

NUTRITION AND TOXICOLOGY STUDIES ON SIGER RICE FROM CASSAVA (*Manihot esculenta*)

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INTRODUCTION



cassava

Carbohydrate sources other than rice



Cassava sweet



Cassava bitter

Food Diversification

Blood chemistry profile

Histology of mice liver and kidneys





Bitter cassava

Glycosides cyanogenic

Linamarin

Lotaustralin

Linamarinase enzyme

HCN



Siger rice



milling



Soaking



heating



drying



Enlarge contact linamarin and linamarinase
 Ease cyanide release
 Hydrolysis of linamarin compounds (react with water)
 Accelerate evaporation
 Accelerate dehydration and breakdown of cell structure
 Evaporation of cyanide acid

Research purposes

1. To know the effect of giving siger rice from bitter cassava against blood chemical profile of mice
2. To know the effect of giving siger rice from bitter cassava against the histology of the liver and kidneys of mice

MATERIAL AND METHODES

Place and time of research



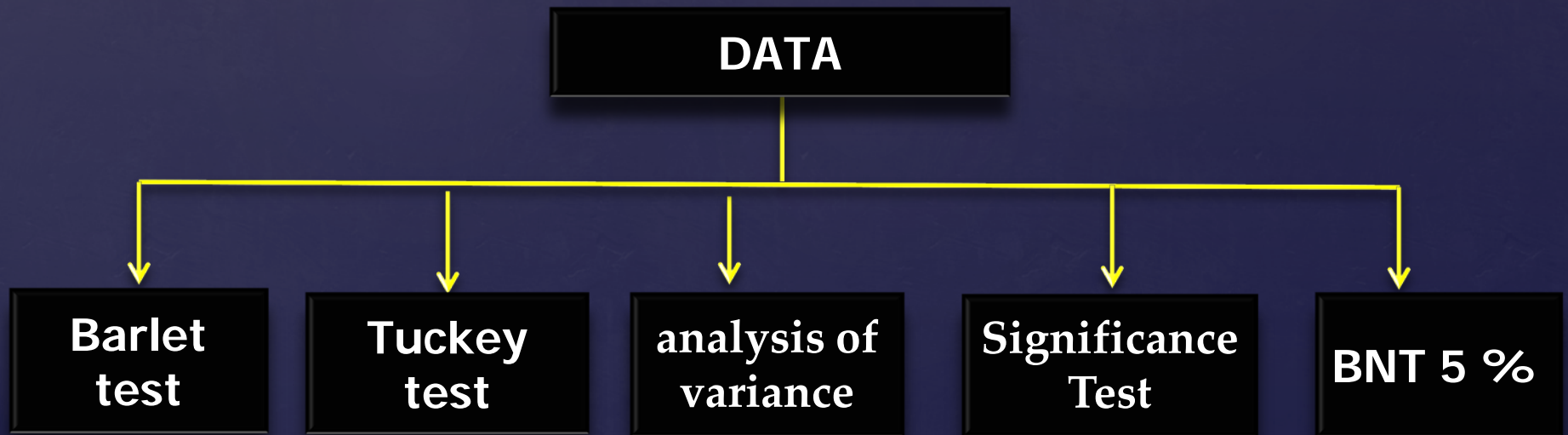
This research was carried out in Laboratory of Quality Testing of Agricultural Product and animal experiment, Department of Agricultural Product Technology Faculty of Agriculture, Laboratory of Pathology Anatomy and Histology Faculty of Medicine, Lampung University and Laboratoirum of Pathology, Veterinary Investigation and Testing of Lampung in May to September 2017.

materials

extruder, blender, mixer, scales, sieve, baking sheet, strainer, stove, Cassava cassava flour, tapioca flour, GMS (Glycerol Monostearat), palm oil, CMC, salt, water, corn starch, edible oils, vitamins, casein, soybean oil, Xyol solution, alcohol, Mayer's Hematoxylin and Eosin .

Research methods

The study was prepared in a non-factorial Randomized Design with 4 replications. The study was conducted using 24 male mice divided into 6 groups. Each group consists of 4 mice.



