Structure and Function of the Male Reproductive Tract in Peneaus Setiferus

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The vas deferens of Penaeus setiferus was divided into 4 anatomical regions (1A, 1B, 2A, 2B, 3 and 4) and evaluated for structure and function using microscopical techniques. Segments 1A and 1B are small collecting tubules that convey sperm from the testes into segment 2. The tubules are surrounded by thick layers of collagen, and their epithelium releases secretory product into the lumen. Segment 2A is comprised of two lumens. One lumen contains sperm and the surrounding epithelium secretes two coats around the sperm mass. The other lumen contains an acellular secretory product released from the epithelium. Segement 2B is similar to 2A except that the septum separating the two lumens partially drops out and a new coat is secreted by the epithelium in both lumens. Segment 3 is extremely thin and surrounded by a thick muscle layer which undergoes smooth rhythmic contraction in vitro. These contractions move material in segment 2B toward the ampoule (segment 4). The epithelium in segment 3 is also secretory and releases large apical blebs. Segment 4 is divided into several chambers that interconnect. One chamber contains the sperm mass or geminate body. Some of the materials associated with the geminate body appear to be formed in segment 4. It also contains a glandular cavity that secretes massive amounts of adhesive material that become attached to the base of the spermatophore. A third and forth chamber respectively form the glutinous mass and the wing of the spermatophore.

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