



Efficacy of BioMed TF-Transit Tubes in Comparison to Gold Standard BioMed InPouch TF during Transit

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Trichomonas foetus (*T. foetus*) is a flagellate protozoan parasite that is the etiologic agent responsible for the severe reproductive disease in cattle known as bovine trichomoniasis. New Mexico Department of Agriculture Veterinary Diagnostic Services (NMDA-VDS) has validated a Real-Time PCR assay that was recently discussed in the *Journal of Veterinary Diagnostic Investigations* by Effinger and Colleagues as the only assay performed by a laboratory (Laboratory F) in their study that had perfect agreement ($\kappa = 1.0$) with the nPCR and subsequent sequencing results they acquired. To maintain this detection level of the *T. foetus* organism for the clients the laboratory serves, NMDA-VDS performed a study to determine the efficacy of the newly offered BioMed TF-Transit tubes in comparison to the gold standard BioMed InPouch transport system while in transport. This study also served to determine the impact on samples of variable transport times with regard to the detection of *T. foetus* by Real-Time PCR.

The transport study was performed by using a pure strain of *T. foetus* (sequenced) to prepare a stock 10-fold serial dilution (neat through 10^{-6}). The BioMed TF-Transit tubes and BioMed InPouch transport system were then inoculated with each dilution series in triplicate with a negative sample included per group (22 samples per collection system per group; 176 total samples). Four groups of side-by-side comparison collection methods were produced including a laboratory control group, a 48 hour transport group, a 72 hour transport group, and a 96 hour transport group. Once inoculated, samples were prepared for transport with logged temperatures throughout transport time. Upon return, each group was processed through specimen receiving for molecular processing following standard diagnostic procedures. The Molecular Biology department performed the NMDA-VDS validated chemical lysis extraction and Real-Time PCR method and added a standard *T. foetus* reference dilution series on each plate for development of a standard curve and limit of detection.

The results of this study provided data toward the acceptance of the BioMed TF-Transit tube as an efficacious transport system and evidence revealed comparable analytical sensitivity when compared to the BioMed InPouch transport system. Additionally, this study yielded valuable information on acceptable transport times from collection date to date receipt in laboratory, with 96 hours being a permissible and evidence-based transport time when utilizing the validated Real-Time PCR method at NMDA-VDS.