1. Siger rice production



Ubikayu



Pengupasan



Pencucian



Pemarutan



pengendapan



Pemerasan



Penyaringan



Pencucian



Pengeringan



Penggilingan



Pengayakan



Tepung ubikayu



nimbangan



Emulsifier



Pembuatan adonan



Pengayakan-1



Pencetakan



Pendinginan



Pengayakan-2



Pengukusan

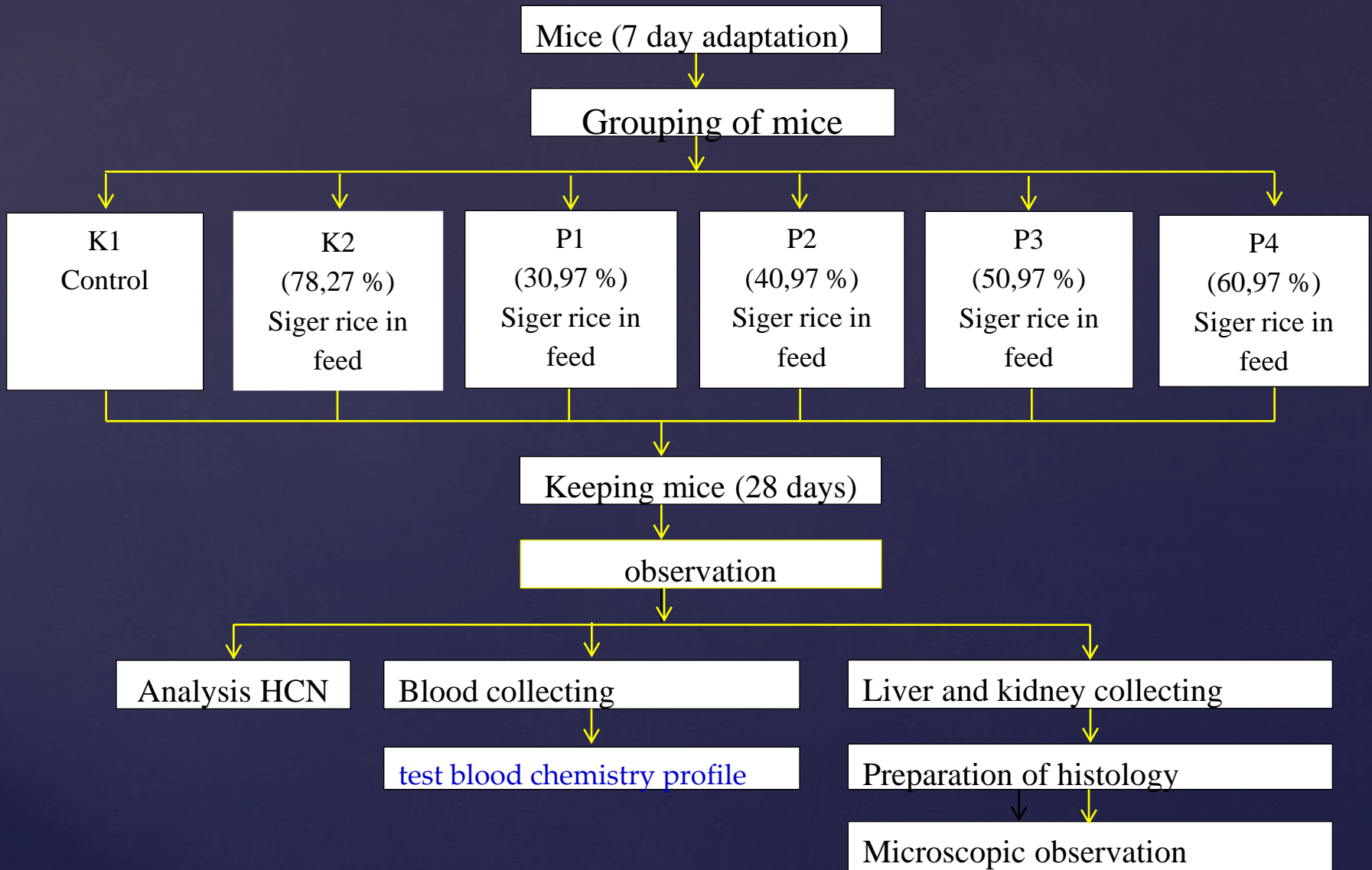


2. Test of giving siger rice in mice

Table. Composition of mice feed

Composition (g/100 g)	Treatment (g)					
	K1	K2	P1	P2	P3	P4
Corn starch	78,27	-	47,3	37,3	27,3	17,3
Siger rice	-	78,27	30,97	40,97	50,97	60,97
Casein	8,42	8,42	8,42	8,42	8,42	8,42
Soy oil	7,55	7,55	7,55	7,55	7,55	7,55
Mineral mix	4,76	4,76	4,76	4,76	4,76	4,76
Vitamin mix	1	1	1	1	1	1
Total	100	100	100	100	100	100

Research implementation scheme



Observation

Analisis HCN



Based on the AOAC method (1984)

Blood chemistry
profile



1. Blood is taken 1 cc through the heart of the mice
2. Collected in 3 ml EDTA tube
3. Analyzed using Hematology Analyzer
4. Read the results against the amount of erythrocytes, the number of leukocytes, hemoglobin levels and hematocrit values

Liver and kidney
histology



1. Mice were anesthetized using chloroform
2. Mice dissected and taken heart and kidney
3. Preparation of histology
4. Slide preparations are read under a light microscope
5. Scoring of cell damage done

