

禽源致病性大腸桿菌之抗藥性檢測

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摘要

禽源致病性大腸桿菌 (avian pathogenic *Escherichia coli*; APEC) 感染引發孵化率降低、弱雛、氣囊炎、腫頭症候群與敗血症等問題，導致產蛋及產肉量降低，在世界各國的家禽產業皆造成重大經濟損失。使用抗生物質於細菌性疾病的防治，造成高抗藥性盛行率及多重抗藥性菌株出現，也是獸醫及公共衛生的重要議題。本次試驗自不同禽種（雞、鴨及鵝）之大腸桿菌症相關病例中分離得 55 株大腸桿菌，以紙錠瓊脂擴散法進行試驗，對於下列抗生物質具有抗藥性：amoxicillin 89% (49/55)、ampicillin 98% (54/55)、cephalothin 69% (38/55)、ceftiofur 24% (13/55)、colistin 98% (54/55)、florfenicol 80% (44/55)、flumequine 76% (42/55)、ofloxacin 38% (21/55)、streptomycin 80% (44/55)、neomycin 29% (16/55)、kanamycin 55% (30/55)、gentamicin 64% (35/55)、tetracycline 100% (55/55)、oxytetracycline 100% (55/55)、doxycycline 73% (40/55)、sulfa / trimethoprim 89% (49/55) 及 sulfonamides 89% (49/55)。Penicillin 類抗生物質如 ampicillin (AMP)、amoxicillin (AMO) 以及第一代頭孢子素 cephalothin (KF) 對於 87% (48/55) 的菌株無效，且其中 20 株大腸桿菌甚至對第三代頭孢子素 ceftiofur (EFT) 也產生抗藥性，因此針對 extended-spectrum β -lactamases (ESBLs) 常見的基因 *bla*_{TEM}、*bla*_{SHV} 及 *bla*_{CMY} 進行檢測。在抗藥性圖譜的類型為 AMP-AMO-KF-EFT 的菌株 20 株中，75% (15/20) 帶有 *bla*_{TEM} 及 *bla*_{CMY} 基因；AMP-AMO-KF 的菌株 28 株中，61% (17/28) 帶有 *bla*_{TEM} 基因，菌株帶有 *bla* 基因的種類與數量可能會影響其抗藥性。

Antimicrobial Resistance in Avian Pathogenic *Escherichia coli*

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Abstract

Avian pathogenic *Escherichia coli* (APEC), the causal organism of infection in chickens, is responsible for large economic losses in the poultry industry worldwide. This would imply any localized or systemic infection caused entirely or partly by *E. coli*, including coligranuloma, air sac disease in chickens, turkeys, ducks and other avian species. Antimicrobial resistance strains have emerged as a problem in both veterinary medicine and public health. This study isolated 55 strains of APEC from colibacillosis cases in different avian species (chicken, duck and goose). All strains were tested for their susceptibility to the antimicrobial agents by agar diffusion method and the results were as follows: amoxicillin 89% (49/55), ampicillin 98% (54/55), cephalothin 69% (38/55), ceftiofur 24% (13/55), colistin 98% (54/55), florfenicol 80% (44/55), flumequine 76% (42/55), ofloxacin 38% (21/55), streptomycin 80% (44/55), neomycin 29% (16/55), kanamycin 55% (30/55), gentamicin 64% (35/55), tetracycline 100% (55/55), oxytetracycline 100% (55/55), doxycycline 73% (40/55), sulfa / trimethoprim 89% (49/55) and sulfonamides 89% (49/55). Ampicillin (AMP), amoxicillin (AMO) and 1st-generation cephalosporin cephalothin (KF) were ineffective for 87% (48/55) of all, additionally, 20 strains of them were resistant to 3rd-generation cephalosporin ceftiofur (EFT). The extended-spectrum β -lactamases (ESBLs) genes *bla*_{TEM}, *bla*_{SHV} and *bla*_{CMY} were detected by PCR. In the resistance patterns, 75% (15/20) of the type AMP-AMO-KF-EFT strains carried both *bla*_{TEM} and *bla*_{CMY} genes; 61% (17/28) of the type AMP-AMO-KF strains carried *bla*_{TEM} gene only. The kind and quantity of *bla* genes might affect its resistance patterns in bacteria.