Review of: "Cooling Beer With a Wet Paper Towel"

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Potential competing interests: No potential competing interests to declare.

The research is aiming at answering the question “whether wrapping a warm beer (or other beverage) in a wet paper towel before putting it in the freezer helps to cool the beer, compared to not wrapping it in a wet paper towel.” “Does a wet paper towel slow cooling by insulating a beer, or does evaporation from the towel enhance cooling?” The authors claim that conclusions could be drawn from the experimental results. But due to the following, no clear conclusions could be drawn:

- According to the presented photos etc. the experiments with bottles wrapped in wet paper towels were carried out separately from the experiments with bottles without any wet paper towels. Thus, as no measurement was done of air humidity, air temperature air convection (velocity), the condition for the experiments could differ.
- The exact placements of the bottles matters in an environment with air convection. This has not been accounted for (at least not reported)
- Due to the fact that the cooling of the fluid (beer or other) takes place from the inner wall surface of the bottles, the fluid temperature will be inhomogeneous, and thus there will be a free convection of the fluid in the bottles. Therefore, the location of the thermocouple is critical. Accurate presentation of that is missing.

Generally, much data is missing to be able to replicate the experiments.

Further, a discussion about the different results in the referenced articles is missing.

Also a discussion/explanation is missing why the conclusion “wet paper towel appears to have an insulating effect”, drawn from the presented graphs in FIG. 4(b) in the Supplementary data “cooling-beer-supplement.pdf”, contradicts the concluded result based on Fig. 1(a) and (c) in the main paper that “wet paper towel reduced the cooling time by approximately 25%” .

In conclusion, much of the work is well done, but the conclusion drawn is based on too limited data, and much is missing to be accepted for publication.