

ABSTRAK

STUDI HISTOLOGIS DAN ANALISIS MORFOMETRI HEPAR MENCIT (*Mus musculus*) GALUR BALB/c JANTAN DAN BETINA DENGAN PEWARNAAN *HEMATOXYLIN EOSIN* DAN *MALLORY ANILINE BLUE*

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Mencit (*Mus musculus*) merupakan hewan model yang sering digunakan dalam penelitian, termasuk studi tentang hepar untuk memahami efek paparan zat tertentu dan perbaikan kerusakan jaringan. Sering kali, peneliti kurang memahami struktur anatomi jaringan normal mencit yang digunakan. Penelitian ini bertujuan untuk memperoleh data primer mengenai struktur makroskopis, mikroskopis, dan morfometri normal hepar mencit. Sampel yang digunakan adalah empat ekor mencit galur BALB/c, terdiri dari dua jantan dan dua betina. Sampel difiksasi menggunakan PBS formalin 10%, diproses dengan metode parafin, dan diwarnai menggunakan pewarnaan hematoksilin-eosin (HE) dan *Mallory Aniline Blue* (MAB). Hasil penelitian diamati di bawah mikroskop menggunakan perangkat lunak Outilab. Data morfometri berupa rata-rata ketebalan kapsula glisson dan rata-rata diameter hepatosit diukur menggunakan perangkat lunak Image Raster. Data yang diperoleh dianalisis secara deskriptif serta kuantitatif. Hasil penelitian secara mikroskopis menunjukkan hepar terusun dari lobulus-lobulus. Batas antara lobulus hepar mencit terlihat tidak jelas. Hepatosit tersusun secara radial menuju vena sentralis. Pada bagian tepinya, terdapat trias hepatis yang terdiri atas vena porta, arteri hepatis, dan duktus biliaris. Hasil analisis morfometri menunjukkan rata-rata ketebalan kapsula Glisson mencit jantan $2,56 \pm 0,25 \mu\text{m}$ dan mencit betina $2,58 \pm 0,22 \mu\text{m}$. Rata-rata diameter hepatosit mencit jantan $23,73 \pm 2,96 \mu\text{m}$ dan mencit betina $23,53 \pm 3,32 \mu\text{m}$. Hasil uji statistik Mann-Whitney menunjukkan tidak adanya perbedaan signifikan antara mencit jantan dan mencit betina. Struktur histologis dan morfometri hepar mencit galur BALB/c pada kondisi normal menunjukkan keseragaman antar individu.

Kata kunci: hepar, histologi, mencit, mikroskop cahaya, morfometri

ABSTRACT

HISTOLOGICAL STUDY AND MORPHOMETRIC ANALYSIS OF THE LIVER OF MALE AND FEMALE BALB/c MICE (*Mus musculus*) USING *HEMATOXYLIN EOSIN* AND *MALLORY ANILINE BLUE* STAINING

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Mus musculus is a commonly animal model in research, including liver, studies understanding the effects of certain substances and tissue repair mechanisms. However, researchers often lack a thorough understanding of the normal anatomical structure of mouse tissues. This study aims to provide primary data on the normal macroscopic, microscopic, and morphometric structure of the mouse liver. The samples used were BALB/c mice, of two males and two females. Samples were fixed using 10% PBS-formalin and processed using paraffin method, and stained with hematoxylin-eosin and *Mallory Aniline Blue*. The samples were observed under light microscope using the Optilab software. Morphometric data, including the average thickness of the Glisson's capsule and the average diameter of hepatocytes, were measured using Image Raster software. The data were analyzed descriptively and quantitatively. Microscopically, the liver was composed of lobules, although the boundaries between lobules were not clearly visible. Each lobule was composed of hepatocytes arranged radially toward the central vein, along with hepatic triads consisting of the portal vein, hepatic artery, and bile duct. The results of morphometric analysis showed that the average thickness of the Glisson's capsule in male mice was $2.56 \pm 0.25 \mu\text{m}$, and in female mice was $2.58 \pm 0.22 \mu\text{m}$. The average hepatocyte diameter in male BALB/c mice was $23.73 \pm 2.96 \mu\text{m}$, while in female mice it was $23.53 \pm 3.32 \mu\text{m}$. Statistical analysis using the Mann-Whitney test indicated no significant difference between male and female mice. The histological structure and morphometric characteristics of the liver in BALB/c mice under normal conditions exhibit uniformity among individuals.

Keywords: liver, histology, mice, light microscope, morphometry