

RESISTENSI *Escherichia coli* PATOGEN TERHADAP BERBAGAI ANTIBIOTIKA DAN PERANNYA TERHADAP SISTEM PERTAHANAN SELULER MAKROFAG

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INTISARI

Usaha peternakan puyuh termasuk salah satu jenis usaha yang banyak diminati di Indonesia. Puyuh menjadi potensial untuk dikembangkan untuk diambil daging serta telurnya. Infeksi *Escherichia coli* merupakan salah satu infeksi penyebab kolibasilosis pada unggas termasuk puyuh. Pengendalian infeksi *Escherichia coli* sulit dilakukan karena telah banyak kejadian *multiple antibiotic resistances Escherichia coli*. Penelitian ini bertujuan untuk identifikasi *Avian Pathogenic Escherichia coli*, mengetahui resistensi *E. coli* terhadap berbagai antibiotika serta untuk mengetahui kemampuan fagositosis sel makrofag terhadap isolat *E. coli* yang resisten terhadap antibiotika secara *in vitro*.

Dalam penelitian ini digunakan isolat *Escherichia coli* asal puyuh yang diidentifikasi secara fenotipik. Uji resistensi *Escherichia coli* terhadap berbagai antibiotika dilakukan melalui uji *diffusion*. Kemampuan sel makrofag dalam memfagosit *Escherichia coli* dilakukan melalui uji fagositosis menggunakan sel makrofag mencit secara *in vitro*. Aktivitas fagositosis diketahui dengan menghitung jumlah bakteri yang terfagosit oleh sel-sel makrofag.

Hasil identifikasi secara fenotipik diketahui 10 isolat positif *Avian Pathogenic Escherichia coli* (APEC) telah resisten terhadap ampisilin, penisilin, tetrasiklin, amikasin, gentamisin, eritromisin, cefoksitin, dan siprofloksasin dengan tingkat resistensi sebesar 100%, bersifat intermediet sebesar 20% terhadap doksisisiklin, serta sensitif sebesar 10% terhadap doksisisiklin dan klindamisin. Jumlah rata-rata bakteri terfagosit oleh sel makrofag adalah antara 12,05 - 16,5 bakteri/sel, mengindikasikan sifat patogen APEC.

Kata kunci : *Avian Pathogenic Escherichia coli*, *multiple antibiotic resistance*, puyuh, makrofag, fagositosis

RESISTANCE of *Escherichia coli* AGAINST ANTIBIOTICS AND ITS CELLULAR DEFENSE SYSTEM OF MACROPHAGES

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ABSTRACT

Quail farming is one of important poultry business in Indonesia, because of its potential to produce meat and eggs. *Escherichia coli* is one of the causative agent of *colibacillosis* in poultry including the quail. It is difficult to control *Escherichia coli* infection because multiple antibiotic resistance of *Escherichia coli*. This research aimed to identify *Avian Pathogenic Escherichia coli*, and its resistant to variety of antibiotics, as well as to evaluate the ability of phagocytose of macrophage cells againts *Escherichia coli* by in vitro.

Escherichia coli isolates used in this study were isolated from quails and identified phenotypically. Susceptibility assay of *Escherichia coli* againts various antibiotics has been done by the diffusion method. The ability of macrophage cells to phagocyte *Escherichia coli* has been done by in vitro. The phagocytic activities were determined by counting of bacteria in macrophage cells.

Based on the identification results could be identified 10 isolates of *Avian Pathogenic Escherichia coli*, that were resistant with ampicyillin, penicylin, tetracyclin, amikacyn, gentamicyn, erytromicyn, cefoxytin and ciprofloxacyn (100%), intermediate (20%) in doxicyclin and sensitive (10%) in doxicyclin and clindamicyn. The mean number of bacteria by macrophage cells could be counted 12,05 - 16,5 bacteria/cells, indicated the virulence of APEC.

Key word : *Avian Pathogenic Escherichia coli*, multiple antibiotic resistance quail, macrophage, phagocytosis