

## Optimization of Methods of Screening and Isolation of Enteric Viruses From Tap Water By Using of MS2 Coliphage as a Model

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**Background & Objectives:** Enteric viruses are among those pathogens which are responsible for a significant portion of water-borne and food-borne diseases. Unfortunately, robust, quantitative Methods for sampling and analysis of viruses in waters are not well-established. As a result, epidemiologically determined etiologies or pathogen sources in water-borne outbreaks are rarely confirmed by routine virological analysis.

**Methods:** In this study, MS2 coliphage was used as a model for enteric viruses. In addition, virus concentration and elution Methods from the tap water by different buffers was investigated.

**Results:** Among kinds of buffers used for elution of the coliphage, four buffers with the following conditions; [0.05 M glycine and 150mM NaCl, pH 9.5; 0.05 M glycine and 1%(w/v)beef extract, 3%(w/v)beef extract in pH 9.5 or 7.5] showed the highest coliphage recovery (95%, 96%, 99.5% and 98% respectively). Furthermore, the coliphage precipitation index using polyethylene glycol [10%(w/v)] and NaCl (0.3M) was also evaluated. Up to 90% of the total coliphage being recovered in three different buffers, confirmed that type of all examined buffers had no effect on the precipitation index. According to our results, incubation time was an important factor in precipitation index. The highest index of precipitation was detected in overnight incubation of suspension with buffer at 4°C.

**Keywords:** Enteric Viruses; MS2 Coliphage; Tap Water; Concentration

