

題名:Comparison between O serotyping method and multiplex real-time PCR to identify diarrheagenic Escherichia coli in Taiwan

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摘要:To compare the diarrheagenic Escherichia coli (DEC) identifications obtained between traditional O serotyping and modern virulence gene detection assays, we developed a multiplex real-time PCR assay by detecting six specific virulence genes for enteropathogenic E. coli (EPEC), enterohemorrhagic E. coli (EHEC), enterotoxigenic E. coli (ETEC), and enteroinvasive E. coli (EIEC). Among 261 clinical diarrheal stool samples, a total of 137 suspected DEC (sDEC) isolates were identified by the use of commercially available antisera. The most prevalent serogroups were O1 (12/137; 8.7%), O25 (9/137; 6.5%), and O44 (9/137; 6.5%). The specific virulence genes for the 137 sDEC isolates were analyzed by the multiplex real-time PCR assay. Fifteen (10.9%) of 137 isolates were confirmed to be true DEC strains, indicating that the serotypic markers did not correlate with the specific virulence genes. ETEC (66.7%) was the most prevalent, followed by EIEC (20%) and EPEC (13.3%). No EHEC strains were identified in the specimens. Four novel serotypes were found in the study: two in EPEC strains (O111:H9 and O63:H6) and two in EIEC strains (O63:H9 and O169:H9). In conclusion, the real-time PCR assay considerably reduces the high false-positive rate from the use of serotyping alone, and thus, it is suggested that serogrouping-based methods are inadequate for the identification of DEC isolates, although they are useful for the identification of a limited number of serogroups. In addition, ETEC, EPEC, and EIEC strains

were present in 5.7% (15/261) of the diarrheal patients in northern Taiwan in 2006.