IMMUNO-MAGNETIC ISOLATION, CHARACTERIZATION AND GENETIC RELATIONSHIP OF ESCHERICHIA COLI O26 FROM RAW MEATS, HAT YAI CITY, SONGKHLA, THAILAND

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Abstract. Escherichia coli O26 is the most important serotype in non-O157 group, which plays a significant role in gastrointestinal illnesses. However, information regarding the prevalence and its characteristics are lacking in Thailand. As raw meat is frequently a source of diarrheagenic E. coli, a total of 1,279 E. coli colonies were obtained from 157 raw meat samples obtained from retail markets in Hat Yai City, Songkhla Province, Thailand and E. coli O26 isolated using an immunomagnetic separation technique. Twenty-seven E. coli O26 strains were isolated from 18 samples of raw beef, chicken and pork meats. These E. coli O26 strains could not be classified into the six diarrheagenic E. coli categories and did not harbor virulence genes, except 5 strains carrying escV, encoding type III secretion system component. Phylogenetic group examination demonstrated that 26 strains belonged to phylogenetic group A, and one to group D. Antimicrobial susceptibility test revealed that the E. coli O26 strains were the multi-drug resistant strains. Genetic relatedness employing (GTG)\textsuperscript{5}-PCR and ERIC2-PCR showed that some of O26 which isolated from different samples and different time intervals revealed the identical fingerprint pattern, suggesting that they were derived from the same clone. Examination of five stx\textsubscript{2}-containing phage integration sites showed that 6 strains had prophage occupancy at sbcB, suggesting that these isolates have the potential in horizontal gene transfer of virulence trait. Moreover, the intactness of yecE and wrbA, the important integration sites in E. coli O26, indicated the possibility of stx\textsubscript{2}-phage lysogenization in the future.

Keywords: Escherichia coli O26, diarrhea, phylogenetic group, raw meat, (GTG)\textsuperscript{5}-PCR, ERIC2-PCR, Thailand