dropped below 50% for most samples by day 10 (Fig. 4).
- Motility slightly higher for samples held at warmer temperature (Fig. 3).
- Despite poor motility, fertilization data from days 10 and 21 showed that the colder temperature had higher fecundity rates. (Fig. 5A & B).
- Motility was not a good indicator for viability (Fig. 4 & 5).

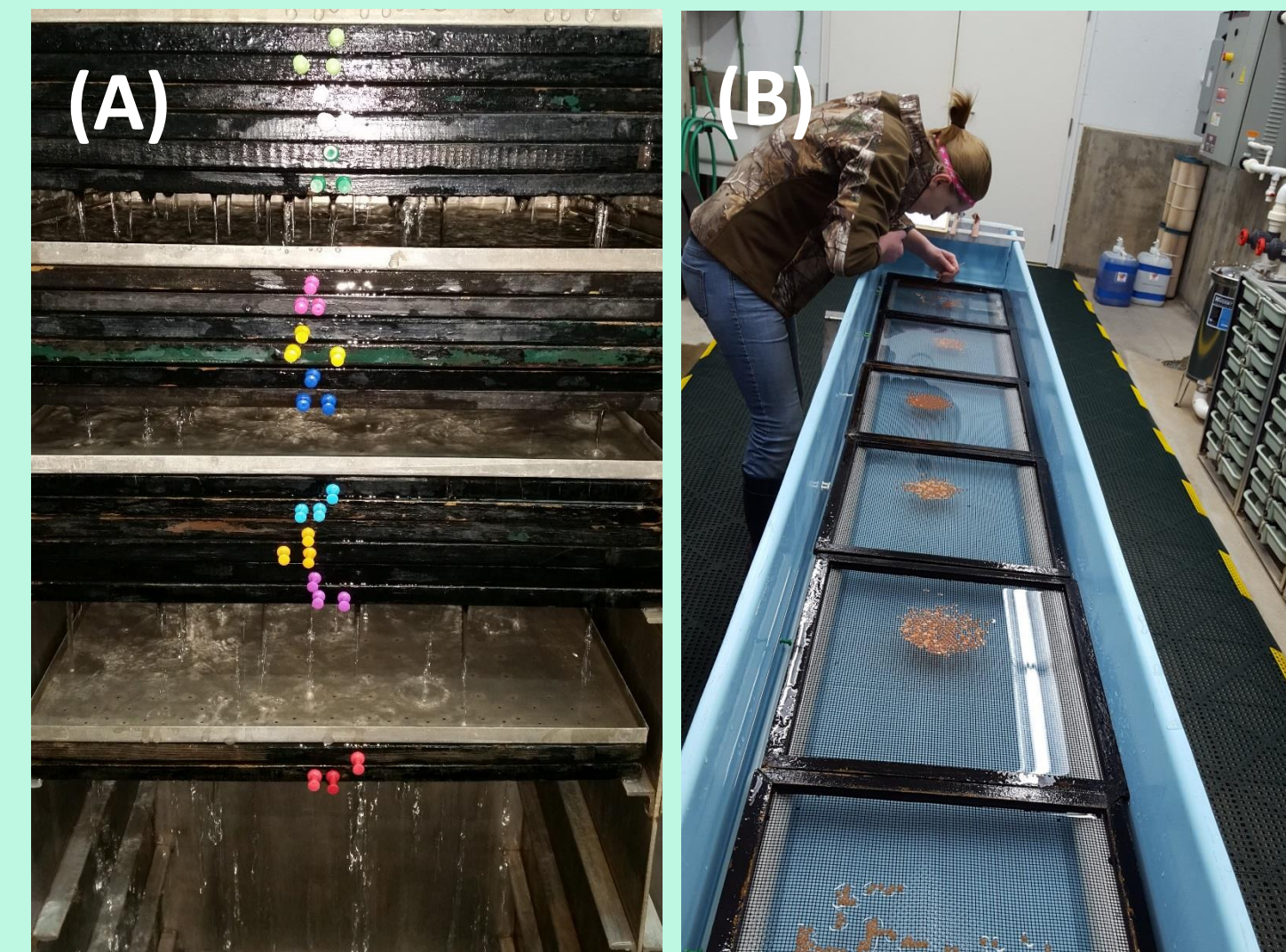


Figure 7. (A) Fertilized eggs in the drip trays; (B) Alex and Jen separating bad eggs from eyed-eggs



Figure 8. Alex and Brad waiting for a male to become temporarily immobilized for milt collection.



