

**SPERMATOZOAN MORPHOLOGY OF THE
ARGENTINEAN SURF CLAM *DONAX
HANLEYANUS* (BIVALVIA: DONACIDAE)**

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Ultrastructural descriptions of spermatozoa are a useful tool to reveal bivalve phylogeny. Several *Donax* species living off Latin America show strong morphological variability that often generates discussion on the validity of the species identity. This study is the first attempt to describe the structure of spermatozoa of Donacidae from the southwestern Atlantic Ocean. *Donax hanleyanus* (Philippi, 1842) is a free-spawning marine bivalve inhabiting exposed intertidal sandy beaches and has a geographic distribution along the Atlantic coast of South America, from Rio de Janeiro, Brazil (22°51'S) to Mar del Plata, Argentina (38°20'S).

Transmission electronic microscope (TEM) and scanning electron microscopy (SEM) confirmed that euspermatozoa of *D. hanleyanus* can be classified as "aquasperm type" common for many bivalves. The head is composed of an spheroidal nucleus capped by a conical acrosome vesicle showing an anterior extension (total length 2 µm). The mid-piece region consists of an axoneme with a short basal fossa containing the centriolar complex and an initial portion of a 9+2 axoneme, sheathed by 4-5 spherical mitochondria. The single flagellum shows the typical 9+2 microtubule structure. Specifications useful for taxonomy are highlighted.

**APPLICABILITY OF THREE FLUORESCENT
MARKERS FOR GROWTH ESTIMATIONS OF
THE SURF CLAM *DONAX HANLEYANUS***

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A non-lethal method providing growth tags is a precondition for many in-vivo experiments investigating growth of marine invertebrates. This study determines the effectiveness of Calcein, Alizarin Red and Strontium chloride hexahydrate in marking Argentinean surf clams (*Donax hanleyanus*) under controlled conditions. Wild specimens, collected from Faro Querandi (Buenos Aires province, Argentina), were tagged using different concentrations of each stain and several immersion periods. After marking, animals were reared in an aquaculture system to allow growth. Mortality, body condition and growth rate were measured for 20 days to assess the effects of the treatments. To detect the incorporated marks, shells were cut and sections analyzed using scanning electron microscopy for Strontium chloride hexahydrate and fluorescence microscopy for Calcein and Alizarin Red.

Results demonstrate that Calcein was the best growth marker as it provides a long-lasting, readily detected fluorescent mark that can be used to measure shell growth accurately, even at low concentrations and immersion periods. In addition, marking with Calcein did not affect survivorship or growth and thus is considered to be the best stain evaluated for *Donax hanleyanus*.

**BIOMETRICAL AND HIGH RESOLUTION
TRACE ELEMENT (MG, SR AND NA)
STUDIES IN *CRASSOSTREA GIGAS* SHELLS
OF THREE ESTUARIES OF CANTABRIA
(SPAIN): SEASONAL, ANTHROPOGENIC
AND ONTOGENETIC INFLUENCES**

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Living *Crassostrea gigas* oysters of different ages and sizes have been collected in three estuarine zones of Cantabria (Spain): a) San Vicente de la Barquera Estuary (SVE), ten oysters of known age, 2 years old and similar size; b) Santander Bay (SB), ten oysters of unknown age, and c) Marismas de Santoña Estuary (MSE), ten oysters of unknown age. A shell biometrical study, with the aid of three indexes, shell thickness index (STI) (1) and weight and volume indexes, indicates that the oysters of SB have developed shell