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THE EFFECT OF KAPOK SEEDS DREGS (*Ceiba petandra*) IN RATIONS TO PERCENTAGE OF EGG COMPONENTS AND EGG YOLKS COLOR INDEX OF DEKALB WARREN CHICKEN

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ABSTRACT
Location of this research is in Sumur Anyir village Hamparan Rawang subdistrict, Sungai Penuh town, and the purpose is to know the influence of the provision of kapok seeds dregs (Ceiba petandra) in rations to consumption rations, the percentage egg albumens, percentage of egg yolks and egg yolks color index of dekalb warrren chicken . Matter used is pullet (a pullet) strains dekalb warren who was 21 weeks old as many as 64 pcs. Placed on home individual (single cage) equipped place fodder and drinking container. Food composition used the yellow corn, smooth bran, soya seeds residu, coconut residu, residue of kapok seeds, fish flour, bone flour, $CaCo_3$ and premix. Research methodology used is a randomized group design to 4 treatment and 4 remedial and each remedial consists of 4 chickens. Data analyzed by analysis variety and when is the real so continued Duncan distance test. The sample measurement parameter came after laying chickens producing collected 1 day during a production in 1 week for 12 weeks research, with the parameters observed the food rations, the albumin, the percentage of egg yolks and color egg yolks index. The result showed that the kapok seeds residu standard to 15 % in rations show an influence that very real (P<0,01) down food rations, influential real (P<0,05) improve the albumen, influential real (P<,05) down the egg yolks and no effect real (P<0,05) of color egg yolks index. The conclusion of this research is provision the kapok seeds residu standard to 15 % in rations laying chicken can improve the egg albumen, lowering the egg yolks and consumption rations but not affecting color egg yolks index.
KEY WORDS: *rations, the eggs, index of egg yolks color, dekalb warren chicken.*

INTRODUCTION

The use of material feed unconventional that is is an effort to reduce dependence imported feed material. Including the unconventional feed is to harness processing plant waste oils of kapok namely dregs of kapok seeds (bungkil). As for excellence residue of kapok seeds is not compete with of the needs so that prices cheap , availability of residue of kapok seeds is widely available and having the womb nutrients are high especially the womb protein rough namely 28.35% (analysis proximate laboratory nutrition and forage, IPB Bogor, 2000).

Based on Hartad *et al.* (1990) dregs of kapok seeds containing nutrients is a good enough of them, there is protein content rough namely 31.7%, coarse fiber 24% and fat rough 9.7%, so dregs of kapok seeds can be used as a mixture of in rations poultry. Besides have a composition of substances food is a good enough, if considered of the potential provision of

dregs of kapok seeds per year (Parakkasi, 1983). For Jambi regions, based on the data from the local Department of Forestry and Estate Crops (2010) for production of kapok is 26.5 tons per year or can produce 13.25 tons kapok seeds per year. By the number can be produced oil as many as 2.9 tons and dregs of kapok seeds as many as 10.35 tons per year.

Substances besides food content available inside dregs of kapok seeds, inside dregs of kapok seeds then the substance found also anti nutrients namely siklopropenoat acid of them is poisonous for cattle (Phelps *et al*. 1964) and coarse fiber content which is quite high .The high content of the coarse fiber will affect the food digestive substances and will eventually impact on the production of cattle.

With the content substances anti nutrition and the high coarse fiber that was found in dregs of kapok seeds so the use of dregs of kapok seeds in chicken rations is need to be limited. Because if silklopropenoat acid found much in rations will affect well as on egg yolks that is the point liquid egg yolks, increase the memberan vitelin, increase pH of the yolk characterized the viscosity egg yolks. Siklopropenoat acid also can cause the change of egg albumen becomes *pink white* or the change of color on egg albumen becomes pink (Phelps *et al*. 1964)

Based on the consideration above then done this research to understand the extent of dregs of kapok seeds can be used in rations and its effect on consumption rations, the percentage egg yolks, the percentage egg albumens and an index of egg yolks color of chickens.