Results and Discussion

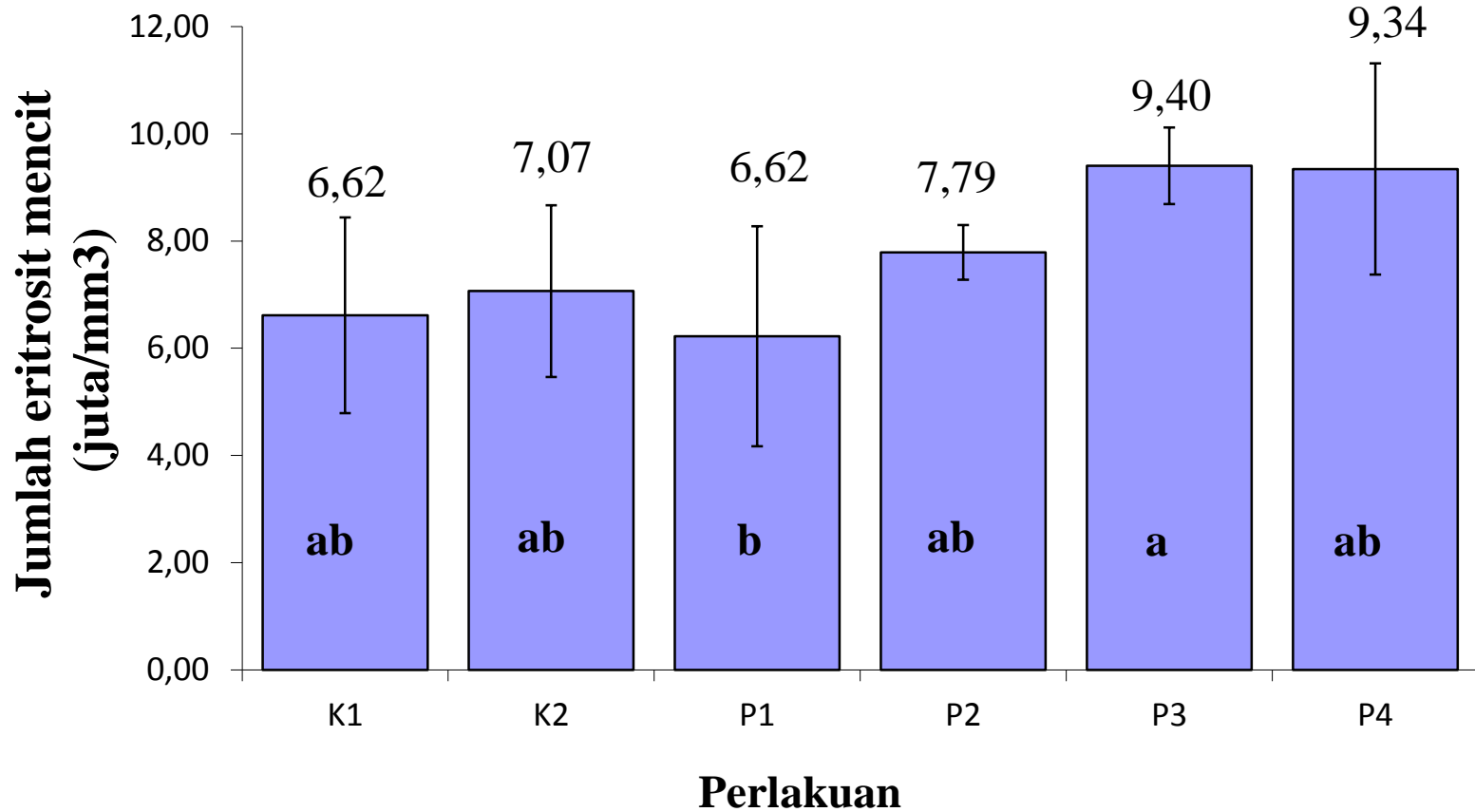
Nutrient content of siger rice



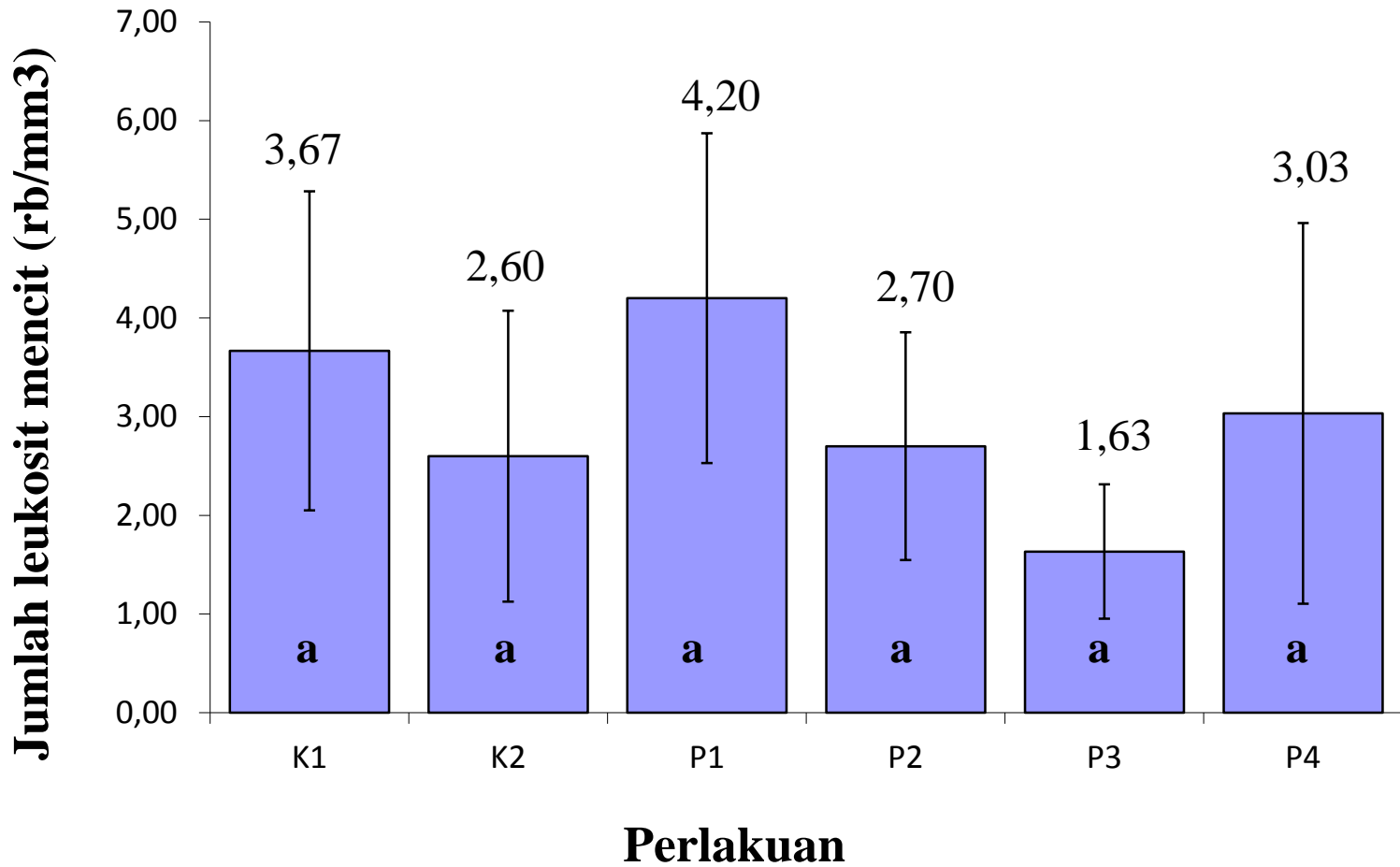
Parameter	Content (%)
Water	10,19
Ash	0,31
Fat	0,56
Protein	2,69
Crude fiber	4,50
carbohydrate	81,75
Glycemic index	31

(Patent No. P00201701877)