Figure 6. Alex, Brad and Jen collecting and fertilizing eggs.

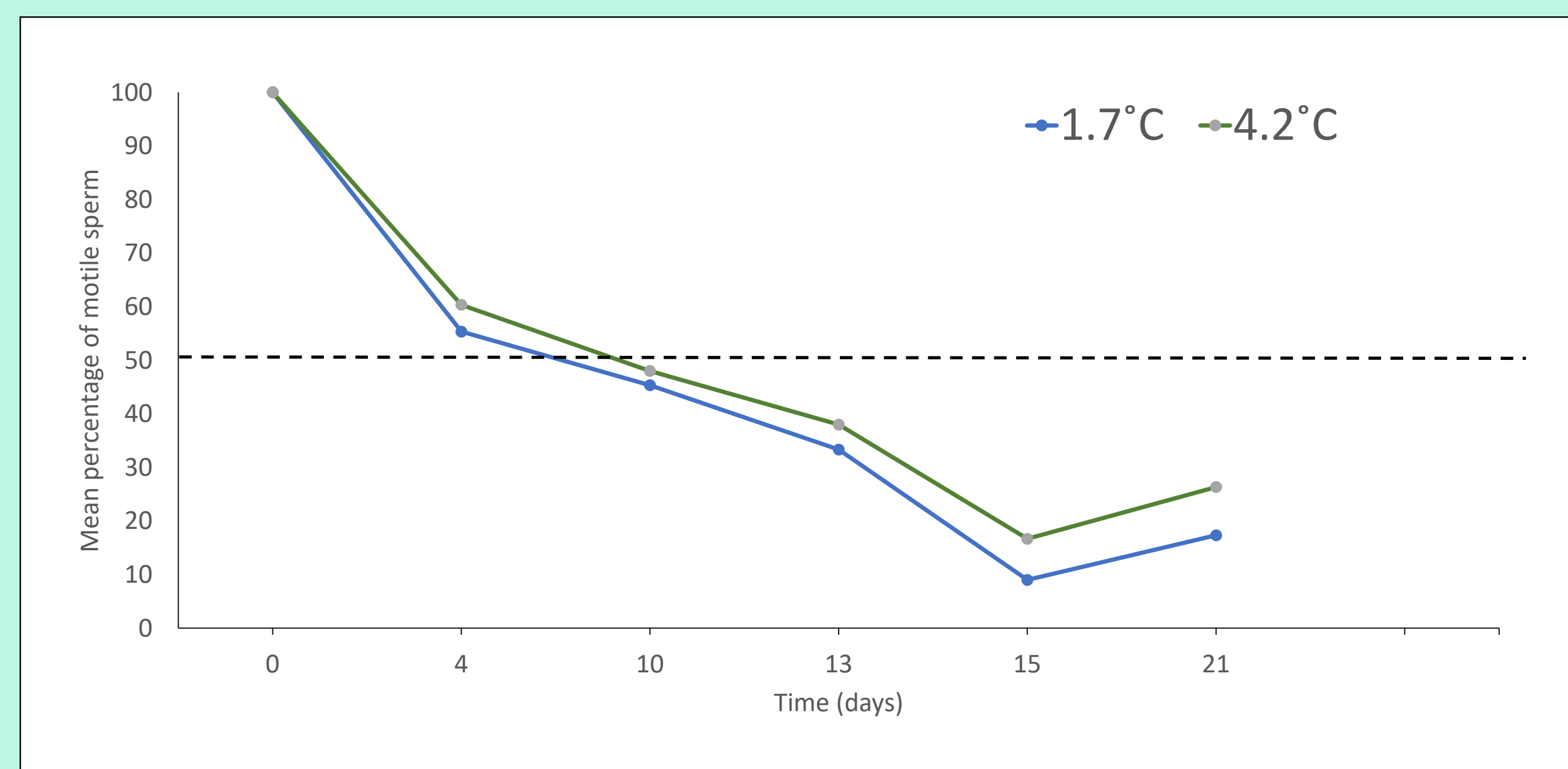


Figure 3. Mean percentage of motile sperm at two temperatures over 21 days.