Dregs Of Kapok Seeds As The Cattle Feed. The use of kapok seeds dregs as feed bounded by the deposits of the siklopropenoat acid who is poisonous to cattle (Phelps *et al*. 1966). Dregs of kapok seeds containing siklopropenoat acid namely sterkulat acid 60 ppm, while dregs of kapok seeds omitted oil did not find any deposits of the sterkulat acid (Zahirma, 1986). The provision of rations containing siklopropenoat acid can cause the pink white to the chicken egg namely the change of color on the egg albumen becomes pink, the egg yolks pH. Sikloproenoat acid can also resulted in the increasingly Fe content and the NPN on egg albumens, resulted in the increasingly deposits of the high density lipid acid and point liquid on egg yolks, which is marked by increasing viscosity eggs yolks (Phelps *et al*. 1964). The provision of rations containing siklopropenoat acid can cause a decrease in the production of eggs, and even with increasing doses sterkulat acid in rations until 250 mg/head/day cause fowls rest spawn two days after the provision of rations and will performs stopping total after seven days. The sterkulat acid doses causing death the chicken embryo (Phelps *et al*. 1964).

Rations Consumptions. Rations is eating, well just consisting of one material or more, can be given all at once or partially to the chickens for completing the feed needs during 24 hours (Parakkasi, 1983). Food rations is the number of rations eaten in a certain period, and purpose cattle consume rations is to be alive, raising weights agencies and to producing (Anggoradi, 1979). Wahju (1997) added that food rations poultry influenced by palatabelity, environment temperature, food ingredients, health and activity. Parakkasi (1981) said that poultry preferred rations form like grains, while flour rations is a little bit liked by chickens. Rasyaf (1995) said that rations consumption of chicken during the production is 100 until 114 gr/pc/day. Low food rations would be very significant impact on the production of cattle.

The quality of the eggs and the factors that affected it. Laying chickens are farmed chicken is to the purpose of egg production. According to Wahju (1988) that the keeping of laying chickens, layer phase is divided into two phases, namely the layer I (age between 20-42 weeks) and phase layer II (age 42 weeks till the end of production). The superior properties of

laying chickens will appear in laying chickens well managed, because these properties are strongly influenced by factors of food and maintenance management. Wahju (1992) stated that the laying chickens can efficiently saving the calcium in the bones, which at that time did not spawn and this calcium will be used for the production of the eggs continuously. Anggorodi (1979) said that eggs is the result secretion of the production system and mechanism of endocrine in the body of laying chickens. The measurement of the quality of the egg is physical done with observation (candling) order to obtain the quality of based on size and the state of egg albumens, egg yolk and air cavities and eggshell condition (Rasyaf, 1995). Egg size from the poultry is highly dependent on types of poultry age, feed, management and environment temperature (Isbandi, 1985). Rasyaf (1995) said that normal eggs weighing around 58 grams by comparison albumen, yolks and eggshell namely 55.8 : 31.90 : 12.30. In general eggs consists of 5 parts, namely egg membrane, eggshell, germinal, egg yolk and egg albumen. Eggs whole comprising several components, namely water 66% and dry substances 34% composed of 12% protein, fat 10%, carbohydrates 1% and ashes 11% (Akoso, 1992). Eggs having average weight 50 - 70 grams per egg, and kampong egg between 35 - 45 grams per egg. The form of an egg chicken is oval by comparison length and breadth 5:4 (Sarwono, 1993). Hadiwiyoto (1983) said that the egg albumen is the most part of a single egg and reaching 60%, in egg albumen containing more of the protein and in egg yolks more of the fat. Comparison parts the eggs were eggshell 11%, egg albumen 57% and egg yolks 32%. The color of egg yolks old or young depends on food given and of individual itself (Idris, 1984). Sudaryani (1996) said that egg yolks color over had an impact on their taste consumers, the egg yolks color is produced by carotenoid pigments with a range of a fine color 9 to 12 and color pale to egg yolks and sometimes arising if feed less containing xantofil, especially in yellow corn. Factors that to affect color of egg yolks is the feed and the production of eggs (Sarwono, 1995).

MATERIALS AND METHODS

Time and place. This research was conducted over 12 weeks located at home experiment of chicken in Sumur Anyir village, Hamparan Rawang subdistrict, Kerinci District.

