生病豬隻分離之產廣效性乙內醯胺酶大腸桿菌之抗藥性分析

生物研究組

官南綾　助理研究員

摘要

廣效性乙內醯胺酶(extended-spectrum β-lactamases; ESBLs) 是由一些腸內菌科細菌產生，可破壞cephalosporins、penicillin及aztreonam類抗菌劑之活性。自2000年起，世界各地都有產ESBL腸內菌科細菌感染的人類病例，而在經濟動物、食物生產鏈及伴侶動物也檢測得到產ESBL之大腸桿菌（ESBL producing *Escherichia coli*, ESBL-EC）。本計畫自2013年至2019年間，從生病豬隻分離得*E.coli* 239株，其中9.2% (22/239)確認為ESBL-EC。檢測22株ESBL-EC所帶之*bla*基因，最多數為$bla_{\text{CTX-M}}$ 90.9% (20/22)，其次為bla_{TEM}基因31.8% (7/22)，及bla_{SHV}基因為9.1% (2/22)，部分菌株帶有兩種*bla*基因。其中最常見的型別為$bla_{\text{CTX-M-55}}$，為36.4% (8/22)，$bla_{\text{CTX-M-14}}$ 及$bla_{\text{TEM-234}}$則為次要的型別，各佔27.3% (6/22)。所有的ESBL-EC皆對tetracyclin產生抗藥性，95.5% (21/22) 對於ceftiofur及SXT具抗藥性，其次對於gentamycin、enrofloxacin及amoxicillin之抗藥性別為81.8% (18/22)、54.5% (12/22)及31.8% (7/22)；而本研究之所有菌株對於imipenem皆具感受性。

Prevalence and Characteristics of Extended-spectrum *β*-lactamase-producing *Escherichia coli* in Diseased Pigs

Nan-Ling Kuan

Abstract

Extended-spectrum β-lactamases (ESBLs) are a rapidly evolving group of *β*-lactamases that share the ability to hydrolyze third-generation cephalosporins, penicillins, and aztreonam. Since 2000, the incidence of ESBL-producing *Enterobacteriaceae* infections increased globally in human cases. In parallel, ESBL-producing *Escherichia coli* (ESBL-EC) has increasingly been reported in livestock, the food chain and companion animals. In this study, 239 isolates of *E. coli* from diseased pigs samples were included from 2013 to 2019. Twenty-two ESBL-EC out of 239 isolates were confirmed by phenotyping and genotyping, which were mainly presented as *bla* genes, such as $bla_{\text{CTX-M}}$ (90.9%), bla_{TEM} (31.8%) and bla_{SHV} (9.1%). The amount in which, the dominant *bla* genes variant were $bla_{\text{CTX-M-55}}$ (36.4%), followed by $bla_{\text{CTX-M-14}}$ and $bla_{\text{TEM-234}}$ (27.3%). All the ESBL-EC were resistant to tetracycline, mostly resistant to ceftiofur and SXT (95.5%), followed by gentamycin (81.8%), enrofloxacin (54.5%) and amoxicillin (31.8%). All isolates remain the sensitivity to imipenem.