PROFIL HEMATOLOGIS MARMUT (*Cavia porcellus* (Linnaeus, 1758)) BETINA DENGAN VARIASI PAKAN

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INTISARI

Marmut (*Cavia porcellus* (Linnaeus, 1758)) merupakan hewan dari kelompok rodensia yang umum dijadikan sebagai hewan coba dalam penelitian biomedis karena memiliki karakter fisiologis yang sama dengan manusia. Pemeliharaan marmut harus diperhatikan supaya dapat memberikan hasil yang baik, salah satunya mengenai pemberian pakan. Pakan standar khusus marmut masih jarang digunakan di Indonesia sehingga marmut diberi pakan kelinci. Pemberian pakan yang tidak sesuai kebutuhan marmut dapat mempengaruhi profil hematologis. Sembilan individu marmut betina dibagi ke dalam tiga kelompok: BV menerima pakan nonstandar (NS), BVL menerima campuran pakan nonstandar dan standar (NSS), BL menerima pakan standar (S). Pakan untuk kelompok BV dan BVL diganti menjadi pakan standar (S) secara bertahap setiap 28 hari. Selain itu, marmut diberikan sayur yang bervariasi setiap hari. Penelitian berlangsung selama selama 84 hari di *Animal House* Fakultas Biologi, UGM. Pengambilan darah dilakukan melalui kuku ekstremitas posterior setiap 28 hari. Pemeriksaan profil hematologis dilakukan menggunakan *hematology analyzer* Sysmex XP-100 dengan parameter: jumlah eritrosit, kadar hemoglobin, nilai hematokrit, *mean corpuscular volume* (MCV), *mean corpuscular hemoglobin* (MCH), *mean corpuscular hemoglobin concentration* (MCHC), RBC *distribution width* (RDW), jumlah leukosit, jumlah dan persentase limfosit, neutrofil serta *mixed cell*, rasio N/L, jumlah trombosit, *platelet distribution width* (PDW), *mean platelet volume* (MPV), *platelet-larger cell ratio* (P-LCR), dan nilai plateletkrit. Morfologi sel diamati melalui preparat apus darah tipis dengan pewarnaan Giemsa dan diukur diameternya. Terjadi penurunan yang signifikan ($p<0,05$) pada jumlah RBC, kadar hemoglobin, nilai hematokrit, dan nilai MCHC. Terjadi peningkatan yang signifikan ($p<0,05$) pada nilai MCV, jumlah WBC, jumlah neutrofil, jumlah trombosit, dan plateletkrit. Perubahan yang signifikan ditemukan pada sebagian besar kelompok BL. Berdasarkan hasil, dapat disimpulkan bahwa perubahan pakan berpengaruh terhadap nilai RBC, HGB, HCT, MCV, MCHC, WBC, NEUT#, PLT, MPV, dan PCT. Meski demikian, perubahan nilai masih berada dalam rentang normal. Oleh karena itu, marmut betina masih dapat diberikan pakan standar dengan tambahan sayur setiap hari.

Kata kunci: *Cavia porcellus*, jenis pakan, hematologi, hewan coba, marmut

HEMATOLOGICAL PROFILE OF FEMALE GUINEA PIGS (*Cavia porcellus* (Linnaeus, 1758)) WITH DIET VARIATION

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ABSTRACT

Guinea pigs (GP) or *Cavia porcellus* (Linnaeus, 1758) are rodents other than rats and mice that are commonly used as laboratory animals in biomedical research due to their physiological similarities with humans. To meet the requirement as standard laboratory animal, care management of GP needs to be controlled. Diet is one of the crucial factors that affect animal health and physiological condition. Standard diet for GP is still limited in Indonesia, therefore GP are usually fed with rabbit diet. According to references, inappropriate diet affects hematology profile. This research was carried out to compare hematology profile in GP fed with standard and nonstandard diet. Nine female GP were assigned into three groups: Group I received nonstandard diet (NS), Group II received a mixture of standard and nonstandard diet (NSS), and Group III received standard diet (S). Diet type for Group I and II were changed to S-type gradually every 28 days. Beside that, GP were given various vegetables everyday. This experiment took place in "Animal House" of Faculty of Biology UGM for 84 days. All procedures regarding animal handling and caring were approved by Research Ethics Committee of Faculty of Veterinary Medicine UGM. Hematology data were examined every 28 days using blood samples collected from posterior limb nails based on following parameters: total erythrocyte, hemoglobin level, hematocrit, mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC), RBC distribution width (RDW), total leukocyte, total and percentage of lymphocyte, neutrophil and mixed cell, neutrophil:lymphocyte ratio, total platelet, platelet distribution width (PDW), mean platelet volume (MPV), platelet-larger cell ratio (P-LCR), and plateletcrit. Data were compared with baseline and reference. Blood cell morphology was observed using thin blood smear preparation stained with Giemsa and the diameter was measured. There were significant ($p<0,05$) decrease in total erythrocyte, hemoglobin level, hematocrit, and MCHC. There were also significant ($p<0,05$) increase of MCV value, total leukocyte, total neutrophil, total platelet, and plateletcrit. The significant changes especially happens in BL group. Based on the result, it can be concluded that the diet alteration to the standard diet changes the value of RBC, HGB, HCT, MCV, MCHC, WBC, NEUT#, PLT, MPV, and PCT. Even so, the change of the value were still in the normal range. Therefore, female guinea pig can still fed by nonstandard diet with vegetables supplementation everyday.

Key words: *Cavia porcellus*, diet type, guinea pigs, hematology, laboratory animal