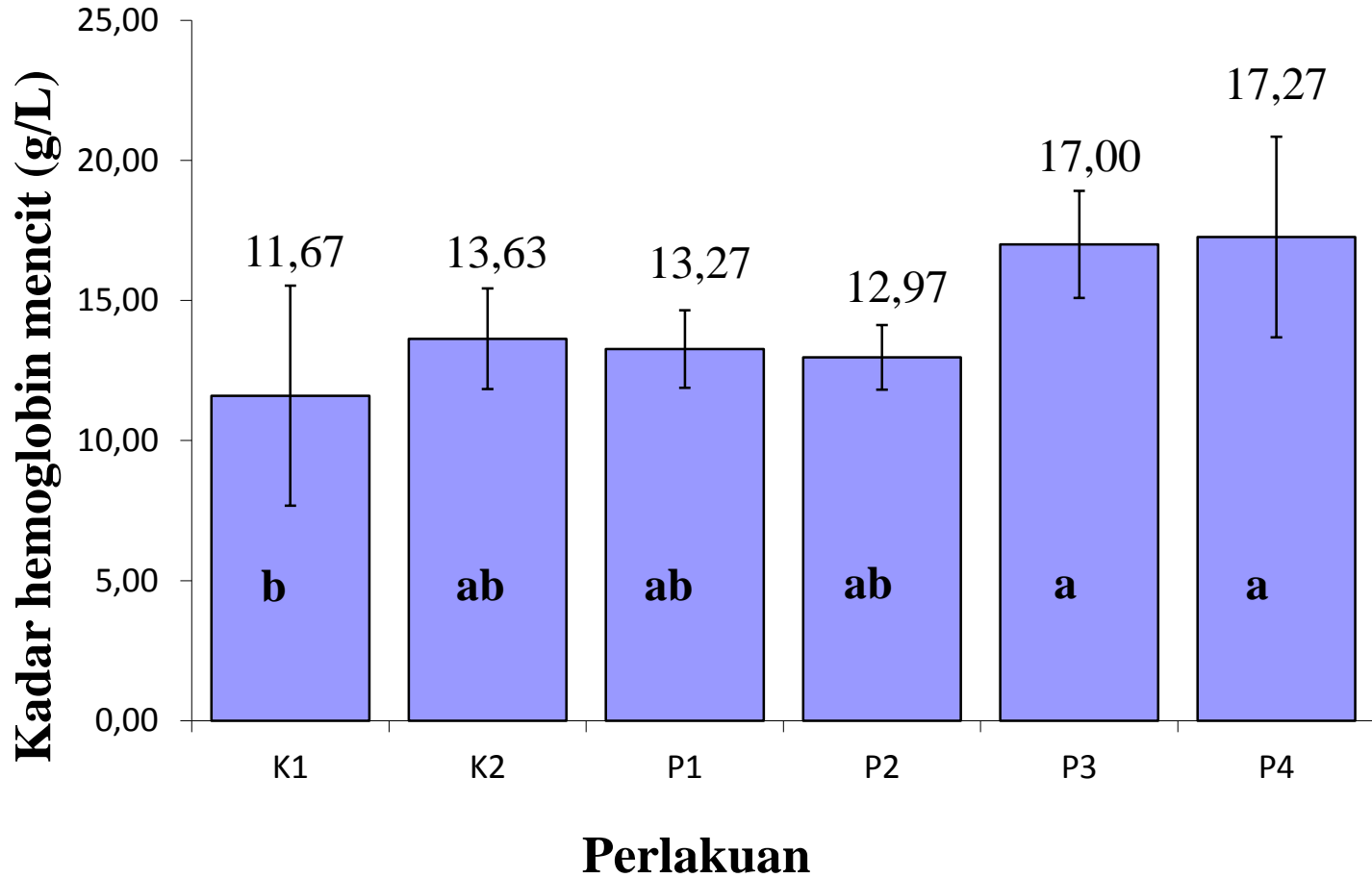
Number of Erythrocytes



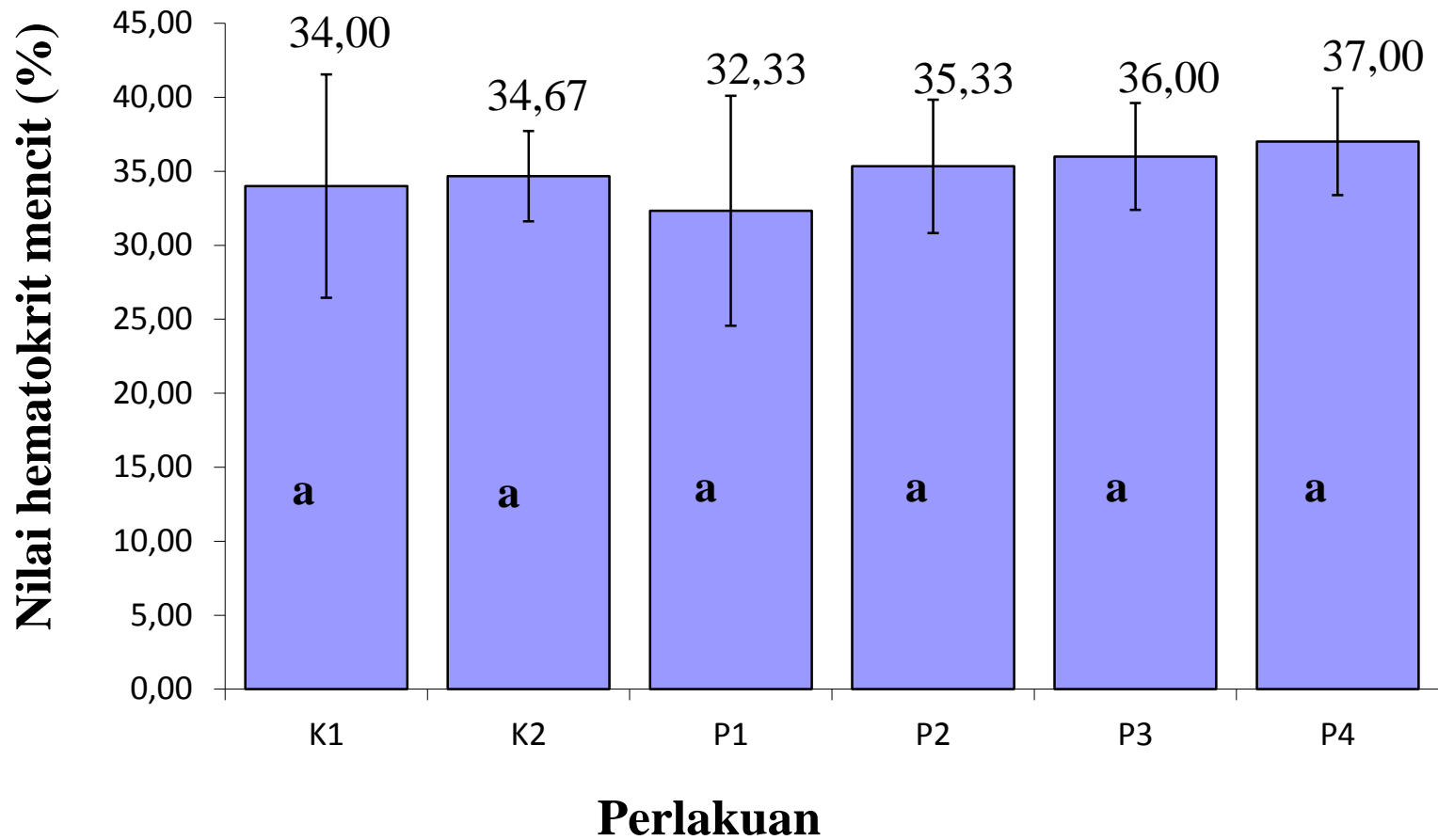
Number of Leukocytes



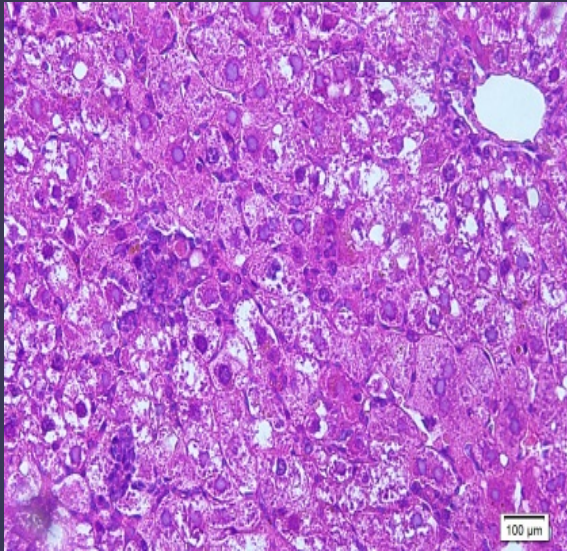
Number of hemoglobin



