



Proceeding

The 2nd International Seminar Feed Safety for Healthy Food

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Proceeding

The 2nd International Seminar
“Feed Safety for Healty Food”

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“Feed Safety for Healty Food”

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The 2nd International Seminar
“Feed Safety for Healty Food”

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The 2nd International Seminar
“Feed Safety for Healty Food”

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FOREWORD

We thank the Almighty Allah, the Most Gracious and the Most Merciful that the proceedings of the 2nd International Seminar, the 8th Biannual Meeting and 3rd Congress and Workshop of AINI with the theme “Feed Safety for Healthy Food” organized by Indonesian Association of Nutrition and Feed Science, Faculty of Animal Husbandry, Universitas Padjadjaran on 6 - 7 July 2011 have been completed.

These activities were to collect variety of scientific information with the purpose to collect scientific information about feed for a healthy food, to produce a draft policy on a national feed system and to make a scientific forum for Academics, Researchers, Practitioners of animal husbandry, Health and Policy makers. Scientific papers that were presented either in oral or poster stated in the proceedings.

Thanks go to all those who have provided both moral support or material so that this seminar can be carried out and the proceeding can be issued.

Jatinangor, 6 Mei 2012

Committee

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THE EFFECT OF SUPPLEMENTATION FERMENTED KOMBUCHA TEA ON URIC ACID LEVELS IN THE DUCK BLOODS

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ABSTRACT

Kombucha is a popular health promoting beverage and natural folk remedy made by fermenting tea. The Kombucha culture looks like a white rubbery pancake. It is a symbiotic culture of yeast and other microorganisms and Uric acid is the final product or waste products resulting from metabolism / breakdown of purines

This experiment concerned the effect of supplementation fermented kombucha tea on uric acid level in duck blood. This research used an experimental method with a completely randomized design. There were five treatments (P0 = 0%, P1 = 10%, P2 = 15%, P3 = 20%, and P4 = 25%) and four replications. The results indicated that all treatments has no significancy differences in the uric acid level of duck blood . The conclusion is supplementation kombucha tea until 25% in drinking water has no effect in uric acid.

Key words :fermented kombucha tea, uric acid, duct bloods

INTRODUCTION

Kombucha is a fermented tea that is often drunk for medicinal purposes. There are scientific studies that support the health benefits of Kombucha that show it to be antimicrobial (Cetojevic-Simin et al, 2008; and Sreeramulu et al, 2000 to have hepatoprotective qualities (Murugesan et al, 2009) and to be antioxidative (Dipti et al., 2003 and Sai Ram et al., 2000) among other benefits. Kombucha is available commercially or can be made at home by fermenting tea using a visible, solid mass of yeast and bacteria. Kombucha contains multiple species of yeast and bacteria, as well as the organic acids, active enzymes, amino acids, and polyphenols produced by those microbes. Many health benefits have been reported by users of Kombucha tea, benefits are derived at due to its cleansing properties by detoxifying and aiding the liver and kidneys to flush the toxins from the body. Efforts to reduce the levels of duck can be done with giving Kombucha Tea Fermentation (TFK) in duck drinking water (Lovita, et al., 2011). Fermented kombucha tea can be consumed as a food supplement that offers the required compounds in stabilizing the body's metabolism. According to Williams (2001), yeast ferments contained in kombucha tea is *Candida albicans*, *Sacharomyces*, and *Pichia fermentans* while the bacterium *Acetobacter xylinium*, *Gluconicum bacteria*, *Acetobacter ketogenum*. The suspension is glucuronic acid,

gluconic acid, lactic acid, oxalic acid, lactic acid, butyric acid and natural antibiotics material, also produce some organic acids, vitamins and such trace element that give a benefit to the health body. The vitamin B groups in kombucha have a function for regenerating energy and metabolizing lipid and protein. Besides that it is also important for the nerve system. Vitamin C in kombucha have a potency as detoxifier agent, and it also able to support immune system, and increase the vitality (Anonymous , 2006). Glucuronic acid also present in kombucha tea, this acid is a metabolite 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 (Naland, 2008).

