

THAI OYSTER (*CRASSOSTREA BELCHERI*) IS NOT A GOOD SENTINEL FOR MONITORING OF *CRYPTOSPORIDIUM* CONTAMINATION

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ABSTRACT

*Cryptosporidium*, a highly adaptable protozoan parasite, can be transferred from land to estuary, river, and coastal waters in runoff. Often eaten raw, oysters feed on particles, including *Cryptosporidium* oocysts, and accumulate the oocysts inside their body via filtration. In this study, the ability of oysters to trap *C. parvum* oocysts and the feasibility of multiplication in oysters were determined by raising oysters in natural seawater experimentally seeded with *C. parvum* oocysts, for up to 3 months. Two vital immunofluorescence staining techniques (Sporo-Glo™ and Merifluor®) and confocal microscopy were used to detect and study the viability of the *C. parvum* oocysts. Real-time polymerase chain reaction (RT-PCR) amplification was also used to detect and quantify the number of oocysts. The natural contamination rate of *Cryptosporidium* spp. in large oysters was assessed.

*C. parvum* was most concentrated, and highly viable, in the digestive organs of oysters at 24 hours post-exposure. The number of oocysts then dropped significantly within 7 days and remained low until being no longer detectable at 84 days. Despite some oocysts releasing sporozoites, there was no evidence of sporozoite transformation to other life-cycle stages or multiplication. Compared with RT-PCR amplification, immunofluorescence techniques were found to be more effective in detecting *C. parvum* in oysters in this study. The natural contamination rate for *Cryptosporidium* spp. in oysters was only 2 % (1/50).

Although the oyster is a mechanical disease-transmission host, it is not a good sentinel for monitoring *Cryptosporidium* contamination in natural habitats. Due to the low infective dose of *Cryptosporidium*, eating raw oysters still poses a public-health concern. Well-cooked dishes are recommended. Otherwise, raw oysters should undergo depuration in clean seawater (to purge impurities) for at least 24 hours before sale and/or consumption.

KEY WORDS: *CRYPTOSPORIDIUM* / OYSTER / IFA

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