

**PENGGUNAAN LIMBAH PENYULINGAN MINYAK ATSIRI SEREH WANGI
(*Cymbopogon nardus*) SEBAGAI LITTER UNTUK MENEKAN PENYAKIT
PARASIT DAN PENGARUHNYA TERHADAP PERFORMAN AYAM
BROILER**

INTISARI

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Penelitian ini terdiri dari tiga tahapan yakni penelitian tahap pertama bertujuan untuk mengetahui komponen dan daya serap air dari limbah penyulingan serih wangi (LPSW). Data dianalisis secara diskriptif. Hasil yang diperoleh menunjukkan bahwa limbah penyulingan serih wangi masih mengandung *geraniol* sebesar 0,51%, memiliki kadar air $11,25\% \pm 0,0007$ dan daya serap air $50,25 \pm 4,87$. Penelitian tahap kedua bertujuan untuk menguji daya hambat telur dan cacing *Ascaridia galli* terhadap limbah penyulingan serih wangi secara *in vitro*. Rancangan yang digunakan khusus untuk uji ketahanan telur dan cacing *Ascaridia galli* menggunakan Rancangan Acak Lengkap pola faktorial yang terdiri dari : faktor pertama adalah bahan, faktor kedua adalah konsentrasi dan faktor ketiga adalah waktu. Data dianalisis dengan menggunakan *Analisis of Varians* jika terjadi signifikan akan diuji lanjut dengan *Duncan's Multiple Range Tes*. Berdasarkan hasil analisis menunjukkan bahwa penggunaan bahan : ekstrak, serbuk dari limbah penyulingan serih wangi dan NaCl fisiologis 0,9% berpengaruh tidak nyata terhadap perkembangan telur cacing *Ascaridia galli*. Perlakuan limbah penyulingan serih wangi dan NaCl fisiologis 0,9% dengan konsentrasi berturut-turut sebesar 0,25, 0,50 dan 1,0% ($P < 0,05$) terhadap perkembangan telur cacing *Ascaridia galli*. Perlakuan waktu 30, 60 dan 90 menit berpengaruh tidak nyata terhadap perkembangan telur cacing *Ascaridia galli*. Berdasarkan uji *Duncan's Multiple Range Test* maka terdapat perbedaan yang nyata antara perlakuan konsentrasi 0,25% dengan konsentrasi 0,50 dan 1,0% terhadap perkembangan telur cacing *Ascaridia galli*. Terdapat perbedaan yang nyata antara konsentrasi 0,50 dan 1,0% dengan konsentrasi 0,25% terhadap perkembangan telur cacing *Ascaridia galli*. Perlakuan waktu 30, 60 dan 90 menit berpengaruh tidak nyata terhadap perkembangan telur cacing *Ascaridia galli* infeksi. Terdapat interaksi yang sangat nyata antara bahan ekstrak, serbuk dari limbah penyulingan serih wangi dan NaCl fisiologis 0,9% dengan konsentrasi berturut-turut 0,25, 0,50 dan 1,0% terhadap perkembangan telur cacing *Ascaridia galli* infeksi. Terdapat interaksi yang nyata antara bahan ekstrak, serbuk dari limbah penyulingan serih wangi dan NaCl fisiologis 0,9% dengan waktu selama 30, 60 dan 90 menit terhadap perkembangan telur cacing *Ascaridia galli* infeksi. Penggunaan bahan ekstrak, serbuk dari limbah penyulingan serih wangi dan NaCl fisiologis 0,9% ($P < 0,01$) terhadap cacing *Ascaridia galli* yang lisis. Berdasarkan uji *Duncan's Multiple Range Test* maka terdapat perbedaan tidak nyata antara penggunaan bahan ekstrak dan serbuk dari bila dibandingkan dengan NaCl fisiologis 0,9% terhadap perkembangan cacing *Ascaridia galli* yang lisis. Perlakuan konsentrasi berturut-turut 0,25, 0,50 dan 1,0% dari limbah penyulingan serih wangi dan NaCl