Kombucha tea contains most polyphenol, including flavonoids. One of the flavonoids is catechin derivatives, these compounds are antioxidants with the power 100 times higher than vitamin C and 25 times than vitamin E, which is also a powerful antioxidant. Kombucha tea has antioksidan activity as polyphenolic compounds, will get an antioxidant compound that plays a role , beside inhibit the activity of xanthine oxidase and superoxide reaction so that the levels of uric acid redused. Polyphenolic compounds also diuretic , so the uric acid will dissolve and wasted together with urine. Uric acid is a derivate of purine alkaloid compounds (xanthine). Uric acid are semisolid organic compounds consisting of carbon, oxygen, nitrogen, and hydrogen with the formula $C_5H_4N_4O_3$, which is the end of protein and purines metabolism (Rosa L., 2008)

Xanthine oxidase catalytic is an enzyme that catalyzes hipoxanthine and xanthine to uric acid, which is a purine degradation pathway in normal tissue. Xanthine oxidase is dehydrogenase in normal tissue, also a dehydrogenase that uses NAD as an electron acceptor in the purine degradation pathway. Decreased phosphorylation of ADP to ATP because there is no degradation of ADP and O_2 is converted into hipoxanthine base, then converted into xanthin xanthin oxidase dehydrogenase. So in conditions of lack of O_2 , the possibility of degradation of ADP and a lot of bases to be oxidase. xanthin xanthine oxidase oxidizes oxypurine do as xanthine and hipoxanthine into uric acid. So any defects in purine metabolism will produce uric acid deposits and will cause to happen crystal sodium hydrogen urate monohydrate.

Site active xanthine oxidase molybdopterin unit composed of atoms with molybdenum which was coordinated by terminal oxygen, sulfur atoms, and a terminal hydroxide. On the reaction of xanthine to form uric acid, oxygen atom is transferred from molybdenum to xanthine. The reform of the active molybdenum center occurs through the addition of water. Molybdenum-containing oxidoreductases, so atom enzym oxygen will get to know the original substrate xanthin oxydase derived from water(Rosa L., 2008).

The Kombucha colonies used in this investigation had a tendency to produce about 3.3% total acid, 0.7% acetic acid, 4.8% glucose, and 0.6% ethanol after a nine-day fermentation. There was no lactic acid produced by these colonies (verified with HPLC; 9). The average pH of the fermented samples tested was 2.5. The pH of the neutralized samples was 7.0. When the fermentation was allowed to continue beyond the desired end point, the acidity reached levels as high as 24 g/L (2.4%) acetic acid, with 14 g/L (1.4%) ethanol.

MATERIALS AND METHOD

The research used 20 duck, with average body weigh 1800 gram and coefficient variable 8,59%, age 1,5 years The duck kept in the cage, as much as 5 flock, and each unit consist 1 duck.

The ration consist 16% protein and metabolise energy 2900 kcal/kg

The formula rations were :

R0 Control diets

R1 Diets contain 10% of kombucha

R2 Diets contain 15% of kombucha

R3 Diets contain 20% of kombucha

R4 Diets contain 25% of kombucha

Sample preparation: Kombucha was prepared by adding 100 g/L (10%) weight/volume sucrose and tea leaves of desired 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 increased levels of 8.7 g/L, 17 g/L, 35 g/L, and 70 g/L were prepared in duplicate. The fermentation time averaged twelve days at 25° C.

RESULTS AND DISCUSSION

Table 1. Effect Treatment on Uric Acid level duck bloods

Variables	P0	P1	P2	P3	P4
Uric acid	1.775 ^a	1,725 ^a	1.825 ^a	1.875 ^a	1.700 ^a

Note: The same letter on the same line show no significant difference ($P < 0.05$)

Effect Treatment on Uric acid level Duck Blood

Based on Table 1, the percentage of uric acid levels of ducks bloods in all treatments has no signnificancy differences compare with control.

This is possible because kombucha tea content polyphenolic compounds , having activity as antioksidan. Consume foods that contain polyphenol compounds, the body will get antioxidants while considering the processing and presentation ,that has been identified as catechin derivatives is a major contributor antioksidan. Beside that these compounds can inhibit the activity of xanthine oxidase and superoxide reaction can inhibit the action of xanthin enzymes oxidase , so that the levels of uric acid decreased. . According to the study of plasma antioxidant capacity in countries other research bodies , chlorogenic acid, which is one potential antioxidant phenolic compounds ,capable of inhibiting the activity of xanthin oxidase In this research, the levels of all the treatments almost the same It had been determined in medical studies that Kombucha Tea helps to stop the formation of the uric acid into crystals of urate changing it into a watery solution which is more easily discharged from the body

Polyphenolic compounds, also are diuretics, so it will dissolve uric acid and wasted together with urine like work allopurinol in lowering uric acid levels using an inhibitory pathway enzyme xanthin oxidase. On this research, level of uric acid in all treatment is lower than normal range.

CONCLUSIONS

Providing kombucha tea fermented in all treatment in drinking water have no significancy differences on uric acid level in duck blood

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