## Superoxide dismutase activity in juvenile Litopenaeus vannamei and Nodipectensubnodosus exposed to the toxic dinoflagellate Prorocentrum lima

Angel I. Campa-Córdova, Erick J. Núñez-Vázquez, Antonio Luna-González, María J. Romero-Geraldo, Felipe Ascencio

The toxic effect of the dinoflagellate *Prorocentrum lima* on juvenile American whiteleg shrimp *Litopenaeus vannamei* and giant lion-paw scallop *Nodipecten subnodosus* was evaluated. Organisms were exposed to three densities (500, 2000, or 5000 cells mL<sup>-1</sup>), superoxide dismutase activity and soluble protein in the hepatopancreas and muscle were determined at 1, 6, 24 and 48 h after challenge. Shrimp exposed at 5000 cells mL<sup>-1</sup> significantly increased SOD activity in the hepatopancreas at 1 h post-challenge, whereas

enzymatic activity in muscle significantly increased at 24 h at all densities. Scallops exposed to 500 and 2000 cells  $mL^{-1}$  showed significant SOD activity increase in hepatopancreas at 24 and 12 h, respectively. Mortality at 48 h was 100% in scallops exposed to 5000 cells  $mL^{-1}$ . Shrimp showed higher levels of SOD activity than scallops. Soluble protein content in the shrimp hepatopancreas was significantly higher at

densities of 500 and 2000 cells  $mL^{-1}$  at 6 and 1 h, respectively. Soluble protein content in the scallop hepatopancreas was higher than control values at 1 h after challenge. In this study, 500 cells  $mL^{-1}$  was enough to trigger SOD activity in two benthic species exposed to the toxic dinoflagellate *P. lima*.