

Disease Interactions and Pathogen exchange between farmed and wild aquatic animal populations - a European network

Newsletter 29

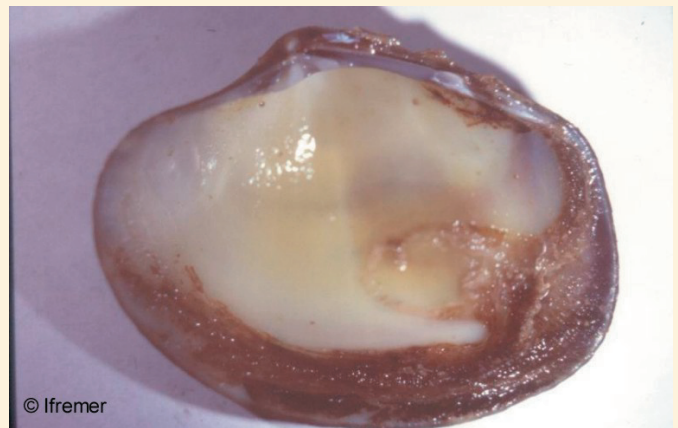
Effects of pathogenic *Vibrio tapetis* on defense factors of susceptible and non-susceptible bivalve species – two recently published results.

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Mass mortality of cultured Manila clam (*Ruditapes philippinarum*) in Western Europe due to Vibriosis was observed in the 1980s. The disease, called Brown Ring Disease, is caused by *Vibrio tapetis*. Two recent publications focus on the effects of this pathogen on defense factors of susceptible and non-susceptible bivalve species.

The first publication reports the use of flow cytometry to measure the in-vitro effect of *V. tapetis*, *V. splendidus*, and *V. anguillarum* on the viability and phagocytic activity of haemocytes of three bivalve species, *Ruditapes philippinarum* and two non-susceptible species *Mercenaria mercenaria* and *Crassostrea virginica*. The results demonstrated that *V. tapetis* caused greater physiological disturbance and higher mortality to haemocytes of *R. philippinarum* than to haemocytes of *M. mercenaria* and *C. virginica*.

In the second paper, the effects of challenge with 3 bacterial strains, *Vibrio tapetis*, *V. anguillarum* and an unidentified non-Vibrionaceae bacterial species, frequently isolated from apparently healthy clams, were studied on defense-related factors of *Ruditapes philippinarum*, *R. decussatus*, *M. mercenaria* and *C. virginica*. The injection of *V. tapetis* into the muscle induced a significant increase in haemocyte counts in *R. philippinarum* and *M. mercenaria*. The most significant changes in defense-related factors were systematically measured in *R. philippinarum* injected with *V. tapetis*.



These studies demonstrated a close correspondence between the deleterious effect of the three *Vibrio* species on the haemocytes of three marine bivalves in vitro and their reported pathogenic effects in vivo. Moreover they emphasized the high specificity of *V. tapetis* to *R. philippinarum*.

Publications:

Effects of the pathogenic *Vibrio tapetis* on defence factors of susceptible and non-susceptible bivalve species: I. Haemocyte changes following in vitro challenge. Allam-B; Ford-SE Fish and Shellfish Immunology, March 2006; 20 (3): 374-383

Effects of the pathogenic *Vibrio tapetis* on defence factors of susceptible and non-susceptible bivalve species: II. Cellular and biochemical changes following in vivo challenge. Allam-B; Paillard-C; Auffret-M; Ford-SE. Fish and Shellfish Immunology, March 2006; 20 (3): 384-397