

Antibacterial activities of oyster (

Anti-Bacillus megaterium activity was measured in unfractionated plasma withdrawn from three common US East Coast bivalve molluscs: an oyster *Crassostrea virginica* and the mussels *Geukensia demissa* and *Mytilus edulis*. The activities of the plasma samples from these bivalves were also measured against a *C. virginica* pathogen *Perkinsus marinus*. Strong anti-B. megaterium activity was measured in plasma from *C. virginica* and *M. edulis*, but was not detected in *G. demissa*. Bactericidal activity was found in hemocyte extracts from all bivalves in this study, suggesting a cellular origin of cytotoxic humoral factors. Peptides (< 10 kDa) were separated from the plasma samples by ultrafiltration; weak antibacterial peptide activity was quantified in *C. virginica* peptides, but not in peptides from the mussels. In the case of *P. marinus*, plasma from *M. edulis* or *G. demissa* was boldly cidal as compared to plasma from *C. virginica*. This difference in activity probably reflects the low pathogenicity of this oyster parasite for the mussel species tested. In summary, the bactericidal activity of plasma proteins from these bivalves showed considerable interspecies variation and did not necessarily correlate directly with antiprotistan activity. When present, antibacterial and antiprotistan activities seemed to be associated with plasma proteins rather than < 10-kDa plasma peptides, with the possible exception of *C. virginica* anti-B. megaterium activity and the occasionally expressed anti-*P. marinus* activity of *M. edulis* peptides. The precise identity of the plasma protein(s) responsible for the antimicrobial activities measured have yet to be determined, but it is likely that agents other than, or in addition to, lysozyme play significant roles in the process.

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