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THE EFFECT OF KOMBUCHA TEA ON EGG FAT AND MEAT FAT IN LAYING QUAILS (*CORTUNIX CORTUNIX JAPONICA*)

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Abstract

Kombucha has been known as traditional medicine that can cured various disease.Kombuchatea is produced by fermented sweetened tea using symbiotic growth of fungus and bacteria.Functional properties of kombucha related to metabolite that has been produced glucoronic, catechin, epicatechin and niacin that have been reported to possess various biological activities. Eighty laying quails were used in the study to determine the egg fat and meat fat level in quails. Research using Randomized Block Design (RBD) with five treatments of Kombucha tea (0,10, 15, 20 and 25 %), and four replications. All treatments would be tested for the ability to decline the level of egg fat and meat fat, and the eggs was collected every week (0,1,2,3,4 weeks).The results clearly demonstrated that the laying quails meat fat, that have been consumed with the ration contain 20% kombucha tea for 3 weeks, has significantly (P<0.05)effect;and also decreased themeat fat compared to control, andby using kombucha tea for 3 or 4 weeks has no significantly (P<0.05) decreased egg fats. but egg fats has a tendency to decline compare to control. It can be concluded that Kombucha tea could be decreases the body's synthesis of lipid in general include egg fats and meat fats.

Keywords: *kombucha tea, egg fat, meat fat, quails*

INTRODUCTION

Fats are triesters of glycerol and fatty acids. Fats, and may be either solid or liquid, though sometimesis a heterogeneous bond which is soluble in organic solvents and does not dissolve in water. Grease is organic material that neededin body, because fat acts as a source of energy, water resources, the metabolic vitamins A, D, E, K, essential fatty acids, carier pads to protect organs and as a Shaper steroid hormone. According to [2] and [5] blood fat, cholesterol free, consist of cholesterol esters, triglycerides, phospholipids and free fatty acids. In order transportation by the blood, then should be bound to proteins, called lipoproteins. Lipoprotein is a form of complex consisting of fat with weight hight molecule (cholesterol, triglycerides, phosphor-lipids) where one or more protein (apoprotein) specific are soluble in water. So this is a functional unit of bonding for the transport of fats in the blood [2]. The composition of the fat consumed will accumulate fat composition (stored as triglycerides) in fatty tissue. Fat is synthesized by the selluler anabolic process, namely lipogenesis through acid, and hydro-lysed into fatty acids and glycerol. Emulsified fats and bile salt is broken down into acid monoglycerides and fatty acids [4]. Many health benefits have been reported by users of Kombucha Tea. The benefits arederived at due to its cleansing by detoxifying and aiding the liver and kidneysto flush the toxins from the body. The health benefits of this living beverage are varied. Many health benefits that have been reported by others from drinking Kombucha Tea.

Efforts to reduce levels of meat and egg fat in Cortunix cortunix japonica could be done with a drink kombucha tea. Fermented kombucha tea could be consumed as a food supplement that offers the required compounds in stabilizing the body's metabolism. According to [15], yeast ferments contained in kombucha tea is Candida albicans, sacharomyces, and Pichiaxylinium, Gluconicum bacteria, Acetobacterketogenum. The suspension are glucoronic acid, gluconic acid, lactic acid, oxalic acid, lactic acid, butyric acid and natural antibiotics material. In addition to producing some organic acids also produce variouskinds of vitamins such as vitamin B1, B2, B3, B6, B12, B15, Vitamin C, minerals, folicacid and enzymes [9]. This acid of glucuronic in Kombucha tea is ametabolite that is produced by a healthy liver and aids in the

detoxification of the body. By drinking kombucha tea daily will help prevent our body tissues from absorbing all the toxins found in our industrial environment that can lead to illness.

Kombucha tea contains most polyfenol, including flavonoids. One of the flavonoids is catechin derivatives, the compound is antio-xidant with the power 100 times higherthan vitamin C and 25 times vitamin E, which is also a powerful antioxidant.The Kombucha colonies used in thisinvestigation had a tendency to produce about 3.3% total acid, 0.7% acetic acid, 4.8%glucose, and 0.6% ethanol after a nine-dayfermentation. There was no lactic acidproduced by these colonies (verified with HPLC; 9). The average pH of the fermented samples tested was 2.5.

Supplementation kombucha tea on 0,5% level of the total drinking water, have a lower tendency on abdominal fatty broiler meat[15], also [16], that the total cholesterol and LDL decrease on supplementation 12,5 and 25% levels of the total drinking water, while by adding kombucha tea 25% levels of the total drinking water can increase the HDL in theblood serum.

MATERIAL AND METHODS

The research used 80 quails, with averagebody weigh 160,10 gram and the variable coefficient 3,67%, age 10 weeks. The ration consist19,16% protein and Metabolize energy 2728 kcal/kg.

The feed materials used yellow corn, rice bran, fishmeat, soybean flour, bone flour.

The formula rations were:

R0 Control diet

R1 Diet contain 10% of kombucha (5 mL)

R2 Diet contain 15% of kombucha (7,5 mL

R3 Diet contain 20% of kombucha (10 mL)

R4 Diet contain 25% of kombucha (12,5 mL)

In preliminary studies, the water consumption of quail is 50 mL/day.

Sample preparation: Kombucha tea was prepared by adding 100 g/L (10%) weight/volume sucrose and tea leaves ofdesired dry weight to boiling water. Normal drinkable tea of 4.4 g/L (0.44%) weight of dry tea per volume of boiled water, and increasedlevels of 8.7 g/L, 17 g/L, 35 g/L, and 70 g/Lwere prepared in duplicate. The fermentation time averaged twelve days at 25°C.

