

ANALYSIS OF *GYRA* MUTATIONS RELATED TO QUINOLONE RESISTANCE IN *ESCHERICHIA COLI* ISOLATES ORIGINATING FROM PET, HUMAN, VEGETABLE AND ICE IN BANGKOK AND VICINITY

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Abstract. *Escherichia coli* was used to investigate quinolone resistance and mutations in *gyrA* gene of *E. coli* isolated from pet (dog and cat), human (pet's owner), vegetable and edible ice in Bangkok and vicinity. Susceptibility test for nalidixic acid (NA) showed similar percent resistance among the sample sources but a lower ciprofloxacin (CIP) resistance was found particularly in human source. Mutations within quinolone resistance determining region of *gyrA* gene analyzed using non-radioactive single-strand conformation polymorphism (SSCP) and sequencing showed 10 different SSCP patterns. *E. coli* isolates from pet, vegetable and ice showed more variety of patterns than strains isolated from human. Four out of 10 SSCP patterns were identified as having mutations in amino acids positions 83 (Ser to Leu) and position 87 (Asp to Asn). These mutations were observed only in NA-resistant strains and combined mutations were observed only in *E. coli* isolated from humans and pets. As only 24% of NA- and CIP-resistant *E. coli* isolates contained *gyrA* mutations, other quinolone resistant mechanisms may be involved. Nevertheless, *gyrA* mutations may be used to monitor nalidixic acid resistance in *E. coli*.

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