

# Fine Structural Characteristics of the Spermatheca and Spermathecal Sperms in the Mealworm Beetle, *Tenebrio molitor*

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The fine structural characteristics of the spermatheca and spermathecal sperms during the process of copulation in the mealworm beetle, *Tenebrio molitor* were studied using light and electron microscopes. The spermatheca is a small roundish organ that adheres to the vagina. In the male mealworm, each testicular follicle comprises numerous cysts which contain exact 256 ( $2^8$ ) sperms within the boundary of cyst-forming cells. The most distinguished characteristics of the spermathecal sperms with respect to testicular sperms were identified as those of cystic release and completion of maturation. Both of the testicular and spermathecal sperms have a characteristic 9+2 flagellar axonemes, two elongated mitochondrial derivatives, and surrounding appendages commonly. However, both of nuclei and mitochondrial derivatives of the spermathecal sperms have more electron opacities than those of the testicular sperms.