Material and equipments. Materials used in this research was pullet strains dekalb warren age 21 weeks old as many as 64 head, single cage wire stall that have been fitted with a feed and drinking water and its size of 22 x 45 x 46 cm. The materials used in formulation rations this research are yellow corn, smooth bran, soybean dregs, coconut dregs, dregs of kapok seeds, fish flour, bone flour, $CaCo_3$ and premix. Drugs used as a vaccine ND strains La Sota, anti stress drugs vitachick and Terramycin Egg Formula produced by Pfizer and a Kingsol disinfectant. Other equipments used is pair of scales Ohaus with a precision 0.01 used to weigh the eggs components and for measuring the percentage of eggs components, the cup, pipette and yolk colour fan to compare index of egg yolks color. The composition of substances food material, composition rations and of the womb the nutrients rations can be seen in table follows.

Research methodology. Experiments design used is a randomized group design (RAK) with four types of rations treatment .Every treatment had four remedial and each remedial consists of 4 chickens to the level of the provision of dregs of kapok seeds different consist of:

R0: rations (containing 100% basalic rations without dregs of kapok seeds)

R1: rations (containing 95% basalic rations and 5% dregs of kapok seeds)
R2: rations (containing 90% basalic rations and 10% dregs of kapok seeds)
R3: rations (containing 85% basalic rations and 15% dregs of kapok seeds)

Data after obtained analyzed by analysis variety in accordance with design used, if there was real impact continued by Duncan test (Steel & Torrie, 1989).

TABLE 1. Materials nutients composition

Materials	Nutrients (%)						EM Kkal/Kg
	BK	PK	LK	SK	Ca	P	
Yellow corn	85,96	9,25	3,90	1,29	0,08	0,34	3860
Smooth bran flour	87,49	11,26	11,47	17,79	0,70	1,52	4427
Soya dregs	85,50	45,30	1,30	8,12	0,44	0,75	4249
Coconut dregs	89,93	18,49	8,10	22,87	0,07	0,96	4027
Kapok seeds dregs	76,91	28,35	0,75	23,01	0,77	1,04	4164
Fish flour	92,86	34,20	5,60	13,40	8,80	1,50	3860
Bones flour	-	-	-	-	34,66	0,24	-
$CaCO_3$	-	-	-	-	38,00	-	-
Premix	-	-	-	-	-	-	-

Source: Nutrients based on Laboratory proximate Analysis Cattle nutrition and feed IPB Bogor, 2000

TABLE 2. Basalic rations composition of the research

Material	Nutrients (%)							EM Kkal/Kg
	Jlh	BK	PK	LK	SK	Ca	P	
Yellow corn	50	42,98	4,63	1,95	0,65	0,04	0,17	1399,3
Smooth bran flour	14,5	12,69	1,63	1,66	2,58	0,10	0,22	465,39
Soya dregs	12	10,26	5,44	0,16	0,97	0,05	0,09	369,66
Coconut dregs	7	6,29	1,29	0,57	1,60	0,006	0,07	204,37
Fish flour	8	7,43	2,74	0,45	-	0,7	0,12	-
Bones flour	2	-	-	-	-	0,69	0,005	-
$CaCO_3$	6	-	-	-	-	2,28	-	-
Premix	0,5	-	-	-	-	-	-	-
Total	100	79,65	15,73	4,79	6,87	3,87	0,657	2662,6

TABLE 3. Rations nutrients composition of the research

Nutrients	Treatment (%)			
	R0	R1	R2	R3
Dry material	79,65	79,51	79,38	79,24
Coarse protein	15,73	16,36	16,99	17,62
Coarse fiber	6,87	7,68	8,83	9,29
Coarse fat	4,79	4,59	4,39	4,18
Calsium	3,87	3,73	3,75	3,41
Phosphor	0,657	0,69	0,76	0,73
EM (Kkal/Kg)	2662,6	2683,99	2761,89	2839,78

