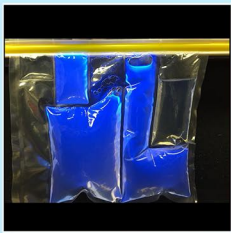




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CBT fluorescence in the presence of *V. cholerae*

Detection and Quantification of *Vibrio cholerae* in Water Using the Compartment Bag Test

Diarrheal disease is the second leading cause of death among children under the age of five, taking 502,000 young lives worldwide each year. Cholera is an acute diarrheal disease caused by the bacterium *Vibrio cholerae* that, if left untreated, can be fatal. Cholera is endemic to many areas of the world, especially in areas that lack infrastructure to provide clean drinking water. Effective disease control depends on timely detection of *V. cholerae* in drinking water. Currently available detection methods for *V. cholerae* are rarely applied to surveillance of drinking water because they require electricity, specialized equipment, and advanced training that are rarely available in the developing world. An effective broth culture medium amenable to field testing is needed to quantify *V. cholerae* in drinking water sources. Therefore, the aim was to develop a *V. cholerae*-specific broth culture medium that could be used with an existing field test method, the adapted Compartment Bag Test (CBT). The quantification of *V. cholerae* concentration was compared in a CBT to the quantification of *V. cholerae* concentration in a Multiple Tube Test (MTT) for three strains of *V. cholerae*: O1, El Tor Ogawa (ATCC BAA-2163), O139 (ATCC 9-51395), and Non-O1 (ATCC 35971). The sample matrix used was deionized water with Tellurite Taurocholate Gelatin Broth (TTGB) medium. The difference in quantification by these two methods was not statistically significant. Thus, the CBT is as effective as the MTT to quantify concentrations of *V. cholerae* for all three strains. For future studies, the sample matrix should be modified and experiments should be done in a more realistic matrix such as a comparison between test water and local surface water. These matrices would give a better representation of the efficacy of the CBT out in the field. Through the employment of the adapted CBT it is the hope that exposure to *V. cholerae* can be decreased by increasing surveillance in drinking water sources.