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A simple and sensitive method to detect enteric viruses from oysters

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Development of a rapid method possessing the requisite sensitivity and specificity for virus monitoring is necessary for protection of the shellfish-consuming public. Oyster tissues usually contain virus particles in relatively small concentrations and include various substances which may perturb the detection steps. Therefore, the critical point concerning the detection of viruses in shellfish tissues resides in the processing of samples. In this study, we have developed a procedure which facilitated purification of small amounts of virus particles by performing sucrose gradient ultracentrifugation. Viruses were most effectively concentrated on the interface of 10/50% sucrose gradient. We could detect HAV and poliovirus simultaneously from oyster tissues by using two different sets of primer. Furthermore, this method showed a high level of virus recovery rate (>95%) as determined by plaque assays of the final samples. Taken the advantages of the simple and sensitive methods, it was possible to detect 2 pfu of HAV in 5 g of oyster digestive tissues within 24h.