Hematodinium perezi: rediscovery in type host *Liocarcinus depurator* from the English Channel, United Kingdom

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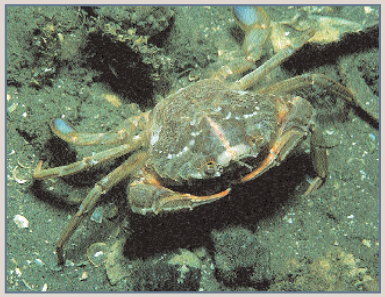
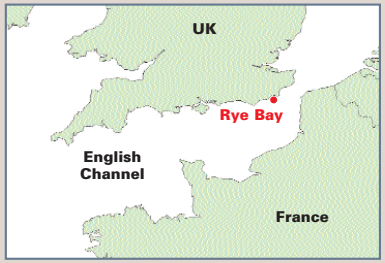
Hematodinium perezi – a rediscovery

Members of the genus *Hematodinium* are primarily parasites of decapod crustaceans. Due to their lack of distinct characters and their poorly understood life cycles, there are only two described species of *Hematodinium*. The type species, *Hematodinium perezi*, was first described from *Carcinus maenas* and *Liocarcinus depurator* off France in the 1930's. However, despite the implication of *Hematodinium*-like dinoflagellates in numerous epidemics in other decapod species, there have been no molecular or ultrastructural studies on the type species from the type hosts in the English Channel.



Swimming crab (Liocarcinus depurator)
Type host to Hematodinium perezi

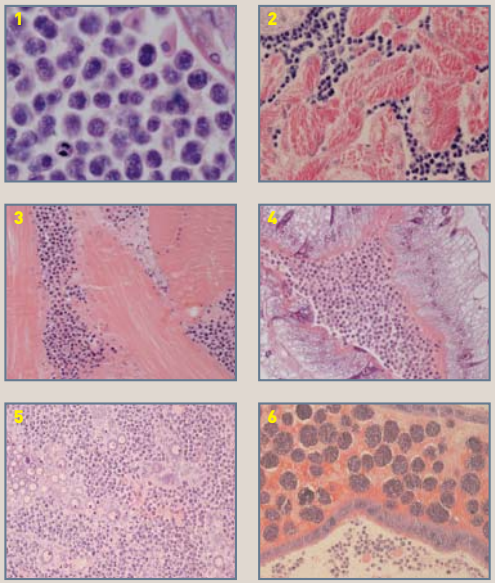


The Rye Bay sampling site in the English Channel

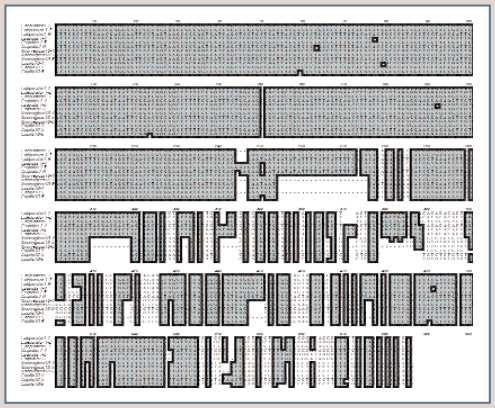
In 2004, *H. perezi* was rediscovered in *L. depurator* from Rye Bay in the English Channel, United Kingdom. Crabs were collected using beam trawling. The prevalence of infection from histological samples was 19.4%. Females had a prevalence of 35.7% and males 5.9%. The pathology was typical of other *Hematodinium* sp. infections of decapods. Ultrastructurally, *H. perezi* was confirmed by the presence of condensed chromatin profiles, trichocysts, an alveolar membrane and micropores.

Molecular analysis of the partial SSU and ITS1 rDNA regions revealed a close similarity with *Hematodinium* sp. isolates from the *Callinectes sapidus*, but it was distinct from *Hematodinium*-like isolates from *Nephrops norvegicus* and *Chionoecetes opilio*.

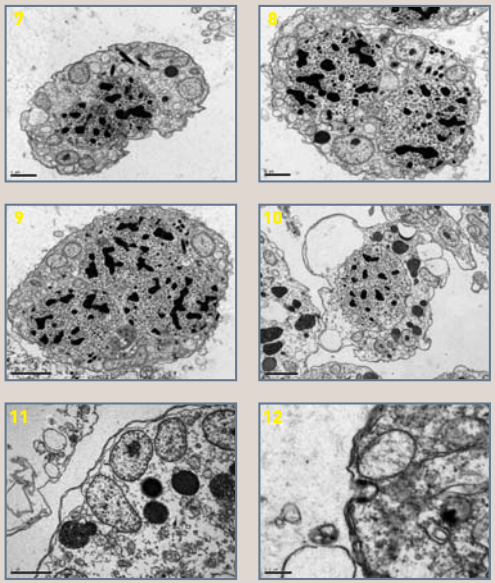
Pathology



Figures 1-6: Histopathology of Hematodinium perezi infection in Liocarcinus depurator. (1) Haemolymph; (2) Heart; (3) Skeletal muscle; (4) Hepatopancreas; (5) Ovary; and (6) Testis. All H&E stain



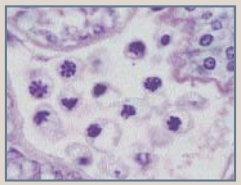
Ultrastructure



Figures 7-12: Ultrastructure of H. perezi. (7) Uninucleate trophont; (8) Bi-nucleate trophont; (9) Tri-nucleate trophont; (10) Uninucleate stage lacking trichocysts, with large vacuoles; (11) Periphery of trophont showing alveolar membrane; (12) Micropore in alveolar membrane of trophont.

Phylogeny

Based on ITS1 rDNA, *H. perezi* from *L. depurator* is similar to the isolate from *Callinectes sapidus*, more so than to the isolates from *Nephrops norvegicus* or *Chionoecetes opilio*. Rediscovery of *Hematodinium perezi* in *L. depurator* is helping to clarify the taxonomy of this genus and will allow for epidemiological studies on the spread of this important parasite to commercially significant decapod stocks around the globe.



H. perezi in Carcinus maenas

STOP PRESS! *H. perezi* was recently rediscovered in *Carcinus maenas* from a site in the English Channel (Stentiford & Feist, 2005. Journal of Invertebrate Pathology 88, 136-146). In a seasonal study, the prevalence of infection over a whole season was significantly lower than in *L. depurator*.