

# **BLOOD CHEMICAL PROFILE OF PRIANGAN RAM THAT Ca-PUFA, I-PUFA, Zn-PROTEINAT and Cu-PROTEINAT ADMINISTERED IN RANSUM**

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## **ABSTRACT**

The purpose of the research was to find out the effect of feeding supplement Ca-PUFA, I-PUFA, Zn-Proteinat and Cu-Proteinat in ration toward content of LDL-cholesterol and plasma triglyceride, glucose, lipid total of Priangan ram blood. The study was conducted experimentally by using completely Randomized Design. There were four treatments ( $R_0$  = control ration;  $R_1$  =  $R_0 + 5\%$  (Ca-PUFA and I-PUFA);  $R_2$  =  $R_0 + 3\%$  (Zn-Proteinat and Cu-Proteinat);  $R_3$  =  $R_0 + 5\%$  (Ca-PUFA and I-PUFA) +  $3\%$  (Zn-Proteinat and Cu-Proteinat) with four replications by using 16 Priangan rams. The difference among the treatment was tested by using orthogonal contrast test. Based on research showed that addition of 5 % oil complex (Ca-PUFA and I-PUFA) and 3% (Zn-Proteinat and Cu-Proteinat) in ration was no effect content of LDL-cholesterol and triglycerides on Priangan ram blood, but influence content of glucose were  $R_1=27,75$ ;  $R_2=29,25$ ; dan  $R_3 = 27,75$  higher compared  $R_0=23,25$  mg/dl, whereas content of lipid total higher on ram that gives treatment  $R_1=281,75$  mg/dl compared with  $R_2= 268,75$  dan  $R_3=251$  mg/dl.

**Keywords : Ca-PUFA, I-PUFA, Zn-Proteinat, Cu-Proteinat, blood chemical, Priangan ram**

## **INTRODUCTION**

Mineral requirement for animal is relative by one whit, but very important because animal unable to synthesis mineral. Administered mineral should be accord with animal requirement. Administered mineral in organic form easier than absorption against which anorganic. Ca-PUFA (Poly Unsaturated Fatty Acid), I-PUFA, Zn-Proteinat dan Cu-Proteinat are organic mineral can gives to animal. Combination of Ca-PUFA and I-PUFA in ransum hand over double advantage, are supply mineral Ca and I, and supply unsaturated fatty acid, and like that Zn-Proteinat and Cu-Proteinat.

*Poly Unsaturated Fatty Acid (PUFA)* common knowledge be covered with specifically for interest in the feed. As a general rule palm oil contains oleat acid, linoleat and linolenat or isomers from it acid is digestible got up to 94%.

Alteration blood cholesterol level, triglicerid, lipid and glucose are respons which deal with saturation degree change from feed fatty acid.

## **Materials and Method**

This research using 16 Priangan rams, and homogeneous body weight ( $\pm 30$  kg) 1,5 to 2 years age. It rams rearing in the 16 unit cage randomly. Rams rearing in scaffolding system individual cage. Cage design made of from wood and bamboo, have measurement of length, width, and high (130, 60, and 90 cm). Cage floor made of from wood with slot 1 to 1.5 cm.

Each rams fixed to randomly in the 16 research units. Cage gives number for easier data recording. Each cage complited feeder and drinker.

## **Equipment**

1. Reaction tube
2. Spectrophotometer
3. Pipette
4. Kuvet .
5. Sentrifuge 3600 rpm
6. Vacutenner 4 ml
7. Venojette
8. Cool box

## **Composer Materials of Ransum**

Feed nutrien contens using as ransum composer of this research showed in Tabel 1 and ransum formulation showed in Tabel 2.

Tabel 1. Kandungan Zat-zat Makanan dalam Ransum

Nutrient	Pucuk Tebu	Konsentrat	Ca-I-PUFA	Zn-Cu-Proteinat
Dry matter (%)	74,85	79,94	83,27	71,02
Ash (%)	14,3	19,02	4,9	4,8
Crude Protein (%)	6,82	9,4	1,99	17,36
Crude fiber (%)	24,88	25,23	4,93	8,25
Crude lipid (%)	2,08	2,34	17,68	3,78
Beta-N (%)	26,77	23,95	53,77	36,83
Ca (%)	3196,819	826,349	3050,160	2179,955
Cu (ppm)	3,720	1,925	0,430	99,940
Zn (ppm)	118,249	52,627	22,821	110,410

Sumber : Analysis of Proksimat from Laboratorium Ilmu dan Teknologi Pakan,

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Table 2. Ransum Formulation of Research Based on dry matter 100%

Feed material	Composition
	.....%.....
Pucuk Tebu/ shoot of sugar cane	30,00
Onggok/stacks	14,00
Dedak/mixture of rice	9,7
Ampas Kecap	11,8
Bkl Kopra	28,6

Kulit Coklat	3,5
Molases/molasses	2,4
Amount	100,00

Tabel 3. Nutrient composition in the Treatment Ransum

Nutrient	R0	R1	R2	R3
Dry matter (%)	78,41	78,58	78,15	78,31
Ash (%)	17,60	16,90	17,18	16,47
Crude Protein (%)	8,63	8,26	8,86	8,49
Crude fiber (%)	25,13	24,11	24,62	23,60
Crude lipid (%)	2,26	3,03	2,31	3,07
Beta-N (%)	24,80	26,29	25,18	26,67
Ca (%)	0,15	0,16	0,16	0,17
Cu (ppm)	2,46	2,39	5,40	5,33
Zn (ppm)	72,31	70,82	74,05	72,56

Sumber : Calculation result based on Table 1 dan 2

### Ransum of Treatment

Ransum treatment that using in this research were :

R0 = Based ransum

R1 = Ransum contains 5 % oil complex (Ca-PUFA dan I-PUFA)

R2 = Ransum contains 3 % (Zn-proteinat dan Cu-proteinat)

R3 = Ransum contains 5 % oil complex (Ca-PUFA dan I-PUFA) + 3 % (Zn-proteinat dan Cu-proteinat).