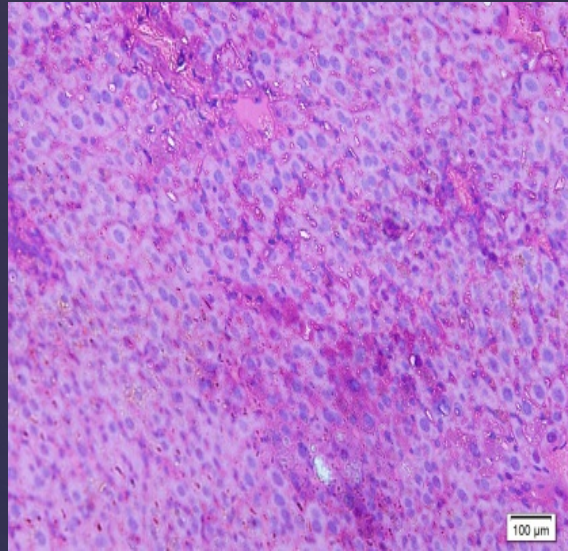
Hematocrit Value



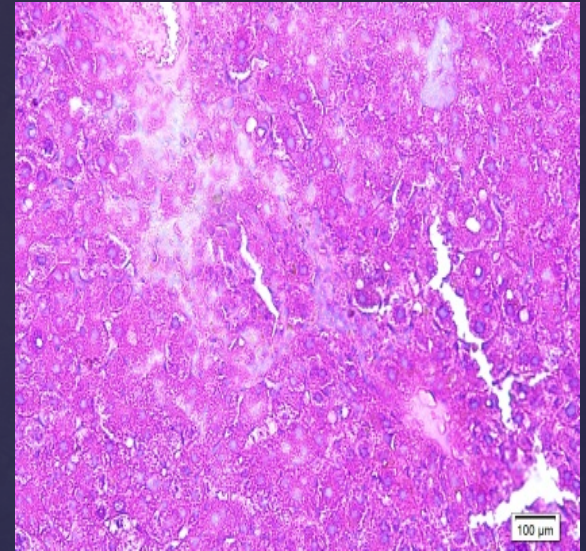
Histology of mice liver



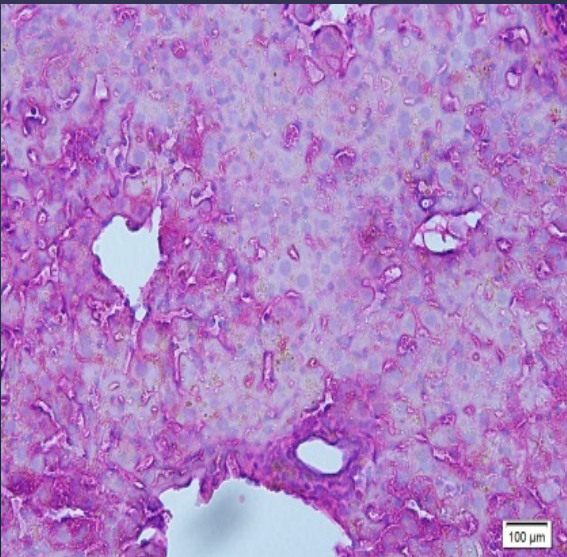
K1



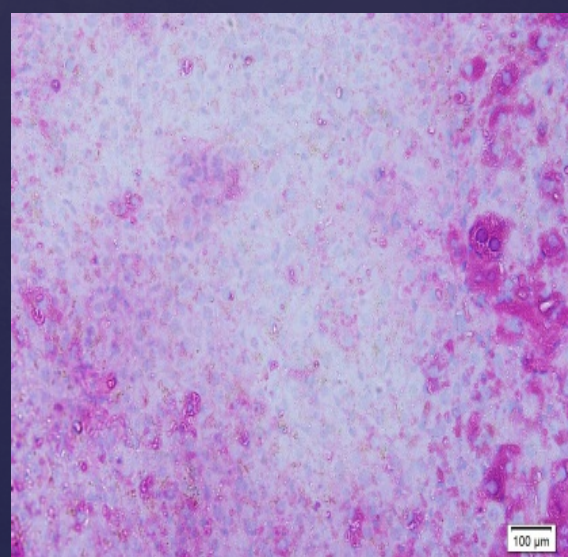
K2