Randomized block design used in this study with five treatment, The treatment was repeated 4 times, and 4 replication. Quail were fed ad libitum. The data for meat fat collection at the third weeks, and fourth weeks, while egg fat collection at the first, second, third and fourth weeks. The end of this experiment is 4 weeks. Variables measured are fat meat and fat egg levels.

RESULTS AND DISCUSSIONS

Variables		W1	W2	W3	W4
Fat quail meat (g)	P1	-	-	11,38^{b}	10,97
	P2	-	-	9,67^{ab}	10,02
	P3	-	-	10,15^{b}	10,29
	P4	-	-	8,78^{a}	9,43
	P5	-	-	8,32^{a}	9,09
Fat quail egg (g)	P1	14,83	14,57	13,88	13,97
	P2	14,90	15,01	13,67	14,02
	P3	14,71	14,29	14,15	13,45
	P4	13,95	13,9	13,78	13,43
	P5	13,32	13,42	13,52	13,50

W1 = first week
W2= second week
W3= third week
W4= fourth week

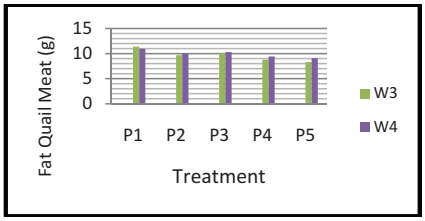

Fig. 1.Level Fat Meat of tested Animal, x=treatment(level of kombucha tea), y=level fat meat (g)

1.The effect of treatment on Fat quail Meat

Based on Figure 1, in 3 weeks after consumed Kombucha tea, showed that the level of quail meat fat is lower than the control and the quails consumed kombucha tea for 4 weeks. Consuming kombucha tea for 3 weeks, at level 20% hassignificantly effect ($P<0.05$) on the decrease the meat fat than the control (0%),10 and 15% Kombucha tea.

The percentage of theaverage fat levels of quail meat pertreatment decreased when thelevel ofKombucha tea increase. Consuming 25% of Kombucha tea couldbe reduced the fat meat

level, whileby using 10 and 15 % Kombucha tea, has no significantly (P>0.05) effect thancontrol, becausethe substance activity of kombucha tea lower which can not optimally reduced the meatfat. The effect of 20% Kombucha tea on quail meat fat, may be due to non-starchpolysaccharide component which is thefraction of water-soluble fiber[12]. The Kombucha fermented product is largely asoluble fiber fraction. By using Kombucha tea in broiler chickens drinking water can help the catabolism process of fat into energy so that the buildup of fat in the adipose tissue declined, which is also followed by a decrease in cholesterol levels. The decreasing in cholesterol where is associated some organic acids on kombucha will activated the high mobility lipoprotein (HDL: high density lipoptotein). HDL, known as which serves both as a means to transport cholesterol particles of muscle tissue and flesh to mitochondria in the liver organ would be burned into energy [6]. So, in the presence of Kombucha tea, HDLfunction increase intensively, where cholesterol and meat fat will decrease [7].

2. Effect Treatment on Fat quail Egg

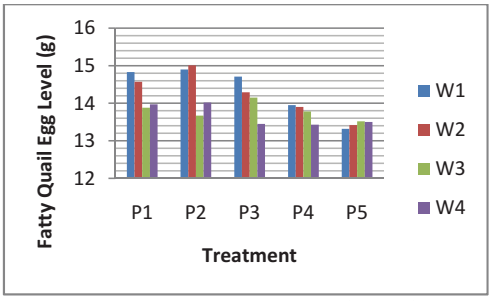

Fig. 2. Meat Fat Level of tested animal.
Notes: x = treatment(level ofkombucha tea),
Y = meat fat level (g)

Based on figure 2., by using Kombucha tea for 1, 2, 3, and 4 weeks showed the egg fat content, almost the same , and showed not significantly effect (P>0.05) on egg fat decreasing.

Yolk lipid and protein are synthesized in the liver under the influence of estrogen and progesteron and are transfered through the blood to the ovarian folicles. Lipid in the yolk are two main types lipoprotein and vitellogenins. Vitellogenin is a protein synthezised by the liver of laying female that complexes with phospholipids and cholesterol. About 90% of the energy requirement of the developing chicks is supplied by yolk lipids [10]. Although the results of statistical analysisshowed the average egg fathas no significantly, there is a tendency decline the fat egg using Kombucha tea 20, 25% for 3 and 4 weeks. The level of fat can decrease by consume Kombucha tea. According to [15], and [16], that supplementation of Kombucha tea at 25% can reduce the fat level, because it can burn the body fat. So, it can reduce the fat tissue, which will inhibit fat absorbsion in the digestive system, because the conyugate fraction of fiber derivate in Kombucha. It also could increase the excresion of fat, bile acids and decreased estrogen level, and fat deposit. It's all as precursor to egg fats, so the egg fats will be reduce [10]. Glukoronat content in Kombucha tea can conyugates excess fat in the liver enzimatically, and the coenzyme sacharolactone UDP-glukoroni transferase will bring into the path of excretion [3]. The last research that, using 25% Kombucha tea on duct, can reduce the egg fats up to 22,63% [8].

CONCLUSIONS

The results clearly demonstrated that laying quails fat dietary Kombucha tea 20% , for 3 weeks consume, showed the lowestmeat fat (8,78 gr). and egg fat has a tendency to decline compare to control. It could be concluded that Kombucha tea could be decreased the body's synthesis of lipid in general include egg fat and meat fat.

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