

## Parasitism of the protozoan *Perkinsus atlanticus* in Manila clams, *Ruditapes philippinarum*, in Gomso Bay (Korea) and Ariake Bay (Japan)

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### Abstract

Manila clam, *Ruditapes philippinarum*, is commercially and ecologically important marine bivalve in Korea and Japan. However, clam landings in the two countries have dramatically declined since the 1980-1990's. In the present study, the protozoan parasite, *Perkinsus sp.*, lectin (host's defense-related glycoprotein) and histopathological features were investigated in Manila clams collected from Gomso Bay in Korea and Ariake Bay in Japan (one of the largest clam beds in each country) during summer and fall, 2002-2003. DNA sequences of non-transcribe spacer (NTS), internal transcribed spacer (ITS) and 5.8S rRNA of *Perkinsus sp.* were identical to those of *P. atlanticus* that was reported in Europe and Korea. For diagnosis of *Perkinsus*, the fluid thioglycollate medium (FTM) and the 2 M NaOH lysis methods were used. Prevalence of the parasite varied from 92.5-98.7 % in Gomso Bay and 35.5-37.9% in Ariake Bay. Infection intensity, in terms of the number of *Perkinsus* cells per gram tissue wet weight, in the clams of Gomso Bay in fall 2002 averaged 1,010,077-470,937 recording approximately 100 times higher than that of Ariake Bay, and these were twice higher than those of summer samples in each location. Mean hemagglutination titer of the clams from Gomso Bay was approximately 60-folds higher than that of clams from Ariake Bay in 2002. In histological preparation of the clams from Gomso Bay in 2002, trophozoites of *P. atlanticus* were in groups and resulted in severe inflammatory response of host clam. Prevalence of the trematod, *Cercaria tapes*-like in the clams of Gomso Bay and Ariake Bay were 8.8 % and 10.5% respectively. In conclusion, the clams from Gomso Bay showed more severe pathologic symptoms and higher immune response than those of the clams from Ariake Bay.

### 감사의 글

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