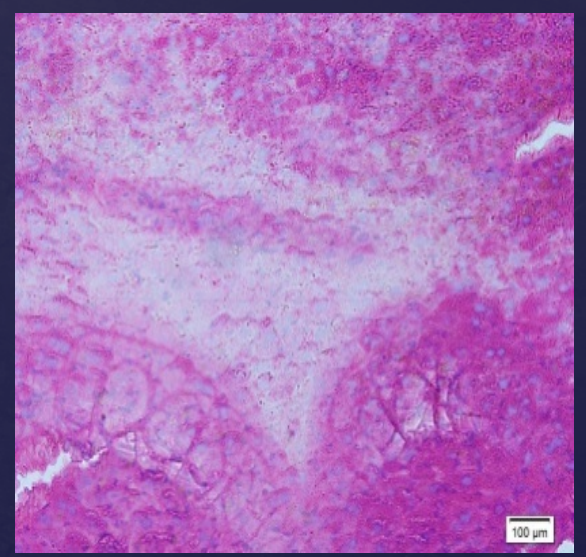
P1



P2

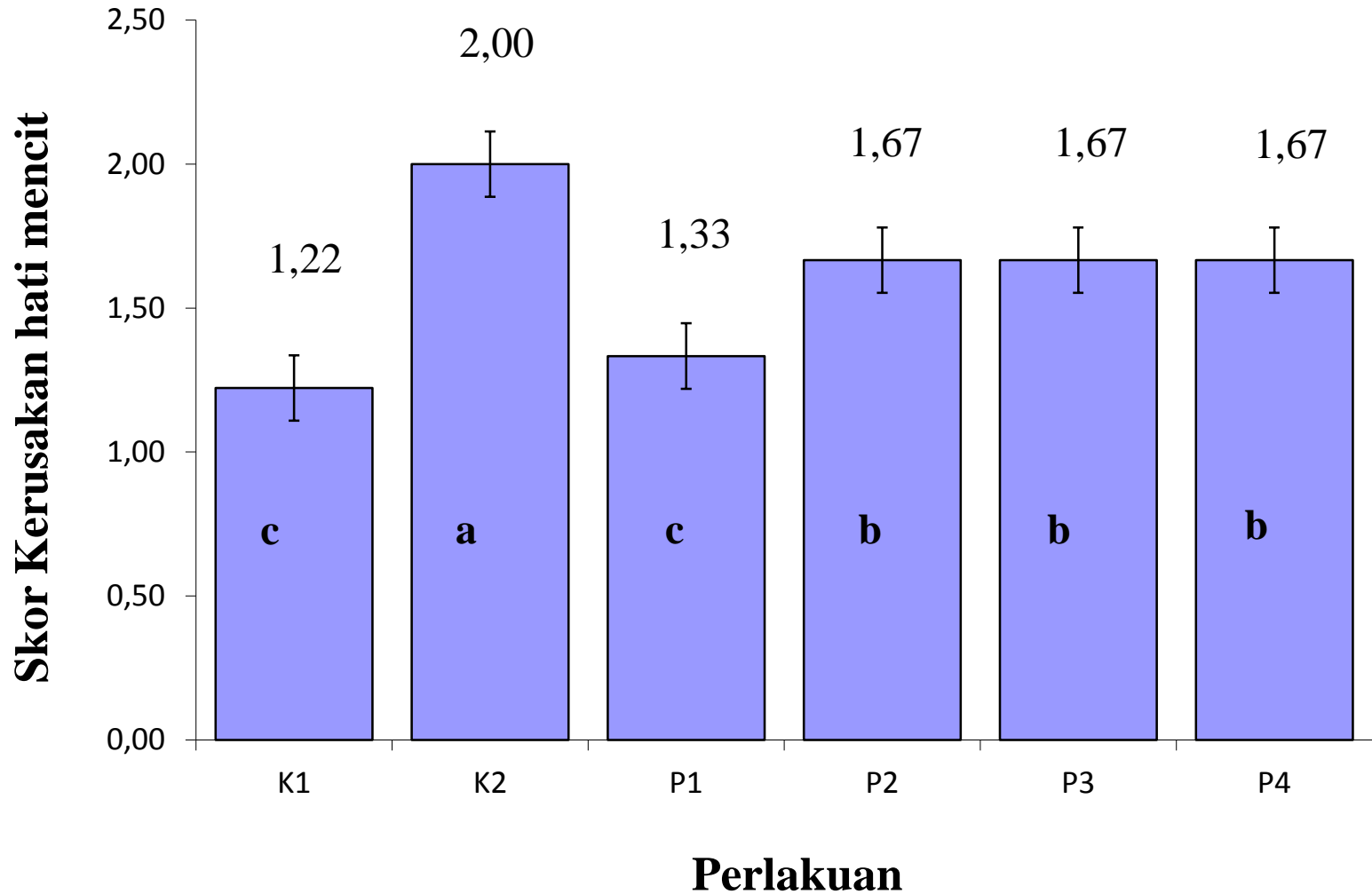


P3

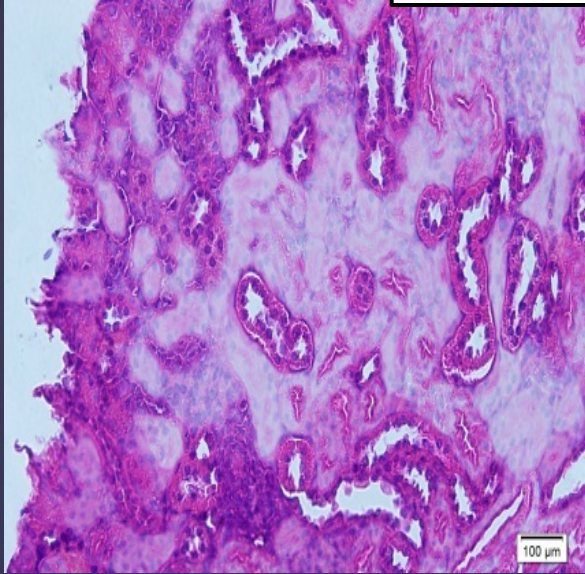


P4

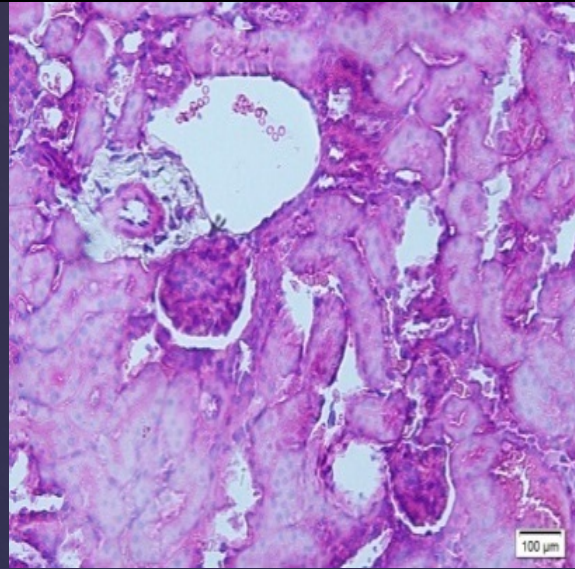
Number of cell necrosis in the mice liver



