



EFEK EKSTRAK JAHE MERAH (*Zingiber officinale* var. *Rubrum*.) DAN KUNYIT (*Curcuma domestica*) TERHADAP

KOLIBASILOSIS PADA AYAM BERDASARKAN UJI IN VITRO DAN IN VIVO

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THE EFFECT OF RED GINGER (*Zingiber officinale* var. *Rubrum*.) AND
TURMERIC (*Curcuma domestica*) EXTRACT IN CHICKEN COLIBASILOSIS
WITH IN VITRO AND IN VIVO TEST

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ABSTRACT

Colibacillosis can cause disruption of growth and decrease in production. Antimicrobial active ingredients from herbal medicine can be an alternative to overcome this problem. Red ginger has flavonoid ingredient and turmeric has curcuminic ingredient that both can function as an antibacterial agent. The aim of this study is to determine the inhibition effect of red ginger and turmeric extract towards *Escherichia coli* with *in vitro* test and extract effect with *in vivo* test by measuring Serum Glutamic Pyruvic Transaminase (SGPT) and kreatinin and by examining the histopathology of chicken treated with extract and infected by *E. coli*. The inhibition effect of red ginger and turmeric extract with *in vitro* test towards *E. coli* growth of red ginger and turmeric extract with the concentration of 2,5%, 5%, 10 %, and 20. *In vivo* test, 100 Day Old Chick (DOC) were grouped into five groups and labeled A, B, C, D, and E: group A, B, and C were treated with extract day 1 to 37 and infected with *E. coli* doses $0,1 \times 10^8$ sel/ml day 23, group D as positive control, and group E as negative control. Group A were treated with red ginger extract with the dosage of 100mg/kg body weight. Group B were treated with turmeric extract with the dosage of 100mg/kg body weight. Group C were treated with combination of red ginger extract and turmeric extract with the dosage of 100mg/kg body weight each. From each group, blood samplings were collected day 38 for SGPT and creatinine examination and the organ tissues were taken day 40 for histopathological examination. The result shows that red ginger extract with 2,5 %, 5 %, 10 %, and 20 % can not inhibit bacterial growth while turmeric extract can inhibit bacterial growth with 10% and 20% concentration. For SGPT examination, the result shows significant difference ($p < 0,05$) between positive control and both turmeric and combination (red ginger and turmeric) extract but no significant difference between positive control and red ginger ($p > 0,05$). For creatinine examination, no significant difference between positive control and any of the herbal extracts ($p > 0,05$). Histopathological changes of heterophils infiltration were shown in the air sac and hepar of chicks treated with red ginger extract and in positive control chicks. In conclusion, *in vitro* test shows that red ginger extract concentration 20 % does not affect *E. coli* infection but turmeric extract concentration 10 % and 20 % does. *In vivo* test shows turmeric and combination extract have effect to reduce lesion of *E.coli* in macroscopic and microscopic. Red ginger extract doses 100 mg/kg BB increase SGPT level and red ginger, turmeric, and combination (red ginger and turmeric) extract does not increase creatinine level.

Keywords: colibacillosis, chicken, red ginger, turmeric, antibacterial