Figure 4. Percentage of motile sperm from 15 individuals at two temperatures over 21 days.

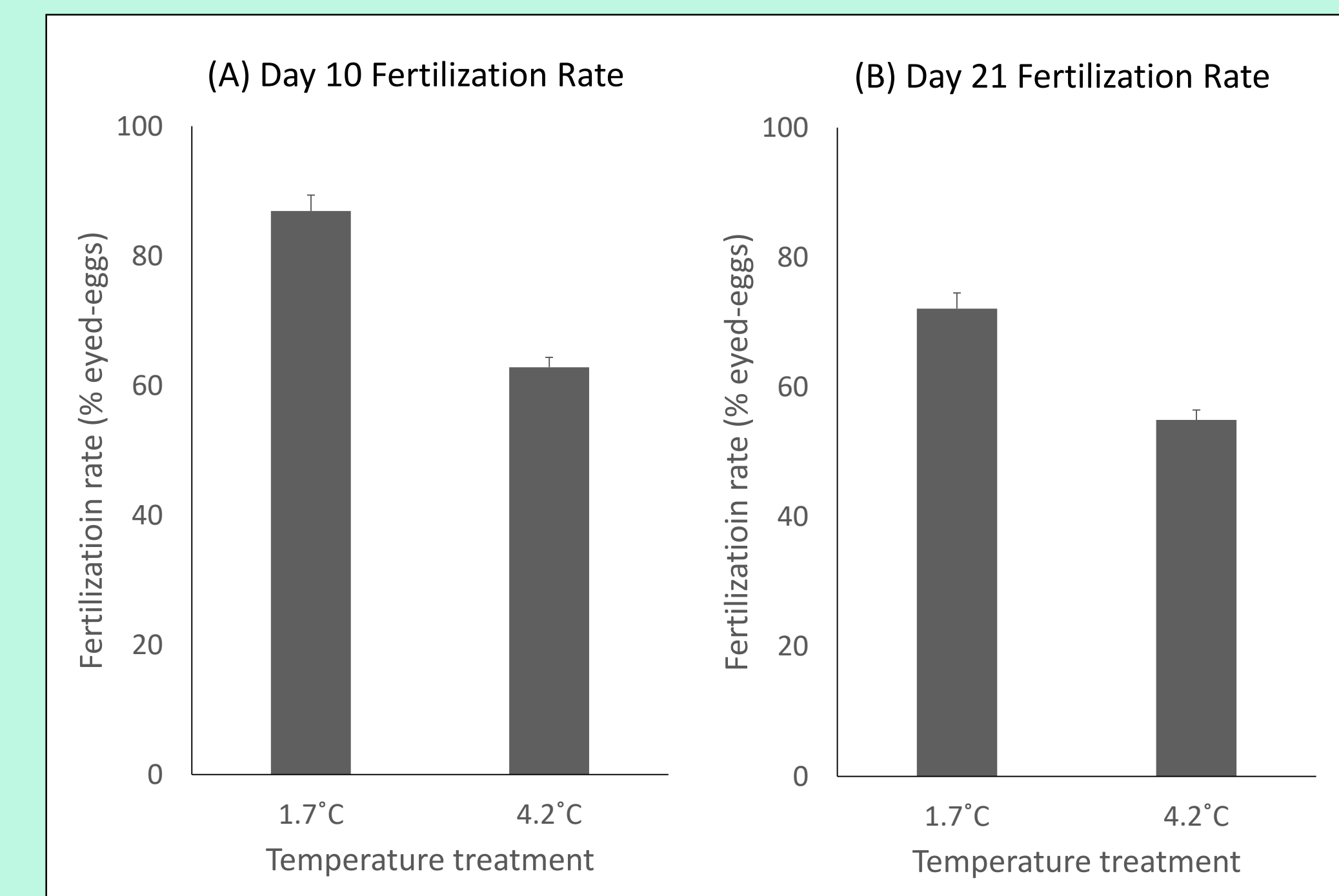


Figure 5. Mean (± SE) fertilization rate (% eyed-eggs) using milt from 10 males at two temperatures after: (A) 10 days, and (B) 21 days.

Literature Cited

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CONCLUSION

No strong effect of storage temp on milt storage time based on motility; dropped below 50% (WGFD cutoff) by day 10; interestingly, high fertilization despite poor motility, and higher rate for samples stored at colder temps.