fisiologis 0,9% ($P < 0,05$) terhadap perkembangan cacing *Ascaridia galli* yang lisis. Uji *Duncan's Multiple Range Test* menunjukkan terdapat perbedaan tidak nyata antara penggunaan konsentrasi 0,25 dan 0,50% bila dibandingkan dengan konsentrasi 1,0% dalam menghambat perkembangan cacing *Ascaridia galli*. Perlakuan waktu 30, 60 dan 90 menit ($p < 0,01$) terhadap perkembangan cacing *Ascaridia galli* yang lisis. Berdasarkan uji *Duncan's Multiple Range Test* bahwa terdapat perbedaan yang nyata antara perlakuan waktu 90 menit dengan waktu 30 dan 60 menit dalam menghambat perkembangan cacing *Ascaridia galli*. Terdapat interaksi antara bahan ekstrak, serbuk dari limbah penyulingan serreh wangi dan NaCl fisiologis 0,9% dengan konsentrasi berturut-turut 0,25, 0,50 dan 1,0% terhadap perkembangan cacing *Ascaridia galli* yang lisis. Terdapat pula interaksi antara bahan ekstrak, serbuk dan NaCl fisiologis 0,9% dengan lama waktu 30, 60 dan 90 menit terhadap perkembangan cacing *Ascaridia galli* yang lisis. Tujuan penelitian tahap ketiga yakni mengetahui perbandingan penggunaan limbah penyulingan serreh wangi sebagai *litter* yang dapat menurunkan pertumbuhan cacing *Ascaridia galli* dan memperoleh performan ayam broiler yang optimal akibat penggunaan bahan *litter* dari limbah penyulingan serreh wangi. Rancangan yang digunakan pada penelitian tahap ketiga adalah Rancangan Acak Lengkap pola searah dengan distribusi secara acak 175 ekor dalam 5 perlakuan dan 5 ulangan, telur cacing *Ascaridia galli* infeksi diinfeksi pada ayam broiler 100 telur/ekor pada ayam umur 4 minggu. Analisis yang digunakan adalah analisis diskriptif dan *Analisis of Varians* yang dilanjutkan dengan uji *Duncan's Multiple Range Test*. Berdasarkan analisis kadar air limbah penyulingan serreh wangi setelah penelitian masing-masing level 25% limbah penyulingan serreh wangi sebesar 14,86%, level 50% limbah penyulingan serreh wangi sebesar 13,77%, level 75% limbah penyulingan serreh wangi sebesar 14,38%, level 100% limbah penyulingan serreh wangi sebesar : 13,93% dan kontrol yakni sekam padi sebesar 13,55%. Daya serap air limbah penyulingan serreh wangi setelah penelitian masing-masing level 25% limbah penyulingan serreh wangi sebesar 91,27%, level 50% limbah penyulingan serreh wangi sebesar 93,95%, level 75% limbah penyulingan serreh wangi sebesar 95,29%, level 100% limbah penyulingan serreh wangi sebesar 97,97% dan kontrol yakni sekam padi sebesar 84,25%. Penggunaan limbah penyulingan serreh wangi sebagai *litter* dan antiparasit berpengaruh tidak nyata terhadap konsumsi pakan, bobot badan akhir, feed conversion ratio, morbiditas, mortalitas, prevalensi, jumlah eritrosit, kadar hemaglobin dan jumlah hematokrit. Secara histopatologi, usus (duodenum) ayam broiler mengalami radang akibat infeksi telur cacing *A. galli* infeksi. Kesimpulan bahwa limbah penyulingan serreh wangi mengandung *geraniol*, kadar air rendah dan daya serap cukup tinggi. Limbah penyulingan serreh wangi dapat menghambat telur dan cacing *A. galli* secara in-vitro sedangkan secara in-vivo, penggunaan limbah penyulingan serreh wangi sebagai *litter* dan antiparasit tidak memberikan respon pada performan ayam broiler, profil darah.

Kata kunci: Limbah penyulingan serreh wangi, *litter*, antiparasit, telur dan cacing *A. galli*, performan, profil darah, ayam broiler

THE USE LEMONGRASS ESSENTIAL OIL DISTILLATION WASTE (*Cymbopogon nardus*) AS LITTER FOR REDUCING PARASITE DISEASES AND ITS INFLUENCE ON BROILER CHICKEN PERFORMANCE

