

**FINE STRUCTURE OF THE MALE REPRODUCTIVE ACCESSORY GLANDS OF *Triatoma rubrofasciata* (DE GEER, 1773) (HEMIPTERA, REDUVIIDAE, TRIATOMINAE).** Simone P.C. Freitas (1), Teresa Cristina M. Gonçalves (2), José E. Serrão (3), Elias Seixas Lorosa (4), Jacenir R. Santos-Mallet (2). (1) Departamento de Biologia Animal, Universidade Federal de Viçosa, Minas Gerais, Brazil, 36570-000. (2) Núcleo de Morfologia e Ultra-estrutura de Vetores, Departamento de Entomologia, FIOCRUZ, Rio de Janeiro, Brazil, 21045-900. (3) Departamento de Biologia Geral, Universidade Federal de Viçosa, Minas Gerais, Brazil, 36570-000. (4) Laboratório Nacional e Internacional de Taxonomia de Triatomíneos, Departamento de Entomologia, FIOCRUZ, Rio de Janeiro, Brazil, 21045-900. [sfreitas@insecta.ufv.br](mailto:sfreitas@insecta.ufv.br).

In insects, male reproductive accessory glands, produce secretions with a variety of functions, including contribution to the seminal fluid and activation of the spermatozoa [1]. Moreover, in some insects they are involved in the building of spermatophores for sperm transfer to the female [2, 3]. *Triatoma rubrofasciata* thought found naturally infected by *Trypanosoma cruzi* [4], is normally the vector of *Trypanosoma conorhini*, since this insect is in close association with the rat. Rarely defect during feeding and this occurs mostly far from the host, a long time after feeding; so it can be considered a poor vector for *T. cruzi*, although it is close to man and other animals [5]. In present study we describe the ultrastructure of the male reproductive accessory glands in the *T. rubrofasciata*. Male with one, three and five day old were dissected in saline solution. Fixation was carried out in 2.5% glutaraldehyde in sodium Cacodilate buffer at room temperature, washed in same buffer and post-fixed em 1% OsO<sub>4</sub> in buffer for 1h. The glands were dehydrated in acetone and embedded in Epon 812. Semithin sections were stained with toluidine blue and observed in Light Microscope. Ultrathin sections were stained with uranyl acetate and lead citrate and observed under transmission electron microscope. There are four accessory glands: anterior, external, internal and dorsal. Epithelial cells do not exhibit clear differences in their ultrastructure in one-day-old males compared to three and five day old male. All glands have a single layered epithelium on a thin basement membrane (Figure 1). Each cell has one nucleus. Externally there is a longitudinal muscles layer supplied with trachea. The basal region of the gland has deep plasma membrane infoldings, associated with mitochondria, suggesting occurrence of active transport from haemolymph to the cell (Figure 2). Numerous mitochondria are also present in the whole cytoplasm, besides free polyribosome, rough endoplasmic reticulum and secretory granules, suggesting that the secretory materials are proteinaceous. The nucleus, roughly oval shape, occupies a more or less central position (Figure 3, 4). The cell apex shows short microvilli and is joined by *zonulae adherentes* and septate junctions (Figure 5). In the three days old males, the cell apex has many secretory granules that are released to the lumen, which corresponds to the period of high male reproductive activity. The secretions of the four glands are released in hilum and leave to the glandular duct (Figure 6) with the wall containing several layer of circular muscles (Figure 7). In conclusion, *T. rubrofasciata* has active accessory glands three day after adult emergence despite the occurrence or not of blood meal.

