

EVALUASI FUNGSI HEPAR DAN REN MARMUT (*Cavia porcellus* L., 1758) SEBELUM DAN SESUDAH AKLIMATISASI

Oleh: Diandra Vildainy Amalo
12/334009/BI/08958

INTISARI

Marmut (*Cavia porcellus* L., 1758) merupakan salah satu hewan model yang digunakan dalam penelitian biomedis. Dibandingkan dengan tikus dan mencit, marmut memiliki metabolisme tubuh yang lebih mirip dengan manusia. Namun, di Indonesia penyediaan marmut sebagai hewan model masih sangat terbatas dan perlu dikembangkan. Marmut yang digunakan biasanya diambil dari pasar hewan dengan parameter lingkungan beragam sehingga memiliki kondisi fisiologis yang tidak seragam. Dalam melakukan penelitian biomedis, marmut yang digunakan harus mengalami masa aklimatisasi terlebih dahulu sebelum perlakuan dan pengambilan data. Penelitian ini bertujuan untuk mempelajari fungsi hepar dan ren antara marmut sebelum dan sesudah aklimatisasi. Marmut diperoleh dari Pasar Hewan dan Tanaman Hias Yogyakarta. Aklimatisasi dan pengambilan data dilakukan di Laboratorium Fisiologi Hewan UGM. Hewan uji dikelompokkan berdasarkan usia (muda, dewasa); jenis kelamin (jantan, betina); dan aklimatisasi (sebelum, sesudah). Sampel darah diambil dari sinus orbitalis dan eksanguinasi vena renalis dan diuji aktivitas ALT, kadar bilirubin, kreatinin dan BUN dengan metode spektrofotometri. Hepar dan ren diambil, diukur indeks organ dan dibuat sediaan. Data dianalisis secara statistik berdasarkan *one-way ANOVA* menggunakan *software IBM SPSS v23*. Hasil penelitian menunjukkan fungsi hepar dan ren marmut sebelum dan sesudah aklimatisasi berbeda. Sebelum aklimatisasi nilai aktivitas ALT, kadar bilirubin, kreatinin, dan BUN lebih tinggi nilainya daripada setelah aklimatisasi namun demikian tidak signifikan. Sel hepar dan ren marmut sebelum aklimatisasi mengalami kerusakan seperti peradangan dan infeksi parasit. Fungsi hepar dan ren dipengaruhi oleh usia, jenis kelamin, pakan, nutrisi dan kondisi lingkungan.

Kata Kunci: marmut, aklimatisasi, ALT, bilirubin, kreatinin, BUN

EVALUATION OF LIVER AND KIDNEY FUNCTION IN GUINEA PIGS (*Cavia porcellus* L., 1758) BEFORE AND AFTER ACCLIMATIZATION

By: Diandra Vildainy Amalo
12/334009/BI/08958

ABSTRACT

Guinea pigs (*Cavia porcellus* L., 1758) are one of animal model for biomedical research. Guinea pigs' metabolism are more similar to human compared to rats or mice. But in Indonesia, the provision of guinea pigs as laboratory animal is limited and outdated. Guinea pigs for research purposes are often taken directly from traditional market with various environmental parameter which could affect its physiological status. Guinea pigs must through acclimatization in order to be employed in biomedical research. The purpose of these research were to evaluate liver and kidney function of guinea pigs before and after acclimatization. Guinea pigs were obtained from Pasar Hewan dan Tanaman Hias Yogyakarta. Twenty two guinea pigs were divided into groups of age (young, mature); sex (male, female); and acclimatization (before, after). Blood samples taken from sinus orbitalis and vena renalis exsanguination were then measured its ALT activity, bilirubin, creatinine and BUN. Data were analyzed statistically by one-way ANOVA method using IBM SPSS v23 software. The results showed difference in liver and kidney function between acclimatized and unacclimatized guinea pigs. The level of ALT activity, bilirubin, creatinine, and BUN were higher in non-acclimatized guinea pigs. However, the results were not significant. Non-acclimatized guinea pigs had damaged liver and kidney such as inflammation and parasite infection. Liver and kidney function were affected by age, sex, nutrition and environmental condition.

Keyword: guinea pig, acclimatization, ALT, bilirubin, creatinine, BUN