ABSTRACT

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This study consisted of three stages. The first phase of the research was aimed to determining the components and absorption of water from fragrant lemongrass refining waste. The data was analyzed descriptively. The results obtained showed that lemongrass refining waste still contain *geraniol* of 0.51%, moisture content of $11.25 \% \pm 0.0007$, and water absorption capacity of 50.25 ± 4.87 . The second phase of the study was aimed to testing the inhibition of *ascaridia galli* eggs and worms to the in-vitro distillation waste of lemongrass. The design was used specifically to test the resistance of *Ascaridia galli* eggs and worms using a completely randomized design factorial pattern consisting of several factors: the first factor was material, the second factor was concentration and the third factor was time. The data was analyzed by using Analysis of Variance. If a significant existed, it will be further tested with Duncan's Multiple Range Test. Based on the analysis results, the use of extracts, powders from distillation waste of lemongrass and physiological NaCl 0.9% had no significant effect on the development of *Ascaridia galli* worm eggs. The treatment of distillation waste of lemongrass and fisological NaCl was 0.9% with concentrations of 0.25, 0.50 and 1.0% ($P < 0.05$), were treated of the development of *Ascaridia galli* worm eggs. The treatment of 30, 60 and 90 minutes had no significant effect on the development of the eggs. Based on Duncan's Multiple RangeT Test, there was a significant difference between the treatment concentration of 0.25%, compared to the 0.50% and 1.0% for the development of *Ascaridia galli* worm eggs. There were significant differences between concentrations of 0.50% and 1.0%, as well as 0.25% for the development of *Ascaridia galli* worm eggs. There was a very real interaction between the extract material, powder from distillation waste of lemongrass and 0.9% physiological NaCl with concentrations of 0.25, 0.50 and 1.0% respectively for the eggs development. There was a interaction between extract material, powder from distillation waste of lemongrass and 0.9%physiological NaCl with a time of 30, 60 and 90 minutes on the development of infective *Ascaridia galli* worm eggs. The extract material, powder from distillation waste of lemongrass and 0.9%physiological NaCl ($P < 0.01$) were treated to the *Ascaridia galli* worm which is lysis. Based on the Duncan's Multiple Range Test, there were no significant difference between the use of extract and powder ingredients from distillation wates of lemongrass compared to 0.9% physiological NaCl on the development of lysed *Ascaridia galli*. The concentration of the treatments were 0.25, 0.50 and 1.0% respectively from distillation waste of lemongrass and 0.9% physiological NaCl ($P < 0.05$) to the development of the *Ascaridia galli* worms which were lysed. The

Duncan's Multiple Range Test showed that there were no significant difference between the use of concentrations of 0.25 and 0.50% compared to 1.0% in inhibiting the development of *Ascaridia galli* worms. The treatment were 30, 60 and 90 minutes ($p < 0.01$) on the development of the *Ascaridia galli* worm which was lysed. Based on the Duncan's Multiple Range Test, there was a significant difference between the treatment of 90 minutes, 30 and 60 minutes in inhibiting the development of the *Ascaridia galli* worm. There were interactions between extract material, powder from distillation waste of lemongrass and physiological NaCl 0.9% with concentrations of 0.25, 0.50 and 1.0%, respectively, for the development of *Ascaridia galli* worms which were lysed. There was also an interaction between extract material, powder and 0.9% physiological NaCl with 30, 60 and 90 minutes treatments on the development of *Ascaridia galli* worms which were lysed. The purpose of the third phase of the study is to compare the use of distillation waste of lemongrass as a litter which can reduce the growth of *Ascaridia galli* worms and achieving the optimum broiler performance due to the use of litter from distillation waste of lemongrass (*C.nardus*). The design used in the third phase of the study was a one-way randomized complete design with a random distribution of 175 birds in 5 treatments and 5 replications. The infectious *Ascaridia galli* worm eggs were infected to the 4 weeks old broiler with 100 eggs/bird. The analysis used were descriptive analysis and Analysis of Variance followed by Duncan's Multiple Range Test. Based on the analysis of water content of distillation waste of lemongrass each treatment at 25% distillation waste of lemongrass was 14.86%, treatment at 50% distillation waste of lemongrass was 13.77%, treatment at 75% distillation waste of lemongrass was 14.38%, treatment at 100% distillation waste of lemongrass was 13.93% and control was rice husk treatment was 13.55%. Absorption water of distillation waste of lemongrass after each treatment at 25% distillation waste of lemongrass was 91.27%, treatment at 50% distillation waste of lemongrass was 93.95%, treatment at 75% distillation waste of lemongrass was 95.29%, treatment at 100% distillation waste of lemongrass was 97.97% and control : rice husk was 84.25%. The use distillation waste of lemongrass as litter and antiparasitic has no significant effect on feed consumption, body weight, feed conversion ratio, morbidity, mortality, prevalence, erythrocyte, haemoglobin level and hematocrite. Histopathologically, the intestine (duodenum) of broiler chickens is inflamed due to infection with infective *Ascaridia galli* worm eggs. It can be concluded that distillation waste of lemongrass was geraniol content, lower moisture content and higher water absorption capacity. Distillation waste of lemongrass can inhibit *Ascaridia galli* eggs and worms through in-vitro. Mean while, through in-vivo, the use of distillation waste of lemongrass as litter and antiparasitic does not respond to broiler performance and blood profile.

Keywords: distillation waste of lemongrass, litter, antiparasitic, egg and worm of *Ascaridia galli*, performance broiler