## **Procedure of Research**

- a. Make the Ca-PUFA, I-PUFA, Zn-Proteinat, and Cu-Proteinat

Making process Ca-PUFA, I-PUFA, Zn-Proteinat dan Cu-Proteinat be done at Ruminant and Animal Feed Chemical Laboratory, Faculty of Animal Sci., University of Padjadjaran, Jatinangor.

- b. Preparations

Preparations include of cage preparation and it equipment, be providing feed materials and it analysis, animal sampel.

- c. Rearing

Ram weight of measured before fixed to randomly at individual cage. Preface period, ram gives based feed as long as a month. Treatment period, be done as long as 3 months, with hand over treatment ransum. Ransum given at twice a day, were in the morning at 08.00 o'clock and afternoon at 15.00 o'clock. Drinking water given ad libitum.

## **Variable**

Measuring of variable were cover blood LDL-Cholesterol , trigliserida, total lipid, and glucose. It measured using spektrofotometri, be done once at the moment treatment last of time of research.

## Statistical Analysis

The study was conducted experimentally by using completely Randomized Design, with four times replications.

Mahtemactical model this research was :

$$Y_{ij} = \mu + \alpha_i + \varepsilon_{ij}$$

Keterangan :

$Y_{ij}$  = Respons of treatment

$\mu$  = Means

$\alpha_i$  = Effect of ransum treatment

$\varepsilon_{ij}$  = Effect of error

$i$  = amount of treatments

$j$  = amount of replications

If analysis of variance showed significant effect, continued Othogonal Contrast Test.:

$$Q = \sum P_i \cdot d_i, \text{ with } \sum d_i = 0$$

Where,

$P_i$  = coefficient of contrast to- $i$

$D_i$  = treatment to- $i$

## RESULT

The content of LDL, Trigliceride , Total lipid, and Blood Glucose from Ram base on research result is dispayed on Table 3

Table 3. The content of LDL, Trigliceride , Total lipid, and Blood Glucose from Ram

Parameter	Treatment			
	R0	R1	R2	R3
LDL (mg/dL)	25.50 <sup>a</sup>	25.50 <sup>a</sup>	29.50 <sup>a</sup>	35.33 <sup>a</sup>
Trigliceride (mg/dL)	42.50 <sup>a</sup>	32.50 <sup>a</sup>	38.75 <sup>a</sup>	35.75 <sup>a</sup>
Total Lipid (mg/dL)	249.25 <sup>a</sup>	281.75 <sup>b</sup>	268.75 <sup>c</sup>	251.00 <sup>c</sup>
Glucosa (mg/dL)	23.25 <sup>a</sup>	27.75 <sup>b</sup>	29.25 <sup>b</sup>	37.75 <sup>b</sup>

Explanation : The same subscript on the same line in each parameter do not show significant (P>0.05)

R0 : Ransum basal

R1 : Ransum basal + 5 % oil Complex (Ca-Pufa dan I-Pufa)

R2 : Ransum basal + 3 % (Zn-proteinat dan Cu-proteinat)

R3 : Ransum basal + 5 % Oil complex (Ca-Pufa dan I-Pufa) + 3 % (Zn-Proteinat and Cu-Proteinat)

According statistic analysiis showed that no different effect to the content of LDL, cholesterol, and trigliseride. PUFA supplementation contents high oleic acid . which has one chain and has the character neutral to LDL, but it could not increase HDL lipoprotein.(*Byers, F. M., and G. T. Schelling. 1988*) The oleic acid could not produce eicosanoid which reduce the release of arachidonat from phospholipid and the form of prostaglandin and tromboksan which influence on the decrease of LDL content

Overall LDL cholesterol on this research is lower than Savitri research (2006) that is 70,44 mg/dl. The difference LDL cholesterol content on Savitri research is assumed by the difference source oil to the food. Savitri et al (2006). She did the research by supplemented lemuru fish oil and niacin to the ram ration. Lammogia et al (1966),and Iriyanti at al (2005)

suggest that given .lemuru oil as linoleic acid source (omega3)and kelapa sawit as linolenic acid source (omega 6), showed that no different effect to the content of cholesterol, LDL, HDL and trigliseride blood serum on native cock

Althoght trigliseride content showed no different effect, but total lipid showed different effect until level 281.75 mg/dl on livestock group has been given rising 5% oil complex (Ca-Pufa and I-Pufa). The result could explain that lipid total constitute of lipid proportion in phospolipid. Hartati (1998) reported that PUFA from Oil could be deposite in phospolipid.

Blood glucose contain showed significant effect than given organic mineral. This fenomena indicate that the rate of gluconeogenesis increase. The same result has reported by Warnants, et.al (1999); Scislowski, et. al.(2005), and Kim, et.al. (2007) that PUFA can increase glucose contain and lipid deposite on muscle.

## **CONCLUTION**

This result showed that complex Ca-PUFA and I-PUFA, Zn-Proteinat and Cu-Proteinat could not influence on LDL-cholesterol and triliserida content of Priangan ram blood, but influence on glucosa contain R1=27,75; R2=29,25; and R3 = 27.75 increase significant than R0=23,35 while the lipid contain increase significant on the ram which the treatment R1=281,75 mg/dl than R2= 268,75 and R3=251 mg/dl.