

## ABSTRAK

### GAMBARAN HISTOLOGIS DAN MORFOMETRI GANGLIA PADA TRAKEA SUGAR GLIDER (*Petaurus breviceps*) DENGAN PEWARNAAN HEMATOKSILIN-EOSIN

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*Sugar glider* (*Petaurus breviceps*) merupakan mamalia asli dari Australia, Papua Nugini, dan Indonesia bagian Timur. Berdasarkan *International Union for Conservation of Nature and Natural Resources* (IUCN), status konservasi *sugar glider* adalah *least concern*. Informasi tentang histologi sistem respirasi *sugar glider* masih belum diketahui. Penelitian ini bertujuan untuk mengetahui gambaran histologi dan morfometri ganglia pada trakea *sugar glider*.

Penelitian ini menggunakan trakea dari tiga ekor *sugar glider* betina. Trakea dipotong menjadi tiga bagian, yaitu bagian kranial, medial, dan kaudal. Jaringan diproses dengan metode parafin dan kemudian dipotong secara serial dengan ketebalan 9  $\mu\text{m}$ . Preparat diwarnai dengan pewarnaan hematoksilin-eosin. Hasil diamati dengan mikroskop dan kemudian gambar diambil menggunakan *OptiLab Image Viewer*. Jumlah ganglia, badan neuron, dan badan neuron dalam ganglia trakea dihitung, kemudian badan neuron diukur diameternya dengan menggunakan *Image Raster*. Gambaran histologi ganglia dianalisis secara deskriptif. Data kuantitatif dianalisis dengan menggunakan *one way ANOVA* dan *Post Hoc Tukey*.

Gambaran histologi ganglia trakea *sugar glider* mirip seperti ganglia otonom. Ganglia trakea terletak di tunika adventisia. Ganglia trakea berperan dalam mengontrol muskulus trakealis dan glandula trakealis. Rerata jumlah ganglia pada trakea *sugar glider* adalah  $75,00 \pm 35,76$ . Jumlah ganglia pada trakea bagian kranial lebih sedikit dibandingkan jumlah ganglia pada trakea bagian kaudal. Rerata jumlah badan neuron pada trakea *sugar glider* adalah  $289,00 \pm 179,05$ . Rerata jumlah badan neuron dalam ganglia trakea *sugar glider* adalah  $3,72 \pm 0,69$ . Jumlah badan neuron dalam ganglia pada trakea *sugar glider* bagian kranial dan medial lebih sedikit dari bagian kaudal. Rerata diameter badan neuron ganglia trakea *sugar glider* adalah  $14,46 \pm 0,41 \mu\text{m}$ .

Kata kunci : *sugar glider*, trakea, ganglia, badan neuron, hematoksilin-eosin

## ABSTRACT

### HISTOLOGICAL STRUCTURE AND MORFOMETRY OF THE GANGLIA OF SUGAR GLIDER (*Petaurus breviceps*) TRACHEA WITH HEMATOXYLIN-EOSIN STAINING

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Sugar glider (*Petaurus breviceps*) is a native mammal from Australia, Papua New Guinea, and Eastern Indonesia. Based on International Union for Conservation of Nature and Natural Resources (IUCN), sugar glider is listed as least concern. The information about histology of sugar glider's respiratory system remains unknown. This study aims to determine the histological structure and morphometry of the ganglia of sugar glider trachea.

Three tracheas from female sugar glider were used in this study. Trachea was dissected into three parts, which were cranial, medial, and caudal part. Tissues were processed with paraffin method, and cut serially in 9  $\mu\text{m}$  thickness. Preparations were stained with hematoxylin-eosin staining. The result was observed with light microscope and then photographed using OptiLab Image Viewer. The number of ganglia, the number of neuron bodies, and the number of neuron bodies on ganglia was counted, then the diameter of every neuron bodies was measured with Image Raster. The histological structure of ganglia was analyzed descriptively. Quantitative data was analyzed with one way ANOVA and Post Hoc Tukey.

The histological structure of ganglia of sugar glider trachea is similar with autonomic ganglia. Ganglia can be found in tunica adventisia. Ganglia on trachea have a role in controlling tracheal muscles and tracheal glands. The average number of ganglia on trachea of sugar glider is  $75.00 \pm 35.76$ . The number of ganglia in cranial part of trachea are less than the number of ganglia in caudal part of trachea. The average number of neuron bodies on trachea of sugar glider is  $289,00 \pm 179,05$ . The average of neuron bodies on ganglia is  $3.73 \pm 0.69$ . The number of neuron bodies on ganglia in cranial and medial part of sugar glider's trachea are less than the number of neuron bodies on ganglia in caudal part of sugar glider's trachea. The average of neuron body diameter is  $14.44 \pm 0.41 \mu\text{m}$ .

Keyword: sugar glider, trachea, ganglia, neuron body, hematoxylin-eosin