

EFFECT OF COMBINATION MENIRAN EXTRACT (*Phyllanthus niruri* Linn.) AND SAMBILOTO EXTRACT (*Andrographis paniculata* Nees.) TO THE GERMINAL CENTER AREA OF SPLEEN LAYING HENS INFECTED BY APEC (*Avian Pathogenic Escherichia coli*)

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ABSTRACT

The aim of this research was to know the effect of combination meniran extract (*Phyllanthus niruri* Linn.) and sambiloto extract (*Andrographis paniculata* Nees.) to the germinal center area of spleen laying hens infected by APEC (*Avian Pathogenic Escherichia coli*). This research used twenty-four of thirty-two weeks old layer hens, divided into six treatment groups, each group contain four-layer hens. Treatment groups consists of P0(-) (suspension of CMC Na 0.5% + 0.9% saline solution); P0(+) (Suspension of CMC Na 0.5% + APEC bacteria with concentration 10^8 CFU/ml); P0(Extract) (combination of meniran extract with 20% concentration and sambiloto extract with 20% concentration + 0.9% saline solution); P1, P2, and P3 (each of group given with meniran extract and sambiloto extract 30% and 10%; 20% and 20%; 10% and 30% + APEC bacteria with 10^8 CFU/ml). Observation with measurement of the germinal center area. Data analysis was done with the ANOVA test and Duncan post hoc. This research showed a significant difference (\bar{p} 0.05) between each treatment group. The conclusion of this research showed that combination meniran extract concentration of 20% and sambiloto extract concentration of 20% as a could increase the germinal center area of layer hens spleen to the highest value.

Keywords: APEC (*Avian Pathogenic Escherichia coli*), *Phyllanthus niruri* Linn., *Andrographis paniculata* Nees., germinal center, spleen.