Information: Based on Table 1 and 2

Methods. This treatment started with done the preparation time for the two weeks. During the preparation, chicken given the treatment rations for 14 days, so chicken know that rations will be given. At the time of preparation, ND vaccine given to the chicken and the provision of antibiotic. During the research, rations drawn up every week. Chicken stall and equipment for the first will be sterilized with the Kingsol disinfectant. Before put in the

chickens to a cage, we have to checking chickens early weight for 64 chickens at the age of 21 weeks to find out the weighting of a body of the beginning. After conducted weighing early weight, chicken included to the cage by randomized system, similarly treatment randomly placed. Chickens reared for 12 weeks. During the research, the provision of rations and drinking water given *ad-libitum*. Observation the percentage of eggs components and index of egg yolks color done such egg collected for 1 (one) days of a production in 1 (one) week during 12 weeks research. Eggs weighed first to know the eggs weight, after weighed, eggs will be broken up to separate the component parts of eggs and each of the components were put in the cup to be weighed, the results of weighing compared with heavy egg described in percent to perceive the percentage eggs components. Index of egg yolks color observed by matching a treatment eggs yolks by color with the *yolk colour fan*.

FIG. 1. Composing the rations

FIG. 2. Arranging chickens on the cage

Variables observed. Parameter observed that is consumption the rations, eggs yolks color index by comparing a egg yolk color from the chicken with rations treatment by yolk colour fan who also had a 1 to 15. The percentage egg albumens while the egg yolks, is measured by comparing of the respective components eggs to eggs weight and expressed in percent as:

$$\text{Egg Albumen percentage} = \frac{\text{egg albumen weight}}{\text{egg weight}} \text{ x } 100\ \%$$

$$\text{Egg Yolks percentage} = \frac{\text{egg yolk weight}}{\text{egg weight}} \text{ x } 100\ \%$$

FIG. 3. Separating egg components

RESULTS AND DISCUSSIONS

Rations consumptions. Rations consumption average in each treatment during the research can be seen in table 4. The results of the analysis variety of shows that treatment influential very real ($P<0.01$) to consumption rations. This means the provision of kapok seeds dregs in rations influential very real to rations consumption. Based on Duncan test that, rations consumptions in treatment R0 (without the provision of Kapok seeds dregs in rations not markedly dissimilar compared rations containing 5% Kapok seeds dregs (R1 but will look differences very real sent down rations consumption in the provision of Kapok seeds dregs 10% and 15% (R2 and R3). This might have been caused the occurrence of a change a composition

of nutritions especially coarse fiber content with the increasing, the high coarse fiber in rations because the increase the provision of kapok seeds dregs that will affect the digesty energy so nutritions digestible will implement by coarse fibers not digestible out with feces. According to Phelps *et al*. (1964) high coarse fiber kapok seeds dregs besides affect to power digest will also affect to rations consumptions. Added by Wahju (1997) that coarse fibers not digestible can bring other nutrions are digested out through feces. The decline in rations consumption also suspected the increase the provision of kapok seeds dregs, that will cause physical form rations the dusty so consumption rations consumption will decline, where chicken preferred to consume rations in tight than flour rations. According to Parakkasi (1983) that the chicken prefer to consume feed in tight than flour feed.

TABLE 4. Rations consumption average during the research

Treatment	average (gr/head/day)
R0	109,60^{A}
R1	102,14^{AB}
R2	96,06^{B}
R3	94,19^{B}

Capital letters on the same column refer to very real differences(P<0.01).

Index of egg yolks color. Index of egg yolks color average in each treatment during the research can be seen in Table 5. The results of the analysis variety of show that the impact of the treatment of index of egg yolks color is not real (P< 0.05). So that the use of kapok seeds dregs until the level 15 % did not real influential to index of egg yolks color.

TABLE 5. Index of egg yolks color average during the research

Treatment	Average
R0	7,60^{a}
R1	8,05^{a}
R2	7,91^{a}
R3	7,88^{a}

The same small letters on the same column refer to unreal differences (P>0,05).

