Review of: "Clinical and Subclinical Bovine Mastitis: Staphylococcus aureus Isolation and Identification from Dairy Farms Located in and Around Hawassa Town, Southern Ethiopia"

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Potential competing interests: No potential competing interests to declare.

The objective of this manuscript is the identification of *Staphylococcus aureus* from bovine mastitis milk. This is an important and interesting research problem. However, all the statistical analyses are inconclusive; therefore, I am obliged to ask the Authors to withdraw their manuscript. My arguments are as follows.

To diagnose mastitis, the Authors applied the California Mastitis Test (CMT). However, this is a crude test that often gives false results. In (Dingwell, R. T., Leslie, K. E., Schukken, Y. H., Sargeant, J. M., & Timms, L. L. (2003). Evaluation of the California mastitis test to detect an intramammary infection with a major pathogen in early lactation dairy cows. The Canadian Veterinary Journal, 44(5), 413.), the estimated quarter-level sensitivity (Se) and specificity (Sp) are as low as 0.688 and 0.715, respectively. In Table 1 of the manuscript, the estimated quarter-level apparent prevalence (AP=proportion of test-positive quarters) is AP=0.274. It is well known that the apparent prevalence is contaminated by both false positives and false negatives. The true prevalence (P) can be recovered from AP, applying the Rogan-Gladen formula P=(AP+Sp-1)/(Se+Sp-1) (Rogan, W. J., & Gladen, B. (1978). Estimating prevalence from the results of a screening test. American journal of epidemiology, 107(1), 71-76.). In our case, it yields the estimate P=-0.027, which is a negative value. Consequently, based on the collected data, we cannot even demonstrate the existence of mastitis in the population investigated!

Bacterial isolation was performed on a subsample of CMT-positive cases. However, we have seen that we cannot confirm the presence of mastitis in the population (and consequently in the subsample), so we cannot reliably link bacterial isolation to mastitis (as attempted in Table 2).

Finally, logistic regression was applied to demonstrate the association between risk factors and mastitis. However, the outcome variable was CMT-positivity, and these data are heavily contaminated by both false positives and false negatives. Therefore, logistic regression is not an appropriate model to reveal connections between the risk factors and mastitis itself. Note that there are sound Bayesian latent class models that can be used to relate the true disease status to risk factors, see e.g., (McAloon, C.G., Doherty, M.L., Whyte, P., O'Grady, L., More, S.J., Messam, L.L.McV., Good, M., Mullowney, P., Strain, S., Green, M.J., 2016. Bayesian estimation of the prevalence of paratuberculosis in dairy herds enrolled in a voluntary Johne's Disease Control Programme in Ireland. Preventive Veterinary Medicine 128, 95–100.).