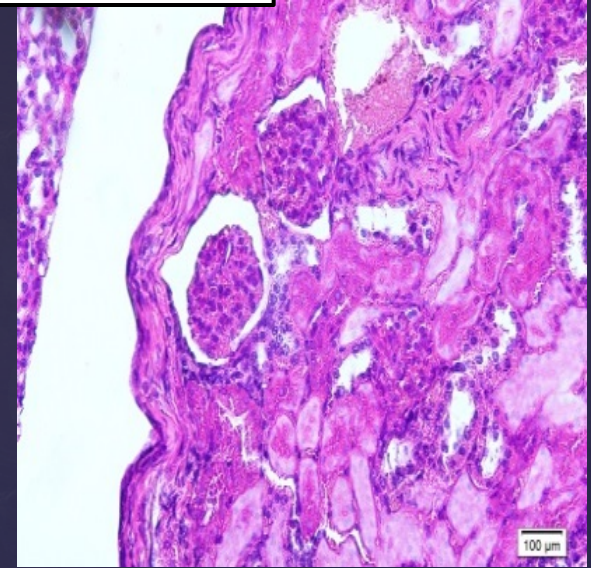
Histology of mice kidney



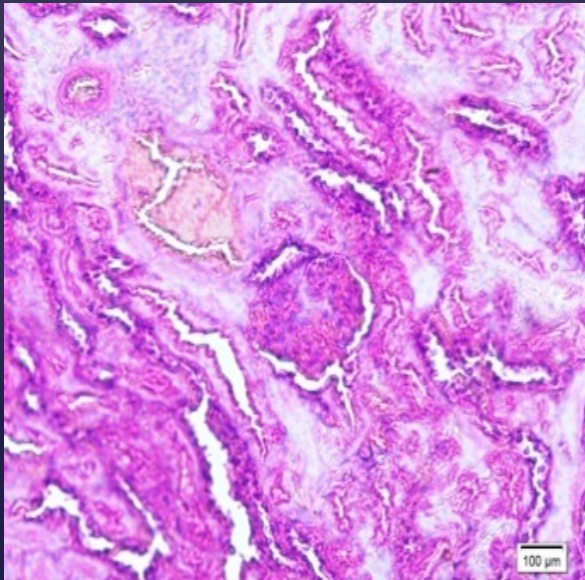
K1



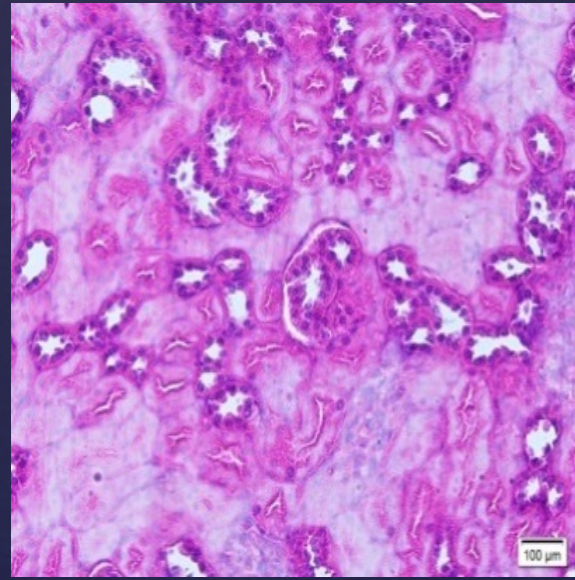
P1



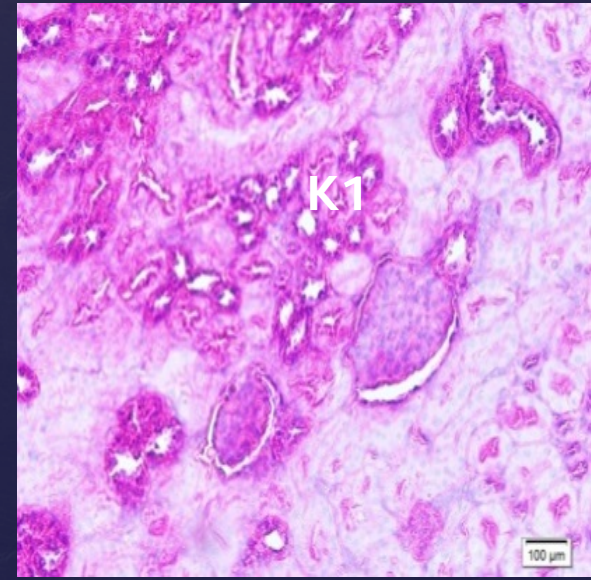
P2



P3

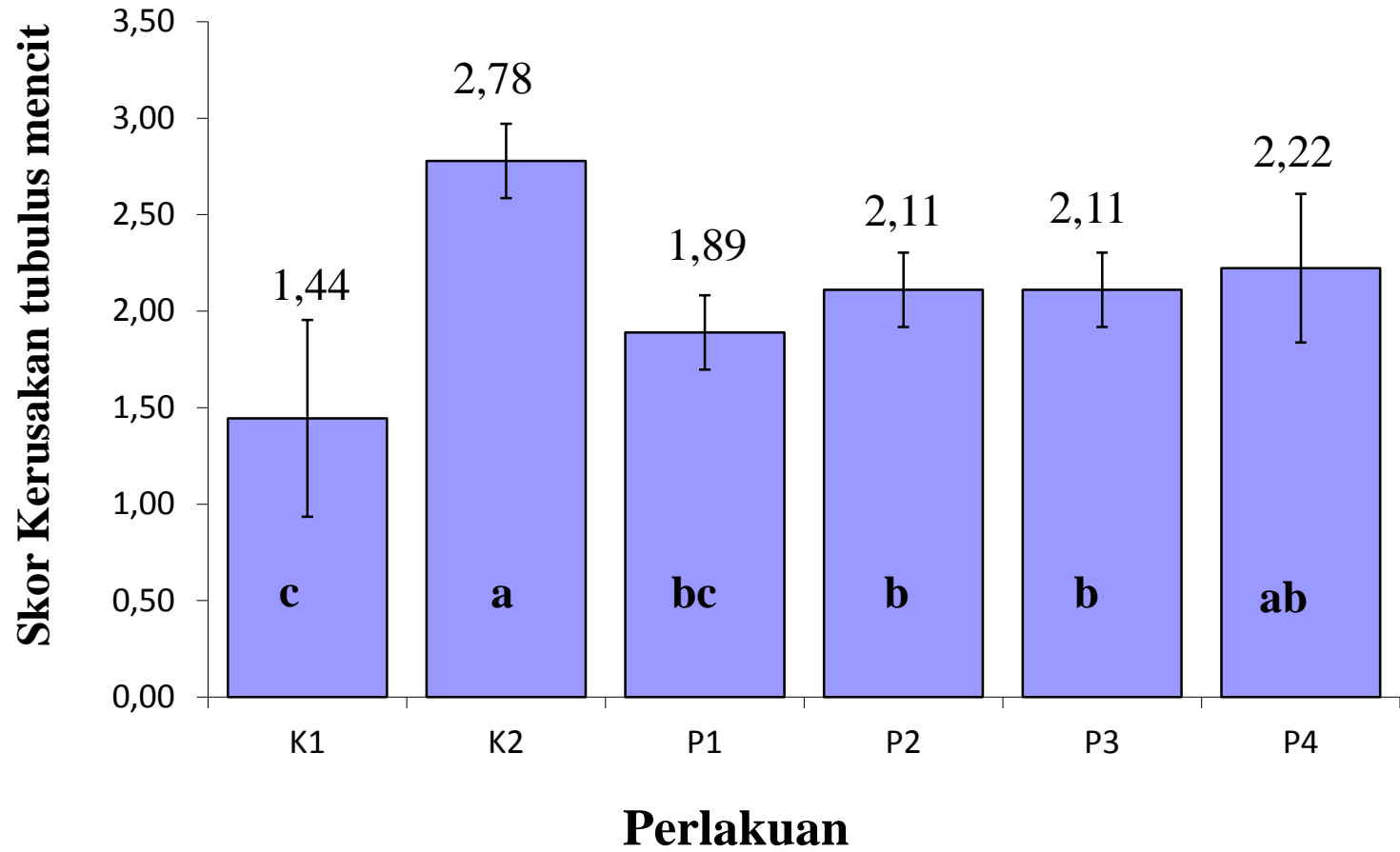


P3



P4

Number of cell necrosis in the mice kidney



Kesimpulan

1. Giving siger rice from bitter cassava showed no effect on the number of erythrocytes, leukocyte, hemoglobin, and hematocrit of mice blood.
2. Giving siger rice from bitter cassava at dose of 30,97% in feed showed no effect on the necrotic lesion of liver and kidney of mice.



THANK
YOU