When viewed by index of egg yolks color obtained as control is still below standard so by the addition of kapok seeds dregs as treatment neither showed the real difference to control (R0). It is suspected that this rations used not enough to improve egg yolks color and influence siklopropenoat acid also has not shown to significant differences compared with rations control (R0), while the rangeof the good index of egg yolks color was 9 to 12 (Sudaryani, 1996). It is also predicted that kapok seeds dregs to the level 15% containing an siklopropenoat acid in rations can still tolerated by the chicken's body. According to Thalib *et al*. (1990) quantity of the siklopropenoat acid in kapok seeds dregs is about 0.021% or 210 mg/kilogram of rations. Theoretically that the color of egg yolks influenced by several factors, one of them is feed. Egg yolks color is produced by carotenoid pigments which is found in feed containing xanthofil. Sarwono (1996). Xantofil is provitamin A or vitamin A that are not on active and in rations poultry that would improve the egg yolks color (Anggorodi, 1985).

Egg Albumens Percentage. Egg albumens average in each treatment during the research can be seen in Table 6. The results of the analysis variety of shows that treatment had

have real impact (P< 0.05) of the egg albumen percentage. This means the provision of kapok seeds dregs on the rations had real impact on the percentage of egg albumens

TABLE 6.Egg albumens average during the research

Treatment	Average (%)
R0	63,150[a]
R1	63,301[ab]
R2	64,264[bc]
R3	64,458[c]

The different small letters on the same column refer to unreal differences (P>0.05)

Based on the Duncan test said that, the percentage of egg albumen in treatment R0 (without the provision of kapok seeds dregs on the rations) has not real differences compared rations containing 5% kapok seeds dregs (R1 but will look to significant differences increase the percentage of egg albumen in the provision of kapok seeds dregs 10% and 15% (R2 and R3) than by the provision of 0% and 5% (R0 and R1). It is suspected that this the womb nutrients in treatment the provision ofkapok seeds dregs 0% and 5% still in range of need of chicken laying especially the womb protein had played a role in the formation of the egg albumen percentage. The high rate of egg albumen in the provision of kapok seeds dregs 10% and 15%, this supposedly caused the occurrence of a change a composition of nutrients especially protein content with the increasing so that the percentage of egg albumen will be more increased as well in line with the protein rations. Be seen that to form the percentage of egg albumen needed protein a balanced. According to Wahju (1975) that 55% of protein rations into a protein eggs. In treatment R2 and R3 been an increase in the percentage of egg albumen means the influence of the provision of kapok seeds dregs containing an siklopropenoat acid has not shown influence negatively on the percentage of egg albumen.

Egg Yolks percentage. Egg yolks average in each treatment during the research can be seen in Table 7. The results of the analysis variety of shows that treatment had have real impact (P<0.05) of the percentage of egg yolks. This means provision the kapok seeds dregs on the rations had real impact on the percentage of egg yolks.

TABLE 7.Egg yolks average during the research

Treatment	Average (%)
R0	24,154[a]
R1	24,113[a]
R2	23,130[b]
R3	22,979[b]

The different small letters on the same column refer to real differences (P<0.05).

Based on Duncan continued test, the percentage yolk of eggs in treatment R0 (without the provision of kapok seeds dregs on the rations) has not real differences compared rations containing 5% kapok seeds dregs (R1) but will look to significant differences sent down the percentage of egg yolks in the provision of kapok seeds dregs 10 % and 15 %. The decline in the percentage egg yolks believed to be due to seen from the composition of nutrients especially a fat content that is not very different and also be seen from the consumption rations declining so that a fat content rations also will decline in line to the decrease rations consumption that will cause the decline in the percentage of egg yolks. The most nutrients on

the eggyolks were fat (Hadiwiyioto, 1983). The decline in the percentage of egg yolks also suspected the transfer of water content from egg yolks to egg albumen. Based on Sirait (1986) said that the the flow of water resulting from osmotical pressure from egg yolks to egg albumen that causes the elasticity on vitelin membrane become weak and egg yolks membrane become wider.

Granting rations containing siklopropenoat acid will can be the cause of increasing the water levels on the egg yolk, and also the vitelin membrane permeability. Siklopropenoat acid could also improve pH of egg yolks, which is marked by increasing viscosity of egg yolks (Phelps *et al.* 1964).

CONCLUSIONS

Granting kapok seeds dregs in rations laying chickens can be used to standard 15% without provision negative effects on food rations percentage, egg components and the index of egg yolks color on the laying chickens.

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