

ABSTRAK

Profil Ultrastruktur Sistem Genitalia Jantan Garangan Jawa (*Urva javanica*) *Immature* dan *Mature* dengan Metode *Scanning Electron Microscope* (SEM)

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Garangan jawa (*Urva javanica*) merupakan mamalia karnivora oportunistik dari famili Herpestidae yang memiliki peran penting dalam ekosistem. Kajian mengenai biologi reproduksi, khususnya morfologi dan ultrastruktur organ genitalia jantan, masih terbatas pada garangan jawa. Penelitian ini bertujuan untuk mengkaji morfologi ultrastruktur organ genitalia jantan garangan jawa fase *mature* dan *immature* meliputi testis, epididimis, vas deferens, kelenjar prostat, kelenjar bulbourethralis, dan penis menggunakan *Scanning Electron Microscope* (SEM) yang didukung pewarnaan *Hematoxylin-Eosin* (HE). Penelitian menggunakan empat ekor garangan jawa jantan yang terdiri atas dua individu *mature* dan dua *immature*. Sampel organ genitalia dikoleksi, difiksasi, kemudian diproses untuk preparasi SEM melalui tahapan pencucian, dehidrasi, *critical point drying*, serta pelapisan platinum sebelum dilakukan pencitraan SEM. Data dianalisis secara deskriptif untuk memperoleh karakterisasi ultrastruktur organ reproduksi jantan garangan jawa. Hasil pengamatan SEM menunjukkan adanya perbedaan topografi permukaan dan kompleksitas ultrastruktur organ genitalia antara fase *immature* dan *mature*. Testis *mature* menunjukkan lumen tubulus seminiferus yang lebih berkembang disertai akumulasi spermatozoa dibandingkan *immature*. Epididimis memperlihatkan diferensiasi regional stereosilia dari regio proksimal menuju distal. Vas deferens *mature* memiliki epitel yang lebih tinggi dibandingkan *immature*. Kelenjar prostat *mature* didominasi adenomer tubuloalveolar dengan lumen ireguler, permukaan epitel berlekuk, dan akumulasi material sekretori, sedangkan *immature* masih didominasi stroma dan bakal adenomer. Kelenjar bulbourethralis *mature* menunjukkan perkembangan lumen adenomer dan kompleksitas permukaan sekretori yang lebih jelas dibandingkan *immature*. Pada penis *mature* tampak perkembangan os penis, deskuamasi epitel permukaan, dan organisasi jaringan erektile yang lebih kompleks dibandingkan *immature*. Pengamatan HE mendukung interpretasi SEM terutama pada diferensiasi epitel, perkembangan lumen, dan aktivitas sekretori organ reproduksi. Secara keseluruhan, SEM mampu memperlihatkan karakteristik topografi permukaan dan organisasi ultrastruktur organ genitalia jantan garangan jawa yang menunjukkan peningkatan kompleksitas struktur menuju kematangan reproduksi.

Kata kunci : *Urva javanica*, *Scanning Electron Microscope*, Sistem genitalia jantan

ABSTRACT

Ultrastructural Profile of the Male Reproductive System of Immature and Mature Javan Mongooses (*Urva javanica*) Using Scanning Electron Microscopy (SEM)

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The Javan mongoose (*Urva javanica*) is an opportunistic carnivorous mammal belonging to the family Herpestidae and plays an important role in ecosystem balance. However, studies regarding its reproductive biology, particularly the morphology and ultrastructure of the male reproductive organs, remain limited. This study aimed to characterize the ultrastructural morphology of the male reproductive organs of mature and immature Javan mongooses, including the testes, epididymides, vas deferens, prostate glands, bulbourethral glands, and penis, using *Scanning Electron Microscopy* (SEM) supported by Hematoxylin-Eosin (HE) staining. The study used four male Javan mongooses consisting of two mature and two immature individuals. Samples of the reproductive organs were collected, fixed, and processed for SEM preparation through washing, graded dehydration, *critical point drying*, and platinum coating prior to SEM imaging. Data were analyzed descriptively to obtain ultrastructural characterization of the male reproductive organs. SEM observations revealed differences in surface topography and ultrastructural complexity between immature and mature individuals. Mature testes exhibited more developed seminiferous tubule lumina accompanied by spermatozoa accumulation compared to immature individuals. The epididymis demonstrated regional differentiation of stereocilia from the proximal to distal regions. Mature vas deferens showed a taller epithelial lining compared to immature individuals. The mature prostate gland was dominated by tubuloalveolar adenomers with irregular lumina, folded epithelial surfaces, and accumulated secretory material, whereas the immature prostate was still dominated by stromal tissue and developing adenomers. Mature bulbourethral glands exhibited more developed adenomer lumina and more prominent secretory surfaces than immature glands. In the mature penis, development of the os penis, epithelial desquamation, and more complex erectile tissue organization were observed compared to the immature phase. HE staining supported SEM interpretation, particularly regarding epithelial differentiation, luminal development, and secretory activity of the reproductive organs. Overall, SEM revealed the surface topography and ultrastructural organization of the male reproductive organs of the Javan mongoose, indicating increased structural complexity associated with reproductive maturation.

Keywords: *Urva javanica*, Scanning Electron Microscopy, male genital system