Financial support - CNPq and FAPEMIG

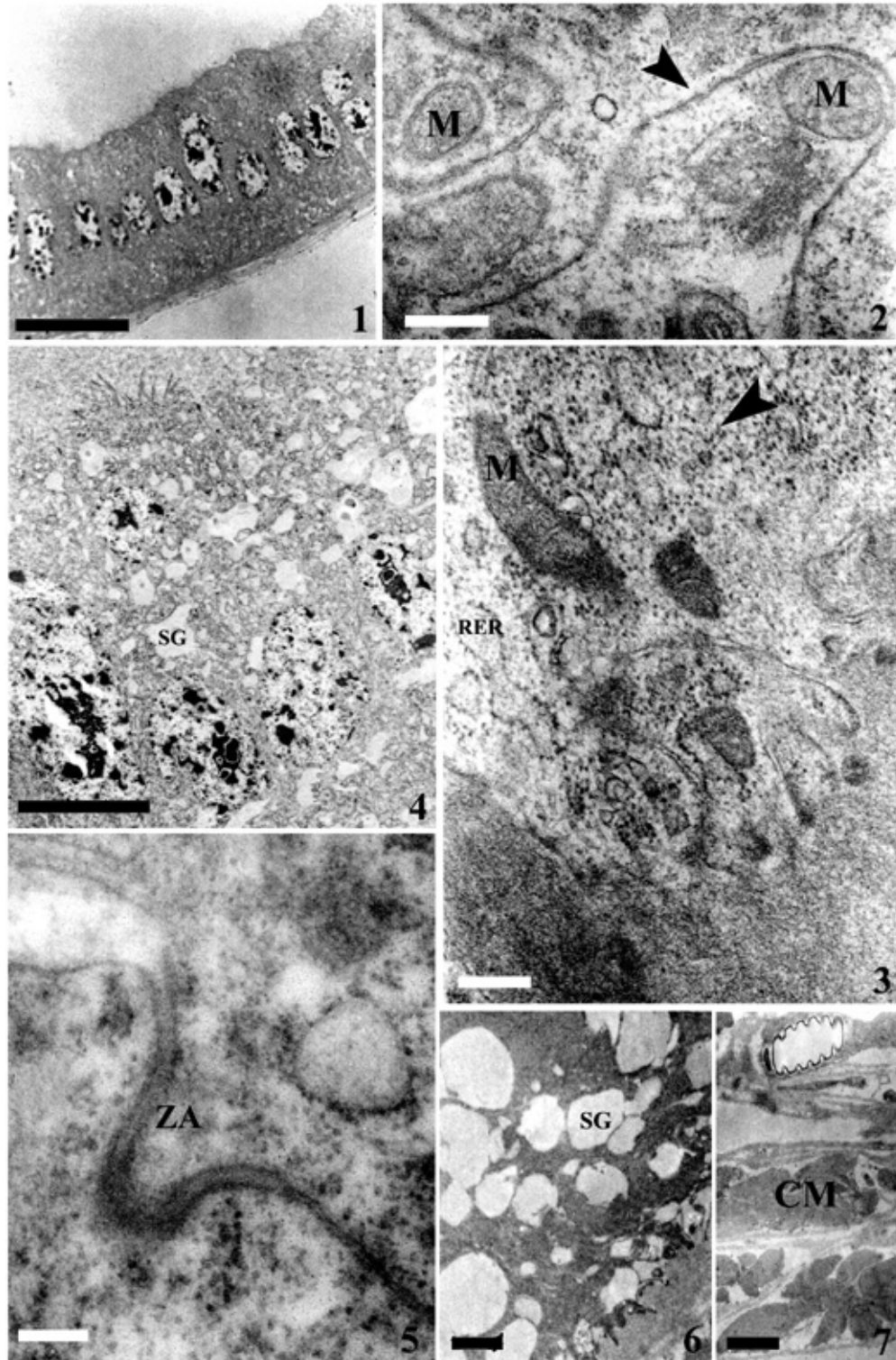
[1] P.S, Chen. Ann. Rev. Entomol. (1984) 29, 233.

[2] K.G, Davey. J. Exp. Biol. (1958) 35, 694.

[3] R, Viscuso. Tissue & Cell (2001) 33, 33.

[4] A. R, Silva. Trans. R. Soc. Trop. Med. Hyg. (1983) 77: 568.

[5] M. V, Braga & M.M, Lima. Mem. Inst. Oswaldo Cruz (1999) 94, 127.



Figures 1-7: Male accessory glands of *Triatoma rubrofasciata*. (1) Semithin section of epithelial cell (bar 10 $\mu$ m). (2) Plasma membrane infoldings (arrowhead) associated with mitochondria (M) (bar 0.5 $\mu$ m), (3) Mitochondria (M), rough endoplasmic reticulum (RER) and polyribosome (arrowhead) in cytoplasm (bar 0.2 $\mu$ m), (4) Secretory granules (SG) and nucleus occupying a central position of the epithelial cell (bar 5 $\mu$ m), (5) *Zonulae adherentes* (ZA) in apex cell. (bar 0.2 $\mu$ m), (6) Secretory granules (SG) in lumen of glandular duct (bar 0.2 $\mu$ m), (7) Layer of circular muscles (CM) of the glandular duct (bar 1 $\mu$ m).